



UNIVERSITY OF
CALGARY

Maternal-Fetal Medicine Residency Handbook

Section of Maternal-Fetal Medicine
Department of Obstetrics & Gynecology

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University of Calgary Maternal-Fetal Medicine (MFM) Residency Program

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Websites / Electronic Resources:

University of Calgary Postgraduate Medical Education: <http://cumming.ucalgary.ca/pgme/>
Department of Obstetrics & Gynecology public webpage: <https://cumming.ucalgary.ca/departments/obstetrics-gynaecology/obstetrics-gynaecology>
Department of Obstetrics & Gynecology AHS internal webpage: <https://www.albertahealthservices.ca/info/page14363.aspx>
Section of MFM “G” Drive (accessed once logged on AHS computers): under “MFM PGY6/7 Residency”
Royal College of Physicians and Surgeons: www.royalcollege.ca
Provincial Association of Residents of Alberta (PARA): <http://www.para-ab.ca>

Welcome and Introduction

Welcome to the postgraduate residency program in Maternal-Fetal Medicine (MFM) at the University of Calgary!

The MFM residency is a dynamic two-year program (PGY-6 and -7) with a goal of developing specialists equipped with skills to become future leaders in Maternal-Fetal Medicine. The program is supported by a diverse range of highly qualified faculty and provides excellent training in clinical and academic Maternal-Fetal Medicine in one of the busiest obstetrical centers in Canada. During this two-year program, the resident will:

- Develop proficiency in tertiary maternal and fetal medicine, including maternal medicine, fetal medicine, fetal imaging and procedures, and in high-risk obstetrics.
- Learn to function as an independent MFM consultant (under both direct and indirect supervision of MFM faculty). The resident will manage complex pregnancies, from pre-conception to the postpartum period, as part of a multidisciplinary team, with defined graduated responsibility.
- Undertake clinical experiences to gain exposure and appreciation of the principles of obstetric internal medicine, reproductive genetics, pathology, neonatology, obstetric anaesthesia, and paediatric and imaging subspecialties relevant to MFM.
- Lead a scholarly project in (or related to) Maternal-Fetal Medicine, which could be basic/clinical research, educational, or QA/QI/Patient Safety in nature.
- Undertake elective options to further explore areas of interest in Maternal-Fetal Medicine, either locally or at an approved site, in either Canada or abroad.

The MFM residency is fully accredited by the Royal College of Physicians and Surgeons of Canada and uses the CanMEDS competency framework for teaching and assessment. While MFM belongs to a late cohort for transition to Competence By Design (CBD), this program has integrated elements of CBD and intends to be an early adopter of CBD principles. We have already established our Competence Committee and have adapted our assessment strategy to include frequent low-stakes direct assessments.

We believe that the MFM residency program in Calgary offers several advantages in MFM Training:

1) Individualized program. Presently, there are only 1-2 funded residents per year, which offers the advantages of individual attention, close working relationships with faculty, and responsiveness to concerns, both individual and program-related. This flexibility, combined with well-defined goals and objectives with graduated responsibility, enables the resident to take an active role in their training, explore

areas of interest in depth, and easily identify and address deficiencies. We also place emphasis on resident education and well-being over clinical service, and thus are able to support our residents to meet their individual goals and objectives. Pending individual residency and career goals, we offer flexibility as to required protected time for scholarly activity of between 3 to 6 blocks, in keeping with updated RCPSC Specialty Training Requirements.

2) Experienced faculty. The MFM Residency Program is supported by an experienced and growing MFM Section consisting of highly qualified faculty with a wide range of expertise. Six of the MFM Section members have more than 20 years of experience, and thus a comprehensive understanding of the specialty, practical experience in meeting the needs of trainees, and extensive contacts in the field, across Canada and internationally.

3) Large referral center. There were 56,329 births in Alberta in 2017/2018 (<https://www.alberta.ca/population-statistics.aspx>), ranking third-highest volume in Canada (after Ontario and Quebec), with over half of these occurring in our MFM referral catchment area (Southern Alberta). The birth rate in Calgary area alone is 18,984 births per year (2015-2016 data), and Calgary has the youngest population of major cities in Canada, with 70% of the population between the ages of 15-64. Our region has significantly more complicated pregnancies than national and provincial averages, with higher rates of late maternal age, multiple births, low birth weight, and prematurity. As a result, there is a large volume of referrals to the Calgary MFM Service, as well as a high concentration of patients with complex maternal and fetal problems. The state-of-the-art outpatient Calgary Maternal Fetal Medicine Centre has one of the highest volumes of MFM ultrasound and consultation in Canada.

4) Obstetric Internal Medicine. The Calgary Obstetric Internal Medicine program has expanded considerably to include 7 internists with specialty training in Obstetric Internal Medicine. Obstetric Internal Medicine offers a daily inpatient consulting service and has expanded outpatient clinics throughout Calgary, including a pre-conceptional counselling clinic directly collaborating with MFM. The MFM group works very closely with the OB-IM physicians and provides collaborative care for complex patients. The OB-IM group considers the training of the MFM residents a priority and has undoubtedly strengthened our residency program.

5) Academic excellence. The program strives to meet the goals, objectives and specialty-training requirements as outlined by the Royal College of Physicians and Surgeons of Canada. The depth of faculty both within MFM and the affiliated disciplines provides excellent training in both clinical and academic MFM. As of 2012, a clinical ARP has facilitated development of a more academic and patient-focused model of care that is of significant benefit to the education of residents. All members of the Section of MFM make significant contributions to clinical care, as well as to education and/or research.

6) Scholarly opportunities. The division of MFM is committed to supporting research and scholarly activities. When the MFM outpatient clinic was established in 2002, a priority was to install a state of the art MFM clinical management/research database to enable clinical audit and research within the division (Astraia). This database is linked to the Alberta Perinatal Outcome program, allowing for linkage of antenatal and postnatal data, which provides extensive opportunities for clinical research. The First Trimester Screening program, established in 2006, has national and international collaborators and budget for epidemiologic and bio statistical support to facilitate research. The section also is supported by the Director of Research for the department (Dr. Stephen Wood) and primary researchers Drs. Amy Metcalfe and Katie Chaput who provide guidance for residents undertaking research projects. In addition to clinical research, there is the opportunity for professional development and scholarly projects in medical education, quality assurance and patient safety, and leadership / administration.

Our program encourages innovation and development of novel educational strategies and welcomes the suggestions and input of any trainees or faculty.

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Maternal-Fetal Medicine Residency Program Director

University of Calgary Section of Maternal-Fetal Medicine

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The section of Maternal-Fetal Medicine works closely with members of the Department of Obstetrics and Gynecology at the University of Calgary. In addition, we support strong clinical, education and research links with colleagues in other Departments, including Diagnostic Imaging, Obstetric Internal Medicine, other medical sub-specialties, Neonatology, Paediatric Surgery, Paediatric Cardiology, Prenatal Genetics, and Perinatal Pathology.

Please see Appendix A for information about our MFM Residency Program Committee (including terms of reference and committee composition).

Overall Goals and Objectives

On completion of the 2-year Maternal-Fetal Medicine (MFM) residency program, the resident is expected to:

- Become a competent MFM specialist capable of assuming a consultant's role in the specialty.
- Have acquired a working knowledge of the theoretical basis of MFM, including its foundations in the basic medical sciences and research.
- Demonstrate a strong commitment to practicing patient-centered care in MFM to the highest standards academically, ethically, and morally.
- Demonstrate evidence-based practices for screening, diagnosis, management, and prevention.
- Function effectively in specialist in academic, tertiary, and / or community settings.
- Demonstrate a commitment to life-long learning in the pursuit of delivering the highest standard of care throughout one's career.
- Have participated in teaching, research, and knowledge dissemination.
- Demonstrate the knowledge, skills and attitudes relating to gender, culture and ethnicity pertinent to MFM. In addition, all residents must demonstrate an ability to incorporate gender, cultural and ethnic perspectives in research methodology, data presentation and analysis.
- Demonstrate competency in each of the CanMEDS domains, as outlined in the Objectives of Training in Maternal Fetal Medicine of the Royal College of Physicians and Surgeons of Canada (RCPSC). The expected roles of the roles of Medical Expert, Communicator, Collaborator, Manager, Health Advocate, Scholar, and Professional will be evaluated and integrated with the objectives of the residency program.
- Be eligible for and successful at the RCPSC certification by examination in Maternal-Fetal Medicine.

For more information about the Royal College of Physicians and Surgeons of Canada and Maternal Fetal Medicine, please see:

<https://www.royalcollege.ca/rcsite/ibd-search-e?N=10000033+10000034+4294967040&label=Maternal-Fetal%20Medicine>

Including sections on:

- Objectives of Training
- Specialty Training Requirements
- Examination Format

Structure & Curriculum of MFM Residency Program

The MFM Residency is a 2-year program, including the following clinical experiences. While MFM is late in the Royal College transition to Competence By Design (CBD), our program is already adopting the principles of CBD, and is structured to encourage stage-appropriate focussed acquisitions of knowledge and skills, as well as incorporating graduated responsibility.

BLOCK	YEAR 1	YEAR 2
1	MFM: Introduction to Ultrasound	MFM: Core - Outpatients 2
2	MFM: Introduction to Ultrasound / Inpatients	MFM: Core - Outpatients 2
3	MFM: Introduction to Inpatients	MFM: Core - Outpatients 2
4	MFM: Introduction to Outpatients	MFM: Core - Fetal Cardiology and Advanced Fetal Imaging
5	Scholarly Activity (research course optional)	MFM: Core - Fetal Cardiology and Advanced Fetal Imaging
6	MFM: Core - Outpatients 1	Elective
7	MFM: Core - Outpatients 1	Elective
8	MFM: Core - Outpatients 1	Scholarly Activity (research)
9	Prenatal Genetics (with Perinatal Pathology)	MFM: Transition to Practice Inpatients

10	Obstetric Internal Medicine	MFM: Transition to Practice Outpatients
11	Neonatal Antenatal Consults (with Perinatal Follow-up Clinic and Pediatric Sub-Specialty Consults)	MFM: Transition to Practice Outpatients
12	MFM: Core - Inpatients (with Ob Anesthesia consults, and Pediatric Sub-Specialty Consults)	MFM: Transition to Practice Outpatients
13	Scholarly Activity (research)	MFM: Transition to Practice Outpatients

KEY:

Transition to Discipline / Foundations of Discipline (pink)

Core of Discipline (blue)

Transition to Practice (purple)

1) Transition to Discipline / Foundations of Discipline Clinical Experiences

MFM: Introduction to Ultrasound (6 weeks)

- Residents work with MFM sonographer educators to develop their hands-on ultrasound skills, focusing on fetal anatomical survey, fetal assessment, and first trimester ultrasound.
- Located at the MFM Centre (EFW Radiology – Cambrian).

MFM: Introduction to Inpatients (6 weeks).

- Residents orient to our FMC inpatient MFM service, including hands-on ultrasound skills (focusing on fetal assessment, Dopplers, EV cervix, and placenta), MFM consultation and reporting, antepartum patient care, and L&D.
- Located at the Foothills Medical Centre MFM Unit.

MFM: Introduction to Outpatients (4 weeks).

- Residents orient to the outpatient MFM facility (Calgary MFM Centre), focusing on counselling and reporting of common MFM presentations (including first trimester screen, anatomical survey, soft markers, fetal assessment, hypertension, preterm labour, and disorders of amniotic fluid and fetal growth).
- Located at the MFM Centre (EFW Radiology – Cambrian).

Scholarly Activity (research) (4 weeks).

- During this block, residents may opt to attend the Research Course offered for residents through the University of Calgary (opt-in). This protected block permits residents to begin work on their planned scholarly activity. By the end of the block, residents are to have prepared their proposal, timeline of activity / research time, planned dissemination strategy, ethics application, and (if needed) grant application.

2) Core of Discipline Clinical Experiences

MFM: Core - Outpatients 1 & 2 (24 weeks).

- Residents are based in the outpatient MFM clinic and focus on diagnosis and management of fetal anomalies and other complex maternal and obstetric complications. Residents participate in MFM antenatal clinic 1-1.5 days per week, as well as in preconception counselling, and begin having leadership of “Fetal Diagnosis and Therapy Rounds.”
- Located at the MFM Centre (EFW Radiology – Cambrian) and Foothills Medical Centre North Tower MFM Clinic.

Prenatal Genetics (with Perinatal Pathology) (4 weeks).

- This is an off-service rotation working directly with the Prenatal Genetics service and includes some Perinatal Pathology experience (fetal autopsy).
- Located at the Prenatal Genetics Clinic (co-located with the MFM Centre, EFW Radiology – Cambrian).

Obstetric Internal Medicine (4 weeks).

- This is an off-service rotation working with the Obstetric Internal Medicine service including inpatient and outpatient consultations, continuing care, and pre-conceptual counselling.
- Located at Foothills Medical Centre and Richmond Road Diagnostic Treatment Centre.

Neonatal Antenatal Consults (with Perinatal Follow-up Clinic and Pediatric Sub-Specialty Consults) (4 weeks).

- This is an off-service rotation including inpatient and outpatient antenatal Neonatology consultations, some observational experience in the Perinatal Follow-up Clinic, as well as observational experience with Pediatric Sub-Specialty consultations (antenatal and neonatal).
- Located at Foothills Medical Centre and the MFM Centre (EFW Radiology – Cambrian).

MFM: Core - Inpatients (includes Obstetric Anesthesia and Pediatric Sub-Specialty Consults) (4 weeks).

- This clinical experience is based at FMC inpatient MFM consults, imaging, and complex antepartum patient care.
- Residents participate in Obstetric Anesthesia consultations (1-2 half-days)
- Often continue to have observational experience with Pediatric Sub-Specialty consultations (antenatal and neonatal) and other in-hospital imaging (including fetal and placental MRI and neonatal head ultrasound).
- Located at the MFM Centre Foothills Medical Centre MFM unit, Unit 51 Triage, and Alberta Children’s Hospital.

MFM: Core - Fetal Cardiology and Advanced Fetal Imaging (8 weeks).

- Residents work directly with Diagnostic Imaging and Pediatric Cardiology consultants caring for fetuses with cardiac abnormalities (including antenatal consult and pediatric clinical follow-up).
- Residents also work with sonographer educators learning hands-on fetal echocardiography skills.
- Residents will also gain hands-on and reporting experience with 3D ultrasound (fetal anatomy and placenta), and ultrasound experience with pregnancy <11 weeks and reproductive-age uterine and adnexal pathology.
- Located at the MFM Centre (EFW Radiology – Cambrian), Advanced Medical Imaging (EFW Radiology – Cambrian), and Alberta Children’s Hospital.

Scholarly Activity (research) (4 weeks).

- Residents continue their scholarly activity project with protected time.

Electives (8 weeks).

- Residents may pursue areas of their interest with electives in MFM or related fields. Electives may be local, in Canada, or be international. Electives may be within MFM, a dedicated off-service clinical experience, or be individualized for a customized experience. Experiences can potentially be arranged per block, per week, or longitudinally.
- Options for electives include (list not exhaustive):

Description of Elective	Duration	Sites in which the elective may be taken
University of Calgary Level II Maternal Fetal Medicine All other mandatory rotations Other local clinical experiences	4 weeks 4-8 weeks 4-8 weeks	SHC, PLC FMC, Calgary MFM Centre, ACH ICU, medical sub-specialties, D&E
University of Alberta Fetal Cardiology	4 weeks	Royal Alexandra Hospital
University of Toronto Maternal Medicine Fetal Medicine	4 weeks 4 weeks	Mount Sinai Hospital, Sunnybrook HSC Mount Sinai Hospital, Sunnybrook HSC
University of British Columbia Maternal Fetal Medicine Fetal Neuroimaging Prenatal Genetics Level II/III MFM	4 weeks 4 weeks 4 weeks 4 weeks	BC Women's Hospital BC Women's Hospital BC Women's Hospital Surrey Memorial Hospital

3) Transition to Practice Clinical Experiences

MFM: Transition to Practice Inpatients (4 weeks).

- Residents are based at FMC MFM for consultations and imaging, as well as complex antepartum patient care management. Residents lead their longitudinal "Fellow Clinic" of MFM antenatal patients. Residents have increased independence, functioning under indirect supervision as junior staff.
- Located at Foothills Medical Centre MFM unit.

MFM: Transition to Practice Outpatients (16 weeks).

- Residents are based in the outpatient MFM clinic and focus on diagnosis and management of fetal anomalies and other complex maternal and obstetric complications. Residents also gain experience at our higher volume peripheral outpatient clinics. Residents

lead their longitudinal “Fellow Clinic” of MFM antenatal patients. Residents have increased independence, functioning under indirect supervision as junior staff.

- Located at the MFM Centre (EFW Radiology – Cambrian) and FMC North MFM Clinic.

Research / Scholarly Activity (4 weeks).

- Residents complete their scholarly activity project with protected time.

Scholarly Activity (Research) Experience

Scholarly activity is a priority in our program, and our residents have a history of success in research. From the RCPSC MFM Specialty Training Requirements, our usual goal is for residents to have “completion of a scholarly research, quality assurance, or educational project relevant to Maternal-Fetal Medicine.”

Given the short duration of the residency, residents are encouraged to consider scholarly projects and be in contact with prospective supervisors if not prior to commencement of the program, then shortly after starting the program. We encourage residents to focus on an area of interest, usually in basic / clinical research, medical education, quality assurance and patient safety, or leadership / administration. In Calgary, there are opportunities for further education in each of these fields, which would complement resident development and projects.

Protected Time

Protected time for scholarly activity is offered both by block and longitudinally, with opportunity for personalization to individual needs and project timeline. This approach allows for research time to be available when needed for the individual project and allows the resident and their supervisor to direct the planning of their research time. Residents have the option (“opt-in”) to participate in the Research Course (over 4 weeks in Block 5 annually) and could utilize this course to develop their project. This 4-week course through the Cummings School of Medicine teaches the fundamentals of developing and conducting a research study. This course consists of a combination of didactic lectures and small group workshops and is available to the MFM resident. Residents participate in the course (and are protected from any daytime clinical commitments in this block), and by the completion, are expected to have prepared a research proposal and a submission to ethics for their project.

Regardless of Research Course participation, all residents will have a protected block for scholarly activity / research as part of the “Introduction” phase, and by the end of this block it is expected that residents can (with mentoring from their supervisor) present a proposal for their scholarly activity during residency, including plans for learning, funding, ethics, planned dissemination, timeline (for protected time and expected progress), and definition of project completion. We strongly recommend that residents plan to submit a paper for publication by the end of residency but can support other definitions of completion as proposed by the resident and their supervisor (and as approved by the RPC).

In addition to protected block early in residency, protected research blocks are usually planned as part of “Core” and “Transition to Practice.” Additionally, up to 12 longitudinal research weeks may be taken from selected MFM-based rotations during residency. Further personalization is possible (such as, weekly protected time for completing a course). Thus over 2 years, there could be up to 24 fully protected weeks for research. Depending on individual research plans and career goals, we offer personalization for duration of protected time for scholarly activity (up to 3 additional blocks). The need for protected blocks vs. weeks vs. days, and well as timing / duration of blocks, can and should be individualized with the research supervisor and program director. We expect residents and their supervisors to take an active role in determining and advocating for the protected time needed to successfully complete the project(s) prior to the end of the residency program.

To support our residents in scholarly success, we offer:

- Academic half-day sessions, both PGME-lead and MFM-specific.
- Optional participation in the Cummings School of Medicine “Research Course.”
- Three to six blocks (12 to 24 weeks) of protected time for scholarly activity during residency (protected blocks and / or weeks nested within MFM clinical experiences).
- Specialized streaming for developing a focus and experience in basic / clinical research, medical education, QA/QI/ patient safety, or leadership and administration.

Focus:	BASIC TRAINING (all residents)	SPECIALIZED TRAINING (options for streaming)	DISSEMINATION
Basic or Clinical Research (lead: Dr. Metcalfe)	<ul style="list-style-type: none"> • Research Course (optional) • PGME Seminars • MFM AHD sessions 	<ul style="list-style-type: none"> • CIP Seminars • Graduate Courses • M.Sc. (through CIP) 	<ul style="list-style-type: none"> • O&G Research Day • Manuscript Submission (1st author) • Optional / encouraged: <ul style="list-style-type: none"> ○ National / international meetings (i.e. SOGC, SMFM, ISUOG, ISPD, other) • Other individualized goal accepted by RPC

Medical Education (lead: Dr. Roggensack)	<ul style="list-style-type: none"> PGME Residents as Teachers MFM AHD Instructional Skills Workshop (Taylor) 	<ul style="list-style-type: none"> CSM Teaching Excellence in Medical Education Program (TEMEP) Taylor Centre Courses Graduate Courses M.Sc. (CIP) WISE OHMES 	<ul style="list-style-type: none"> O&G Research Day x 2 Manuscript Submission (1st author) Optional / encouraged: <ul style="list-style-type: none"> National / international meetings (i.e. SOGC, APOG, ICRE, CCME) OHMES Health and Medical Education Symposium Other individualized goal accepted by RPC
QA / QI / Patient Safety (leads: Dr. Cooper and Dr. O'Quinn)	<ul style="list-style-type: none"> PGME QA Seminar Neonatal Perinatal Medicine QA/QI AHD MFM AHD Calgary Perinatal Mortality Committee Attend one AHS PPQA Committee meeting 	<ul style="list-style-type: none"> AHS Courses U of C Courses QUEST Committee membership AHS PPQA Committee membership 	<ul style="list-style-type: none"> O&G Research Day Manuscript Submission (1st author) Required QA/QI certificate Other individualized goal accepted by RPC Optional / encouraged: <ul style="list-style-type: none"> Communication to department (action from results) National / international meetings (i.e. SOGC, SMFM, ISUOG, ISPD, other local or provincial meeting(s)) W21C Research Day
Leadership and Administration (lead: Dr. Roggensack)	<ul style="list-style-type: none"> PGME Seminars MFM AHD sessions CMA / Joule PLC Introduction Courses 	<ul style="list-style-type: none"> Joule PLI (or other) Courses PGME Leadership Grant 	<ul style="list-style-type: none"> O&G Research Day Manuscript Submission (1st author) Completion of PLI (or other) course(s) Optional / encouraged: <ul style="list-style-type: none"> National / international meetings (i.e. SOGC, SMFM, ISUOG, other) Other individualized goal accepted by RPC

a) Basic / Clinical “Stream” Resources:

Graduate courses are available through Open Studies / Community Health Sciences <https://cumming.ucalgary.ca/departments/community-health-sciences/education/our-programs/graduate-degrees-community-health-sciences>

- Epidemiology
- Health Economics
- Health Services Research
- Population / Public Health

b) Education “Stream” Resources:

- University of Calgary CSM Teaching Excellence Program <https://www.ucalgary.ca/ofd/temep>
 - University of Calgary CSM Office of Health & Medical Education Scholarship <https://cumming.ucalgary.ca/office/ohmes>
 - Medical Education graduate courses are available through Open Studies / Community Health Sciences. <https://cumming.ucalgary.ca/departments/community-health-sciences/education/our-programs/graduate-degrees-community-health-sciences>
- University of Calgary Taylor Institute for Teaching and Learning <http://www.ucalgary.ca/taylorinstitute/>

c) QA / QI / Patient Safety “Stream” Resources:

Course	Description	Operated by
Introductory Investigating and Managing Patient Safety Events (I)	<p>https://www.hqca.ca https://www.w21c.org/education/</p> <ul style="list-style-type: none"> • Obtain the investigative skills required to complete patient safety reviews • Focus on the practical application of the SSA:PSR methodology 	<ul style="list-style-type: none"> • U of C Medicine • W21C • Health Quality Council Alberta
Advanced Investigating and Managing Patient Safety Events (II)	<p>https://www.hqca.ca https://www.w21c.org/education/</p> <ul style="list-style-type: none"> • Gain further exposure on the use of SSA:PSR methodology • Learn about the other aspects of managing a patient safety event 	<ul style="list-style-type: none"> • U of C Medicine • W21C • Health Quality Council Alberta
Precision Health: Quality and Safety Leadership	<p>https://cumming.ucalgary.ca/gse/about/programs/precision-health/quality-and-safety-leadership</p> <ul style="list-style-type: none"> • Distinguish and describe the components of a healthcare safety & quality model • Describe core principles of patient safety & quality • Identify key strategies for designing and delivering safer / higher quality healthcare • \$500 for residents (faculty \$2750) 	<ul style="list-style-type: none"> • U of C Medicine

<p>AHS QHI Quality & Patient Safety Integrated Curriculum</p>	<p>http://www.albertahealthservices.ca/assets/info/hp/edu/if-hp-edu-qps-integrated-curriculum.pdf</p> <ul style="list-style-type: none"> • Quality is everyone’s business certificate (12 hrs) • Patient safety certificate (20 hrs) • AIQ Yellow belt certificate (10 hrs) • Partnering with patient’s certificate (3 hrs) • Targeting teams certificate (4 hrs) 	<ul style="list-style-type: none"> • AHS
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d) Leadership and Administration “Stream” Resources:

- CMA / Joule Physician Leadership Institute <https://joulecma.ca/learn>
- Peak MD - The Raft <https://peakmd.ca>

Scholarly Activity (Research) Expectations for MFM Residents:

- Plan a primary project that will be feasible for completion during MFM Residency.
- Either before residency or in the first 4 blocks of residency, identify a supervisor and topic / question for your scholarly activity.
- Complete the TCPS: 2 Core Tutorial https://ethics.gc.ca/eng/education_tutorial-didacticiel.html
- Utilization of the first block of research to develop a Scholarly Activity (research) Proposal to be submitted and or presented to the MFM RPC in approximately the 6th block of residency. This proposal must include:
 - The composition of the research team and roles within the project.
 - Research question.
 - Background information / rationale for project.
 - Any plans for additional resident learning.
 - Funding plans.
 - Ethics approval or submission (if required).
 - Project timeline and milestones within the MFM residency program (including plans / timing of needed protected time).
 - Definition of project completion.
 - Plans for dissemination (meeting abstract, paper encouraged).
- Provide updates prior to scheduled Competence Committees (at present, via One-45).
- Demonstrate collaboration with their research team and time management, including advocacy for their research needs.

- Present scholarly activity proposal and or findings at the Department of Obstetrics and Gynecology Research Day (annually).

Funding Opportunities for Trainees

- All trainees funded by MFM Program Educational Enhancement Fund (up to \$2000 CDN) to attend a MFM conference in 1st year (prefer SMFM, ISUOG) without a requirement for presenting their research.
- All trainees funded by MFM Program Educational Enhancement Fund (up to \$500) to attend the Canadian National Perinatal Research Meeting at least once during training (Quebec or Banff), without a requirement for presenting.
- Additional funding for attending local / away meetings, online courses, online references, UpToDate etc may be available (pending annual budget allocation).
- Residents are provided with core MFM texts for personal use, including:
 - Creasy and Resnick's Maternal-Fetal Medicine: Principles and Practice
 - Fetology: Diagnosis and Management of the Fetal Patient
- All trainees will be funded (up to \$2000 CDN) to present their research when an abstract has been accepted for research undertaken during residency. Residents will first apply to PGME Research Grant (quarterly competition), but otherwise will be supported by either the Dept O&G DEAR Fund (quarterly competition) and/or the MFM Program Educational Enhancement Fund.
- Trainees may apply for research grants through the Dept O&G DEAR Fund (quarterly competitions).
- Funding for a 3rd year could be available through the Clinician Investigator Program (CIP) (<http://cumming.ucalgary.ca/cip/>), and could include M.Sc., M.CHS (including Medical Education), MBA, or other programs available at the University of Calgary. This requires application to the CIP program **prior** to starting the MFM Residency Program.

Rotation-Specific Information:

Including goals and objectives, implementation, and assessment

INTRODUCTION TO DISCIPLINE

a) MFM: Introduction to Ultrasound (6 weeks)

GOALS:

Independently perform a 19-week detailed ultrasound.

Independently perform a routine 3rd trimester fetal assessment.

Gain both technical skills and confidence with MFM ultrasound.

SPECIFIC OBJECTIVES:

CanMEDS Role	During the rotation, the resident will demonstrate competency in their ability to:
Medical Expert	<ul style="list-style-type: none">• Demonstrate understanding of the indications, principles, functioning, limitations, and potential risks of ultrasound.• Understand principles of ultrasound physics and instrumentation.• Independently commence and complete a 2nd trimester ultrasound study at MFM Outpatients.• Approach a sonographic study in an organized and standardized fashion to collect the indicated images.• Demonstrate knowledge of fetal anatomical survey and sonographic landmarks to collect accurate biometric measurements.• Independently perform and document a first trimester ultrasound for viability and dating.• Independently perform and document a second trimester detailed ultrasound.• Independently perform and document a third trimester ultrasound for biometric measurements, assessment of amniotic fluid, and assessment of fetal well-being.• Identify indications for endovaginal ultrasound, and appropriately apply endovaginal sonography.• Demonstrate insight into their own limitations of expertise.
Communicator	<ul style="list-style-type: none">• Establish positive relationships with Sonographers that are characterized by understanding, trust, respect, honesty, and empathy.• Listen effectively and respond to non-verbal clues.• Prepare clear, accurate, and concise documentation of your ultrasound findings into the reporting software.• Present clear, accurate, and concise oral reports of ultrasound findings to the reporting MFM physician.
Collaborator	<ul style="list-style-type: none">• Establish and maintain healthy inter-and interprofessional working relationships.• Recognize and describe the roles, responsibilities, and competencies of other health care professionals.• Effectively and safely hand over ultrasound findings to reporting MFM physicians.

Leader	<ul style="list-style-type: none"> Utilize resources effectively, including utilization of scanning time balanced with personal learning needs. Provide direct patient care under the leadership of an Ultrasound Technologist.
Health Advocate	
Scholar	<ul style="list-style-type: none"> Demonstrate inquisitiveness around clinical cases, and an ability to extract information and previous experience from more senior health care colleagues. Identify gaps in personal knowledge and skill and develop self-directed strategies to correct them.
Professional	<ul style="list-style-type: none"> Demonstrate honesty, integrity, commitment, respect, empathy, compassion, and altruism. Demonstrate reliability, punctuality, responsibility and conscientiousness. Demonstrate commitment to delivering the highest quality of care. Exhibit appropriate personal and interpersonal professional behavior. Demonstrate insight and self-awareness into limitation of abilities.

IMPLEMENTATION:

Information	Calgary MFM Centre (Cambrian Building) Supervised by MFM Sonographers and reporting MFM physicians Start 7:45 AM, find the head MFM Sonographer
Patient Rounds?	No
Amnios / CVS?	No – ultrasound guidance component only
FD&T Presentations?	No
Day L&D Shifts?	No
MFM on-call?	No
Integrated Research Time?	No
Maximum vacation permitted?	1 week

SCHEDULE:

	Monday	Tuesday	Wednesday	Thursday	Friday
AM	CMB MFM - Scanning				
PM	MFM AHD	CMB MFM - Scanning			

RESIDENT ASSESSMENT:

One45 Assessments	Other assessment items
End-of-rotation assessments (3-5 MFM clinicians; One45)	Intro to Ultrasound / Inpatients Checklist (in progress; paper-based) MFM Sonographer Feedback Tool (1-2 per week; paper-based)

b) MFM: Introduction to Inpatients (6 weeks)

GOALS:

Orientation to hospital based MFM practice at FMC, including MFM Inpatient unit, Antepartum Unit 41A, L&D Unit 51.
Continue to develop ultrasound skills, with focus on assessment of fetal well-being, fetal Dopplers, and endovaginal ultrasound.
Gain an approach to preparing inpatient consultations and ultrasound reports.
Provide clinical care for antepartum MFM inpatients.

SPECIFIC OBJECTIVES:

CanMEDS Role	During the rotation, the resident will demonstrate competency in their ability to:
Medical Expert	<ul style="list-style-type: none"> • Provide appropriate assessment and recommendations as a consultant (under direct supervision) for common problems at a tertiary obstetric academic centre. • Prioritize and respond to multiple, competing professional demands in the role of a new MFM trainee. • Demonstrate appropriate clinical knowledge and skills relevant to the care of women with complex medical disorders and obstetrical and fetal complications. • Demonstrate understanding of the indications, principles, functioning, limitations, and potential risks of ultrasound. • Demonstrate a working knowledge and effective use of inpatient electronic platforms (Astraia, Sunrise Clinical Manager, Netcare). • Perform history and physical examinations that are relevant, accurate, well-organized, and adapted to the patient’s clinical status. • Select appropriate investigations and interpret results for tertiary centre obstetrical inpatients with common problems in MFM. • Demonstrate effective clinical problem solving and judgement for common, straightforward problems in MFM. • Establish and implement patient-centred management plans for patients with common, straightforward problems in MFM. • Apply appropriate and timely preventative, diagnostic, and therapeutic interventions for common, straightforward problems in MFM. • Obtain appropriate informed consent for routine investigations and interventions, under direct supervision and then independently.

	<ul style="list-style-type: none"> • Effectively involve ancillary services, as indicated, in order to optimize patient understanding of condition and options available for management, e.g.: (Language Line, social work, Aboriginal liaison, addiction services, patient peer support groups, internet websites, etc.) • Approach a sonographic study in an organized and standardized fashion to collect the needed images. • Demonstrate knowledge of fetal anatomy and sonographic landmarks to collect accurate 3rd trimester biometric measurements and demonstrate an approach to optimizing visibility when imaging is challenging. • Identify indications for endovaginal ultrasound and fetal Doppler. • Independently commence and complete a third trimester ultrasound for biometric measurements, assessment of amniotic fluid volume, and assessment of fetal well-being. at FMC Inpatient MFM. • Perform imaging relevant to MFM under direct and indirect supervision, including: <ul style="list-style-type: none"> ○ Optimization of views with machine setting adjustments ○ Fetal biometry (routine and challenging cases) ○ Assessment of amniotic fluid and BPP ○ Endovaginal assessment of placental and vasa previa. ○ Endovaginal assessment of cervical length ○ Umbilical artery, middle cerebral artery, and ductus venosus Doppler ○ Approach to ultrasound assessment of multiple gestations. • Minimize risk and discomfort to patient during an ultrasound study. • Accurately input sonographic findings into Astraia reporting software. • Demonstrate an approach to preparing a report and consultation. • Recognise own limits of expertise and ask for help when needed. • Seek appropriate consultation with other health professionals, in collaboration with attending MFM staff.
Communicator	<ul style="list-style-type: none"> • Establish positive therapeutic relationships with patients, their families, and other health care colleagues that are characterized by understanding, trust, respect, honesty, and empathy. • Demonstrate an understanding of and respect for diversity and differences. • Offer compassionate support for families, especially during times of stress. • Listen effectively and respond to non-verbal clues • Facilitate structured consultations under direct supervision. • Provide explanations of common diagnoses, investigations, and management that are clear, accurate, and adapted to patients and their family's level of understanding and need. • Share information with patients and others in a manner that respects patient privacy and confidentiality and enhances understanding. • Demonstrate skills in working with others who present significant communication challenges such as anger or confusion, or an ethno-cultural background different from the physician's own. • Encourage discussion and questions from families and other health care colleagues. • Prepare clear, accurate, concise, and timely documentation of clinical encounters, procedures, and plans. • Present clear, accurate, and concise oral reports of clinical encounters and plans.

Collaborator	<ul style="list-style-type: none"> • Establish and maintain healthy inter-and interprofessional working relationships. • Recognize and describe the roles, responsibilities, and competencies of other health care professionals. • Work with others to prevent, identify, and resolve conflicts. • Effectively and safely hand over patient care to on-call providers and receiving care providers during transfer / discharge. • Function competently in the initial management of MFM patients while under direct supervision.
Leader	<ul style="list-style-type: none"> • Utilize resources effectively, including utilization of scanning time balanced with personal learning needs. • Provide direct patient care under the leadership of an Ultrasound Technologist and an attending MFM specialist. • Demonstrate the ability to independently perform and document 3rd trimester fetal assessment, fetal Doppler studies, and endovaginal ultrasound.
Health Advocate	<ul style="list-style-type: none"> • Assess the health needs of a patient and their family, as well as their ability to access health and social services. • Identify vulnerable or marginalized populations served and respond appropriately. • Respond to opportunities to advocate for individual patients and their families.
Scholar	<ul style="list-style-type: none"> • Demonstrate inquisitiveness around clinical cases, and an ability to extract information and previous experience from more senior staff. • Critically appraise medical information to address clinical questions and integrate conclusions into patient care. • Demonstrate openness to asking clinical questions and initiating research in areas of clinical uncertainty. • Identify gaps in personal knowledge and skill and develop self-directed strategies to correct them. • Participate in bedside teaching for junior obstetrical learners.
Professional	<ul style="list-style-type: none"> • Demonstrate honesty, integrity, commitment, respect, empathy, compassion, and altruism. • Demonstrate reliability, punctuality, responsibility and conscientiousness. • Demonstrate commitment to delivering the highest quality of care. • Exhibit appropriate personal and interpersonal professional behavior. • Demonstrate insight and self-awareness into limitation of abilities. • Demonstrate knowledge of the professional, legal and ethical codes of practice.

IMPLEMENTATION:

Location	<p>Foothills Medical Centre MFM Unit Located at FMC Unit 42 (Gyne Onc), Room 451 Supervised by FMC Ultrasound Technologists and MFM physicians Meet at Unit 51 L&D 8 AM daily for Obstetric Handover</p>
Patient Rounds?	Antepartum patient rounds Unit 41A (patients admitted to MFM physicians: Chadha, Cooper, Dwinnell, Kuret, O'Quinn, Soliman, Schachar)
Amnios / CVS?	No
FD&T Rounds Presentation?	No

Day L&D Shifts?	2-4 day L&D shifts and 1-2 C-section lists with MFM physicians (8am to 5 pm)
MFM on-call?	1-2 weeks total (in 6 weeks; 1 per block)
Integrated Research Time?	Up to 1 week
Maximum Vacation permitted?	Up to 1 week

SCHEDULE:

	Monday	Tuesday	Wednesday	Thursday	Friday
AM	FMC MFM Unit				
PM	AHD	FMC MFM Unit	FMC MFM Unit	FMC MFM Unit	FMC MFM Unit

ASSESSMENT:

One45 Assessments	Other assessment items
End-of-rotation assessments (3-5 MFM clinicians) MFM weekend on-call assessment (1 per block) Narrative observations (2-3 per week)	Intro to Ultrasound Checklist (complete) Sonographer narrative feedback on paper feedback tool (2-3 per block)

c) MFM: Introduction to Outpatients (4 weeks)

GOALS:

Learn how to report normal / routine consultations, including imaging assessment and recommendations for care and follow-up.

Gain knowledge and understanding of routine obstetrical imaging, including first trimester screen, 19-week anatomical survey, and biophysical profile.

Gain knowledge about (including management) for common presentations for fetal assessment, including maternal diabetes, hypertension, prolonged gestation, abnormal fetal growth, disorders of amniotic fluid, and multiple gestation.

SPECIFIC OBJECTIVES:

CanMEDS Role	During the rotation, the resident will demonstrate competency in their ability to:
Medical Expert	<ul style="list-style-type: none"> Provide appropriate assessment and recommendations as a consultant (under direct supervision) for common problems at a tertiary MFM outpatient clinic. Prioritize and respond to multiple, competing professional demands in the role of a new MFM trainee.

	<ul style="list-style-type: none"> • Demonstrate appropriate clinical knowledge and skills relevant to the care of women with complex medical disorders and obstetrical and fetal complications. • Demonstrate understanding of the indications, principles, functioning, limitations, and potential risks of ultrasound. • Perform history and physical examinations that are relevant, accurate, well-organized, and adapted to the patient's clinical status. • Select appropriate investigations and interpret results for patients with common MFM problems. • Demonstrate effective clinical problem solving and judgement for common, straightforward problems in MFM. • Establish and implement patient-centred management plans for patients with common, straightforward problems in MFM. • Apply appropriate and timely preventative, diagnostic, and therapeutic interventions for common, straightforward problems in MFM. • Obtain appropriate informed consent for routine investigations and interventions, under direct supervision and then independently. • Demonstrate an approach to preparing a report and consultation using the Astraia software. • Recognise own limits of expertise and ask for help when needed. • Seek appropriate consultation with other health professionals, in collaboration with attending MFM staff.
Communicator	<ul style="list-style-type: none"> • Establish positive therapeutic relationships with patients, their families, and other health care colleagues that are characterized by understanding, trust, respect, honesty, and empathy. • Demonstrate an understanding of and respect for diversity and differences. • Offer compassionate support for families and colleagues, especially during times of stress. • Listen effectively and respond to non-verbal clues • Facilitate structured consultations under direct supervision. • Provide explanations of common diagnoses, investigations, and management that are clear, accurate, and adapted to patients and their family's level of understanding and need. • Encourage discussion and questions from families and other health care colleagues. • Understand informed consent for medical and surgical therapies. • Prepare clear, accurate, concise, and timely documentation of clinical encounters, procedures, and plans. • Present clear, accurate, and concise oral reports of clinical encounters and plans.
Collaborator	<ul style="list-style-type: none"> • Establish and maintain healthy inter-and intrerprofessional working relationships. • Recognize and describe the roles, responsibilities, and competencies of other health care professionals. • Work with others to prevent, identify, and resolve conflicts. • Effectively and safely hand over patient care to on-call providers and receiving care providers during transfer / discharge. • Function competently in the initial management of MFM patients while under direct supervision. • Understand the referral system for fetal complications of pregnancy – locally, provincially and nationally.
Leader	<ul style="list-style-type: none"> • Utilize resources effectively, including utilization of scanning time. • Provide direct patient care under the leadership of an attending MFM specialist. • Use electronic information systems (Astraia, Netcare) as a source of patient information.
Health Advocate	<ul style="list-style-type: none"> • Advocate for the individual patient in obtaining effective and high-quality imaging care. • Demonstrate knowledge of routine imaging initiatives in pregnancy.

	<ul style="list-style-type: none"> • Understand how public policy impacts the health of population, including prenatal screening programs and antenatal screening for fetal anomaly, including congenital heart disease. • Respond to opportunities to advocate for individual patients and their families. • Respond to opportunities for health promotion and disease prevention with individual patients and families. • Ensure appropriate follow-up plan is in place after assessment for patients with common, straight forward problems in MFM.
Scholar	<ul style="list-style-type: none"> • Demonstrate inquisitiveness around clinical cases, and an ability to extract information and previous experience from more senior staff. • Critically appraise medical information to address clinical questions and integrate conclusions into patient care. • Identify gaps in personal knowledge and skill and develop self-directed strategies to correct them.
Professional	<ul style="list-style-type: none"> • Demonstrate honesty, integrity, commitment, respect, empathy, compassion, and altruism. • Demonstrate reliability, punctuality, responsibility and conscientiousness. • Demonstrate commitment to delivering the highest quality of care. • Exhibit appropriate personal and interpersonal professional behavior. • Demonstrate insight and self-awareness into limitation of abilities. • Demonstrate knowledge of the professional, legal and ethical codes of practice.

IMPLEMENTATION:

Location	Calgary MFM Centre (Cambrian Building) Supervised by Ultrasound Technologists and reporting MFM physicians Start 8:00 AM, introduce yourself to MFM physicians reporting
Patient Rounds?	No
Amnios / CVS?	Yes
Day L&D Shifts?	2 day L&D shifts with MFM physicians (8am to 8 pm)
MFM on-call?	1 week
Integrated Research Time?	Up to 1 week

SCHEDULE:

	Monday	Tuesday	Wednesday	Thursday	Friday
AM	CMB MFM reporting	CMB MFM reporting	CMB MFM reporting	CMB MFM reporting	CMB MFM reporting
PM	AHD	CMB MFM reporting	CMB MFM reporting	Procedures CMB MFM reporting	CMB MFM reporting

ASSESSMENT:

One45 Assessments	Other assessment items
End-of-rotation assessments (3-4 MFM clinicians) MFM weekend on-call assessment (1 per block) Narrative observations (2-3 per week)	Direct Observation (Mini-CEX) (2 per block)

CORE OF DISCIPLINE

a) MFM: Core Outpatients 1 & 2 (24 weeks)

GOALS / PREAMBLE:

MFM Core Outpatients 1 & 2 involves 2 rotations, each 3 blocks in length. During these rotations, residents will gain core skills in complex ultrasound assessment of fetal well-being, fetal anomaly assessment and management, maternal medical conditions, and complex prenatal care for MFM patients. These rotations permit the resident to provide appropriate assessments and recommendations as a consultant in training, under both direct and indirect supervision. The resident is expected to care for women in MFM outpatient clinics, provide complex care for inpatient with complex maternal and fetal problems, and to lead clinical management discussions for women with maternal and fetal complications under direct or indirect supervision. By the end of the clinical experience, the resident is expected to demonstrate appropriate knowledge and decision-making skills to manage complex and rare presentations encountered in MFM, as well as technical proficiency in obstetrical ultrasound and routine prenatal diagnostic procedures.

SPECIFIC OBJECTIVES:

CanMEDS Role	During the rotation, the resident will demonstrate competency in their ability to:
Medical Expert	<ul style="list-style-type: none"> • Provide appropriate assessment and recommendations as a consultant (under indirect supervision) for complex or rare problems at a tertiary MFM outpatient clinic. • Prioritize and respond to multiple, competing professional demands in the role of a MFM trainee. • Demonstrate compassionate patient care. • Demonstrate appropriate clinical knowledge and skills relevant to the care of women with complex or rare medical disorders, and obstetrical and fetal complications. • Perform history and physical examinations that are relevant, accurate, well-organized, and adapted to the patient's clinical status. • Select appropriate investigations and interpret results for patients with complex or rare MFM problems. • Demonstrate effective clinical problem solving and judgement for complex or rare problems in MFM. • Establish and implement patient-centred management plans for patients with complex or rare problems in MFM. • Apply appropriate and timely preventative, diagnostic, and therapeutic interventions for complex or rare problems in MFM.

	<ul style="list-style-type: none"> • Obtain appropriate informed consent for high-risk investigations and interventions, under direct supervision and then independently. • Recognise own limits of expertise and ask for help when needed. • Seek appropriate consultation with other health professionals, under indirect supervision.
Communicator	<ul style="list-style-type: none"> • Establish positive therapeutic relationships with patients, their families, and other health care colleagues that are characterized by understanding, trust, respect, honesty, and empathy. • Demonstrate an understanding of and respect for diversity and differences. • Offer compassionate support for families and colleagues, especially during times of stress. • Listen effectively and respond to non-verbal clues. • Facilitate a clinical encounter effectively under direct or indirect supervision. • Accurately elicit and synthesize relevant information and perspectives of patients and families, colleagues, and other professionals • Accurately and effectively gather information about a patient's beliefs, concerns, expectations, and illness experience. • Provide explanations of rare or complex diagnoses, investigations, and management that are clear, accurate, and adapted to patients and their family's level of understanding and need. • Recognize that language used to impart information may affect a family's reaction and decision-making. • Encourage discussion and questions from families and other health care colleagues. • Manage emotionally charged conversations. • Demonstrate an awareness of the unique, psychosocial, cultural, and ethical issues that surround obstetric patients. • Obtain informed consent for medical and surgical therapies, under direct and indirect supervision. • Prepare clear, accurate, concise, and timely written documentation of clinical encounters, procedures, and plans of care. • Present clear, accurate, and concise oral reports of clinical encounters and plans. • Communicate with referring care providers and other health professionals involved in the patient's care. • Communicate appropriately by telephone with referring physicians and provide management advice for the safe and appropriate care of MFM patients. • Address challenging communication issues effectively, such as: obtaining informed consent, delivering bad news, addressing anger / confusion / misunderstanding. • Demonstrate skills in working with others who present significant communication challenges such as anger or confusion, or an ethno-cultural background different from the physician's own. • Demonstrate the ability to prepare and present information to colleagues and other residents, both informally and formally, including teaching to junior learners. • Organize and facilitate family meetings and multidisciplinary meetings under direct supervision.
Collaborator	<ul style="list-style-type: none"> • Establish and maintain healthy inter-and intra-professional working relationships. • Recognize and describe the roles, responsibilities, and competencies of other health care professionals. • Respectively collaborate with other care providers to assess, plan, and deliver patient care. • Participate effectively in or lead interdisciplinary team meetings. • Demonstrate leadership in a healthcare team. • Respect differences and address misunderstandings and limitations in other professionals

	<ul style="list-style-type: none"> • Recognize one’s own differences, misunderstanding, and limitations that may contribute to interprofessional tension • Work with others to prevent, identify, and resolve conflicts. • Demonstrate safe handover of care, both verbal and written, during a patient transition to a different healthcare professional, setting, or stage of care. • Demonstrate the ability to provide leadership in a multidisciplinary health care team, showing respect, consideration, and acceptance of other team members and their opinions while contributing personal specialty-specific expertise under direct supervision.
Leader	<ul style="list-style-type: none"> • Manage outpatients with complex conditions under indirect supervision. • Set priorities and manage time to balance professional and personal responsibilities. • Judiciously allocate health care resources. • Demonstrate an understanding of the principles of quality assurance, and participate in perinatal mortality reviews under indirect supervision (Core 1) • Demonstrate leadership in the monthly Complex Maternal Cardiac Care rounds (Core 2). • Effectively manage a clinical MFM practice, including the follow-up and management of normal and abnormal test results and appropriate referral to other specialties under direct or indirect supervision. • Adopt strategies that promote patient safety and address human and system factors.
Health Advocate	<ul style="list-style-type: none"> • Advocate for the individual patient in obtaining effective and high-quality care, while appreciating the possibility of competing interests between individual advocacy and the community at large. • Respond to opportunities to advocate for individual patients and their families. • Respond to opportunities for health promotion and disease prevention with individual patients and families. • Make clinical decisions for an individual patient, when necessary balancing her needs against the needs of the general population and against the available resources, under supervision. • Demonstrate an understanding of and limitations of routine preventive health initiatives in pregnancy. • Ensure appropriate follow-up plan is in place after assessment for patients with complex problems in MFM. • Assess the health needs of a patient and their family, as well as their ability to access health and social services. • Identify the important determinants of health for an individual patient, highlight which determinants are modifiable, and adapt the treatment approach accordingly. • Identify vulnerable or marginalized populations served and respond appropriately. • Understand the ethical and professional issues inherent in health advocacy, including altruism, social justice, autonomy, integrity and idealism.
Scholar	<ul style="list-style-type: none"> • Demonstrate inquisitiveness around clinical cases, and an ability to extract information and previous experience from more senior staff. • Critically appraise medical information to address clinical questions and integrate conclusions into patient care. • Identify gaps in personal knowledge and skill, and develop strategies to correct them by self-directed reading, discussion with colleagues, and ongoing clinical and procedural experience. • Demonstrate an approach to life-long learning, utilizing information technology for systematic literature review. • Critically appraise and summarize the literature on a given subject, and judge whether a research project or publication is sound, ethical, unbiased, clinically valuable, and locally applicable.

	<ul style="list-style-type: none"> • Teach and mentor junior trainees, while ensuring patient safety is maintained. • Present at and lead multidisciplinary discussions at FD&T rounds. • Lead and actively participate in MFM Journal Club.
Professional	<ul style="list-style-type: none"> • Demonstrate honesty, integrity, commitment, respect, empathy, compassion, and altruism. • Show self-discipline, responsibility, and punctuality in attending to clinical duties and at meetings and other activities. • Demonstrate commitment to delivering the highest quality of care. • Demonstrate ethical MFM practice and seek advice or second opinion appropriately in ethically difficult situations. • Maintain appropriate boundaries with patient, families, and colleagues. • Respect patient and family privacy and confidentiality. • Exhibit appropriate personal and interpersonal professional behavior. • Understand the definitions of and identify intimidation and harassment. • Demonstrate insight and self-awareness into limitation of abilities. • Use appropriate strategies to maintain an advance professional competence. • Demonstrate knowledge of the professional, legal and ethical codes of practice. • Balance personal and professional priorities to promote personal health and sustainable practice. • Complete evaluations of junior learners, preceptors, rounds, and rotations in a timely and constructive manner.

IMPLEMENTATION:

Location	Calgary MFM Centre (Cambrian Building) Supervised by reporting MFM physicians and MAC MFM physicians Ultrasound clinics and MAC both start 8:00 AM
Patient Rounds?	No
Amnios / CVS?	Yes
FD&T Rounds Presenter?	1 per block
Day L&D Shifts?	1-2 days L&D shifts with MFM physicians (8am to 5 pm)
MFM on-call?	1 week
Integrated Research Time?	Up to 2 weeks per 3-block experience (scheduled in advance)

POTENTIAL SCHEDULE:

Core 1	Monday	Tuesday	Wednesday	Thursday	Friday
AM	CMB MFM FD&T	CMB MAC	CMB MFM FD&T	CMB MAC	CMB MFM FD&T (or MAC PCC)

PM	AHD	CMB MAC	CMB MFM reporting	Procedures CMB MFM reporting	CMB MFM reporting (or MAC PCC)
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Core 2	Monday	Tuesday	Wednesday	Thursday	Friday
AM	CMB MFM FD&T	CMB MFM FD&T or Complex FD&T	CMB MAC	CMB MFM FD&T	CMB MFM FD&T (or MAC PCC)
PM	AHD	CMB MFM reporting	CMB MAC	Procedures CMB MFM reporting	CMB MFM reporting (or MAC PCC)

ASSESSMENT:

One45 Assessments	Other assessment items
MFM: Core of Discipline (outpatients) Block Assessment, sent to 3-5 MFM Clinicians per block; always including MAC preceptors) MFM weekend on-call assessment (1 per block) Narrative observations (2-3 per week)	Direct Observation (Mini-CEX) (2 per block) Feedback on Resident Presentations (FD&T presenter assessment)

b) MFM: Core Inpatients (4 weeks)

GOALS:

MFM Core Inpatients involves 4 weeks based at FMC MFM. During this block, residents will gain core skills in complex ultrasound assessment of fetal well-being, obstetric and maternal medical conditions, and complex prenatal care for MFM patients. These rotations permit the resident to provide appropriate assessments and recommendations as a consultant in training, under both direct and indirect supervision. The resident is expected to care for women presenting and admitted to FMC, providing complex care for inpatient with complex maternal and fetal problems, and to lead clinical management discussions for women with maternal and fetal complications under direct or indirect supervision. By the end of the clinical experience, the resident is expected to demonstrate appropriate knowledge and decision-making skills to manage complex and rare presentations encountered in inpatient MFM, as well as technical proficiency in obstetrical ultrasound and routine prenatal diagnostic procedures.

SPECIFIC OBJECTIVES:

CanMEDS Role	During the rotation, the resident will demonstrate competency in their ability to:
Medical Expert	<ul style="list-style-type: none"> Provide appropriate assessment and recommendations as a consultant (under indirect supervision) for all problems at a tertiary obstetric centre.

	<ul style="list-style-type: none"> • Prioritize and respond to multiple, competing professional demands in the role of a MFM trainee. • Demonstrate compassionate patient care. • Demonstrate appropriate clinical knowledge and skills relevant to the care of inpatient women with complex medical disorders and obstetrical and fetal complications. • Perform history and physical examinations that are relevant, accurate, well-organized, and adapted to the patient’s clinical status. • Select appropriate investigations and interpret results for inpatients with complex MFM problems. • Demonstrate effective clinical problem solving and judgement for inpatient with complex MFM problems. • Establish and implement patient-centred management plans for inpatients with complex problems in MFM. • Apply appropriate and timely preventative, diagnostic, and therapeutic interventions for complex inpatient MFM problems. • Obtain appropriate informed consent for high-risk investigations and interventions, under indirect supervision. • Adopt strategies that promote patient safety and address human and system factors. • Recognise own limits of expertise and ask for help when needed. • Seek appropriate consultation with other health professionals, under indirect supervision.
Communicator	<ul style="list-style-type: none"> • Establish positive therapeutic relationships with patients, their families, and other health care colleagues that are characterized by understanding, trust, respect, honesty, and empathy. • Demonstrate an understanding of and respect for diversity and differences. • Offer compassionate support for families and colleagues, especially during times of stress. • Listen effectively and respond to non-verbal clues. • Facilitate a clinical encounter effectively under indirect supervision. • Accurately elicit and synthesize relevant information and perspectives of patients and families, colleagues, and other professionals • Accurately and effectively gather information about a patient’s beliefs, concerns, expectations, and illness experience. • Provide explanations of complex diagnoses, investigations, and management that are clear, accurate, and adapted to patients and their family’s level of understanding and need. • Recognize that language used to impart information may affect a family’s reaction and decision-making. • Encourage discussion and questions from families and other health care colleagues. • Manage emotionally charged conversations. • Demonstrate an awareness of the unique, psychosocial, cultural, and ethical issues that surround obstetric patients. • Obtain informed consent for medical and surgical therapies, under indirect supervision. • Prepare clear, accurate, concise, and timely written documentation of clinical encounters, procedures, and plans of care. • Present clear, accurate, and concise oral reports of clinical encounters and plans. • Communicate with referring care providers and other health professionals involved in the patient’s care. • Communicate appropriately by telephone with referring physicians and provide management advice for the safe and appropriate care of MFM patients. • Address challenging communication issues effectively, such as: obtaining informed consent, delivering bad news, addressing anger / confusion / misunderstanding.

	<ul style="list-style-type: none"> • Demonstrate skills in working with others who present significant communication challenges such as anger or confusion, or an ethno-cultural background different from the physician's own. • Demonstrate the ability to prepare and present information to colleagues and other residents, both informally and formally, including teaching to junior learners. • Respect patient and family privacy and confidentiality. • Organize and facilitate family meetings and multidisciplinary meetings under direct supervision.
Collaborator	<ul style="list-style-type: none"> • Establish and maintain healthy inter- and intraprofessional working relationships. • Recognize and describe the roles, responsibilities, and competencies of other health care professionals. • Respectively collaborate with other care providers to assess, plan, and deliver patient care. • Participate effectively in or lead interdisciplinary team meetings. • Demonstrate leadership in a healthcare team. • Respect differences and address misunderstandings and limitations in other professionals • Recognize one's own differences, misunderstanding, and limitations that may contribute to interprofessional tension • Work with others to prevent, identify, and resolve conflicts. • Demonstrate safe handover of care, both verbal and written, during a patient transition to a different healthcare professional, setting, or stage of care. • Function competently in the assessment and management of all MFM patients while under indirect supervision. • Demonstrate the ability to provide leadership, in a multidisciplinary health care team, showing respect, consideration, and acceptance of other team members and their opinions while contributing personal specialty-specific expertise under direct supervision.
Leader	<ul style="list-style-type: none"> • Manage inpatients with complex conditions under indirect supervision. • Set priorities and manage time to balance professional and personal responsibilities. • Judiciously allocate health care resources. • Be able to effectively manage an inpatient clinical MFM practice, including the follow-up and management of normal and abnormal test results and appropriate referral to other specialties under indirect supervision.
Health Advocate	<ul style="list-style-type: none"> • Respond to opportunities to advocate for individual patients and their families. • Respond to opportunities for health promotion and disease prevention with individual patients and families. • Make clinical decisions for an individual patient, when necessary balancing her needs against the needs of the general population and against the available resources, under indirect supervision. • Ensure appropriate follow-up plan is in place after assessment for inpatients with complex problems in MFM. • Assess the health needs of a patient and their family, as well as their ability to access health and social services (including ACCP, Ronald McDonald House). • Identify the important determinants of health for an individual patient, highlight which determinants are modifiable, and adapt the treatment approach accordingly. • Identify vulnerable or marginalized populations served and respond appropriately. • Demonstrate an understanding of the principles of identification and reporting of domestic violence and demonstrate an awareness of legal, ethical, legal and professional obligations to protect women from suspicious circumstances.

Scholar	<ul style="list-style-type: none"> • Demonstrate inquisitiveness around clinical cases, and an ability to extract information and previous experience from more senior staff. • Critically appraise medical information to address clinical questions and integrate conclusions into patient care. • Identify gaps in personal knowledge and skill, and develop strategies to correct them by self-directed reading, discussion with colleagues, and ongoing clinical and procedural experience. • Critically appraise and summarize the literature on a given subject, and judge whether a research project or publication is sound, ethical, unbiased, clinically valuable, and locally applicable. • Teach and mentor junior trainees. • Ensure patient safety is maintained when learners are involved. • Present at and lead multidisciplinary discussions at FD&T rounds. • Lead and actively participate in MFM Journal Club.
Professional	<ul style="list-style-type: none"> • Demonstrate honesty, integrity, commitment, respect, empathy, compassion, and altruism. • Show self-discipline, responsibility, and punctuality in attending to clinical duties and at meetings and other activities. • Demonstrate commitment to delivering the highest quality of care. • Demonstrate ethical MFM practice and seek advice or second opinion appropriately in ethically difficult situations. • Maintain appropriate boundaries with patient, families, and colleagues. • Maintain patient confidentiality. • Exhibit appropriate personal and interpersonal professional behavior. • Understand the definitions of and identify intimidation and harassment. • Demonstrate insight and self-awareness into limitation of abilities. • Demonstrate knowledge of the professional, legal and ethical codes of practice. • Balance personal and professional priorities to promote personal health and sustainable practice.

IMPLEMENTATION:

Location	Foothills Medical Centre MFM Unit Located at FMC Unit 42 (Gyne Onc), Room 451 Supervised by FMC Ultrasound Technologists and MFM physicians Meet at Unit 51 L&D 8 AM daily for Obstetric Handover
Patient Rounds?	Antepartum patient rounds Unit 41A (patients admitted to MFM physicians)
Amnios / CVS?	Yes
Day L&D Shifts?	1-2 day L&D shifts with MFM physicians (8am to 5 pm)
MFM on-call?	1 week
Integrated Research Time?	Up to 1 week available

SCHEDULE:

	Monday	Tuesday	Wednesday	Thursday	Friday
AM	FMC MFM Unit				
PM	AHD	FMC MFM Unit	FMC MFM Unit	Procedures	FMC MFM Unit

ASSESSMENT:

One45 Assessments	Other assessment items
MFM: Core of discipline (inpatients) Block Assessments (sent to 3-5 MFM clinicians) MFM weekend on-call assessment (1 per block) Narrative observations (2-3 per week)	Direct Observation (Mini-CEX) (2 per block) Feedback on Resident Presentation (FD&T presenter assessment 1 per block)

c) MFM: Fetal Cardiology and Advanced Fetal Imaging (8 weeks)

SPECIFIC OBJECTIVES:

CanMEDS Role	During the rotation, the resident will demonstrate competency in their ability to:
Medical Expert	<ul style="list-style-type: none"> • A comprehensive understanding of fetal cardiac anatomy and physiology. • Understanding of indications and limitations of diagnostic fetal echocardiography. • An awareness of role of screening fetal echocardiography and be able to identify risk factors for congenital heart disease. • Appropriate use of ultrasound to perform fetal echocardiography including an understanding of the role of Doppler and color flow. • A systematic approach to a detailed fetal echocardiogram and be able to perform basic fetal echo views (4 chambers, outflow tracts, 3 vessel views). • Understanding of a fetal echo report and be able to counsel on the abnormal fetal heart, including, prognosis, squeal and management. The resident should be able to provide referral and liaise with Pediatric Cardiology and Neonatology to facilitate management. • An ability to formulation of a basic plan for pregnancy, delivery and postnatal management related to fetal cardiac problems. • Develop an approach to performing a 3D ultrasound of fetal anatomy. • Understand the indications for and limitations of 3D ultrasound

	<ul style="list-style-type: none"> • Understand common findings for normal and abnormal pregnancy <11 weeks, including pregnancies of uncertain viability and ectopic pregnancy. • Describe normal and abnormal adnexal findings in a reproductive age woman.
Communicator	<ul style="list-style-type: none"> • Write a concise and accurate report of study results, under the direction and supervision of the responsible physician. • Communicate relevant features of the exam to team members. • Communicate effectively with patient and family relevant issues around pregnancy management, timing of delivery and postnatal management of fetal cardiac conditions including non-interventional/palliative care. • The resident should be able to be able to understand basic active cardiac / cardiac surgical management pathways and be able to support recommendations provided by the Pediatric Cardiologist. • Demonstrate sensitivity to the cultural, ethnic and religious backgrounds of patients. • Demonstrate ability to deliver bad news effectively with compassion and sensitivity.
Collaborator	<ul style="list-style-type: none"> • Demonstrate an ability to work effectively with sonographers and fetal echocardiographers. • Develop understanding of the provincial referral systems as they relate to the organization of the subspecialty of pediatric cardiology.
Leader	<ul style="list-style-type: none"> • Request fetal echo examination and follow-up appropriately. • Demonstrate ability to manage personal time efficiently. • Demonstrate an ability to motivate, inspire and educate more junior members of the inpatient health-care team. • Demonstrate ability to identify medico-legal risks and take steps to address them.
Health Advocate	<ul style="list-style-type: none"> • Demonstrate an understanding of the determinants of health affecting pregnant women and their fetuses with congenital heart disease. • Demonstrate knowledge of preventable causes of perinatal morbidity and mortality related to structural or functional fetal heart disease. • Advocate for the individual patient in obtaining effective and high-quality care.
Scholar	<ul style="list-style-type: none"> • Demonstrate inquisitiveness around clinical cases and an ability to extract information and previous experience from more senior staff. • Make clinical decisions and judgments based on principles of evidence-based medicine s for the benefit of the patient, the family and the larger population served. • Demonstrate ability to apply the critically appraise sources of medical information. • Attend and participate in fetal echo education programs and rounds
Professional	<ul style="list-style-type: none"> • Deliver the highest quality care with integrity, honesty and compassion and empathy. • Demonstrate reliability, punctuality, responsibility and conscientiousness. • Exhibit appropriate personal and interpersonal professional behaviour. • Demonstrate insight and self-awareness into limitation of abilities. • Use appropriate strategies to maintain and advance professional competence. • Demonstrate knowledge of the professional, legal and ethical codes of practice.

IMPLEMENTATION:

Location	FMC Antepartum Unit 41A (for inpatient antenatal consults) Calgary MFM Centre (Cambrian) (for outpatient antenatal consults) Contact: Dr. Deborah Fruitman (deborah.fruitman@ahs.ca)
Patient Rounds?	No
Amnios / CVS?	Yes
Day L&D Shifts?	1 day L&D shifts with MFM physician (8am to 8 pm)
MFM on-call?	1 week
Integrated Research Time?	Up to 1 week

SCHEDULE:

	Monday	Tuesday	Wednesday	Thursday	Friday
AM	3D/4D (Suchet) or 1 st trimester scanning	CMB Scanning echos or CMB Echos (Peds Card)	CMB Echos (Peds Card)	Peds Card Clinic (DF) or 3D/4D (Suchet)	1 st trimester scanning or Study
PM	AHD	CMB Scanning echos or CMB Echos (Peds Card)	CMB Echos (Peds Card)	Procedures Study	1 st trimester scanning Or Peds Card Clinic (LM)

ASSESSMENT:

One45 Assessments	Other assessment items
End-of-block assessments (completed by DF) End-of-block assessments (completed by IS) Narrative observations (2-3 per week)	Advanced ultrasound scanning checklist

d) Obstetric Internal Medicine (4 weeks)

GOALS:

- 1) Gain in-depth knowledge and experience in managing complex or rare maternal medical problems.
- 2) Collaboration with specialists in Obstetric Internal Medicine.

SPECIFIC OBJECTIVES:

CanMEDS Role	During the rotation, the resident will demonstrate competency in their ability to:
Medical Expert	<ul style="list-style-type: none"> • Understand the role of obstetric internal medicine physicians and subspecialty medical physicians in the care of the pregnant patient with medical conditions. • Provide appropriate assessment and recommendations as a consultant (under direct supervision) for complex or rare maternal medical problems. • Perform history and physical examinations that are relevant, accurate, well-organized, and adapted to the patient’s clinical status. • Select appropriate investigations and interpret results for patients with maternal medical problems. • Demonstrate effective clinical problem solving and judgement for maternal medical problems. • Establish and implement patient-centred management plans for patients with maternal medical problems. • Apply appropriate and timely preventative, diagnostic, and therapeutic interventions for maternal medical problems. • Coordinate care and facilitate appropriate consultations for the critically ill obstetric patient. • Demonstrate a comprehensive understanding and management of pregnant women with complex and/or multiple medical conditions in pregnancy. • Exhibit in depth knowledge of: <ul style="list-style-type: none"> ○ Cardiac diseases: congenital and acquired ○ Connective tissue diseases ○ Dermatologic conditions ○ Diabetes mellitus, both gestational and pre-existing ○ Endocrine diseases ○ Gastrointestinal and liver diseases ○ Hematologic diseases and disorders, including anemia, thrombocytosis, thrombocytopenia, hemoglobinopathies and sickle cell disease. ○ Hypertensive diseases: chronic and pregnancy related ○ Infectious diseases ○ Malignancies ○ Mental health disorders ○ Neurological diseases including epilepsy, headaches and cerebrovascular ○ Orthopedic conditions

	<ul style="list-style-type: none"> ○ Renal diseases ○ Respiratory diseases ○ Rheumatologic and autoimmune disease ○ Thrombophilias, coagulation disorders, and acute thromboembolic disease <ul style="list-style-type: none"> ● Demonstrate compassionate patient care. ● Recognise own limits of expertise and ask for help when needed.
Communicator	<ul style="list-style-type: none"> ● Establish an effective and empathetic physician/patient relationship with pregnant women facing challenging maternal medical disease in pregnancy. ● Communicate effectively with families of high-risk pregnant women, including appropriate use of cultural and language interpretation facilities. ● Recognize stress and mental illness in pregnant women and effectively involve appropriate supports. ● Demonstrate sensitivity to the cultural, ethnic and religious backgrounds of patients. ● Communicate and coordinate care with all members of the inpatient antepartum high-risk team with comprehensive and timely written consult and chart notes and directly in person or by telephone. ● Demonstrate ability to overcome language and cultural barriers to effective multi-disciplinary care.
Collaborator	<ul style="list-style-type: none"> ● Establish and maintain healthy inter-and intraprofessional working relationships. ● Recognize and describe the roles, responsibilities, and competencies of other health care professionals. ● Respectively collaborate with other care providers to assess, plan, and deliver patient care. ● Demonstrate safe handover of care, both verbal and written, during a patient transition to a different healthcare professional, setting, or stage of care.
Leader	<ul style="list-style-type: none"> ● Demonstrate the appropriate use of medical and surgical consultations for antenatal care of high-risk pregnant women, including follow-through to ensure effective care and communication. ● Set priorities and manage time to balance professional and personal responsibilities.
Health Advocate	<ul style="list-style-type: none"> ● Identify the important determinants of health for an individual patient, highlight which determinants are modifiable, and adapt the treatment approach accordingly. ● Respond to opportunities to advocate for individual patients and their families. ● Respond to opportunities for health promotion and disease prevention with individual patients and families. ● Assess the health needs of a patient and their family, as well as their ability to access health and social services. ● Ensure appropriate follow-up plan is in place after assessment for patients with maternal medical problems.
Scholar	<ul style="list-style-type: none"> ● Demonstrate an ability to critically evaluate the literature as it pertains to individual patient care. ● Demonstrate inquisitiveness around clinical cases and an ability to extract information and previous experience from more senior staff. ● Critically appraise medical information to address clinical questions and integrate conclusions into patient care. ● Identify gaps in personal knowledge and skill, and develop strategies to correct them by self-directed reading, discussion with colleagues, and ongoing clinical experience. ● Demonstrate ability to use clinical experience to further knowledge of health care team by presenting a review of patient case and literature review for Obstetric Internal Medicine Rounds.

Professional	<ul style="list-style-type: none"> • Demonstrate honesty, integrity, commitment, respect, empathy, compassion, and altruism. • Demonstrate respect for others and diversity. • Demonstrate reliability, punctuality, responsibility, and conscientiousness. • Exhibit appropriate personal and interpersonal professional behavior. • Demonstrate an understanding of ethical practice and apply this to one's work. • Demonstrate insight and self-awareness into limitation of abilities. • Correct knowledge deficits through targeted independent learning.
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IMPLEMENTATION:

Location	FMC Obstetric Wards Internal Medicine Clinic, Richmond Road Diagnostic Treatment Centre Contact: Dr. Meghan Vlasscheart
Patient Rounds?	Yes – as directed by Ob-IM staff for Ob-IM consultations
Amnios / CVS?	No
Day L&D Shifts?	No
MFM on-call?	No
Integrated Research Time?	No

SCHEDULE:

	Monday	Tuesday	Wednesday	Thursday	Friday
AM	ObIM	ObIM	ObIM	ObIM	ObIM
PM	AHD	ObIM	ObIM	ObIM	ObIM

*Rotation-specific schedule will be provided by Obstetric Internal Medicine

ASSESSMENT:

One45 Assessments	Other assessment items
End-of-rotation assessment (completed by MV) Narrative observations (2-3 per week)	

e) Prenatal Genetics (4 weeks)

GOALS:

During this rotation, residents will gain core knowledge and skills related to the practice of Prenatal Genetics. These rotations permit the resident learn an approach to genetic counselling, generally under direct supervision. The resident is expected participate in care for women and families in Prenatal Genetics outpatient clinics and to contribute to clinical management discussions, generally under direct supervision. By the end of the clinical experience, the resident is expected to demonstrate appropriate knowledge and decision-making skills to manage common and complex presentations encountered in Prenatal Genetics, including patients seen antepartum, postpartum, and pre-pregnancy.

SPECIFIC OBJECTIVES:

CanMEDS Role	During the rotation, the resident will demonstrate competency in their ability to:
Medical Expert	<ul style="list-style-type: none"> • Describe the concepts involved in the classification and inheritance patterns of genetic disorders. • Understand the molecular basis of genetic disorders and understand the current methods of detecting genetic disorders. • Understand the principles of cytogenetics and its importance in medical genetics and prenatal diagnosis. • Understand the principles of fetal dysmophology and its importance in prenatal diagnosis. • Understand the principles of screening for fetal aneuploidy and other structural abnormalities. • Understand the principles of and demonstrate an approach to genetic counseling. • Appreciate key ethical considerations involved in prenatal diagnosis. • Describe the following patterns of inheritance: <ul style="list-style-type: none"> ○ Mendelian mode of inheritance (autosomal dominant, autosomal recessive, X-linked dominant, and X-linked recessive). ○ Multifactorial. ○ Other patterns of inheritance (uniparental disomy and mitochondrial). ○ Incomplete penetrance, variable expression, and genetic heterogeneity. ○ Hardy-Weinberg law. ○ Relevance of new mutations. • Describe the following principles of human cytogenetics: <ul style="list-style-type: none"> ○ Cell mitosis and meiosis. ○ Chromosome nomenclature and mechanisms leading to numerical and structural chromosome abnormalities. ○ Mosaicism. • Perform history and physical examinations that are relevant, accurate, well-organized, and adapted to the patient’s clinical status. • Select appropriate investigations and interpret results for patients presenting for prenatal genetic consultation. • Demonstrate effective clinical problem solving and judgement for patients presenting for prenatal genetic consultation.

	<ul style="list-style-type: none"> • Describe and interpret the following chromosome pathology, including phenotypes, associated with Trisomies 13, 18, and 21, the significance of translocations and translocations carriers, and their recurrence risks, prognosis, and treatment options. • Discuss with patients and healthcare providers the indication, risks, and limitations of chorionic villus sampling and amniocentesis. • Discuss with patients and healthcare providers the indication, risks, and limitations of rapid aneuploidy detection and microarray. • Describe the ethical issues related to invasive prenatal diagnosis, and both recognize and respect the patient’s views. • Counsel couples seeking consultation for: <ul style="list-style-type: none"> ○ Nuchal translucency / FTS, maternal serum screen, sonographic “soft markers,” noninvasive prenatal aneuploidy screening, other available noninvasive prenatal detection. ○ Cystic fibrosis, hemoglobinopathies, and Tay-Sachs disease. • Construct and interpret a pedigree. • Counsel patients with fetal demise or interruption of pregnancy. • Counsel patients with: <ul style="list-style-type: none"> ○ Fetal cytogenetic abnormalities. ○ Family history of chromosome abnormality, single gene disorders, multifactorial conditions, and developmental abnormalities/intellectual disability of an unknown etiology. ○ Abnormalities of an unknown etiology. ○ Abnormal screening test results. • Understand the role of examination and autopsy of the fetus, including external examination and photography, X-ray, and microscopic assessment of major organs. • Understand the role of placental examination, including gross placental examination, and microscopic features of major placenta abnormalities • Identify significant findings from perinatal pathology, communicate findings to patients, and use results to develop management plans for future pregnancy.
Communicator	<ul style="list-style-type: none"> • Establish an effective and empathetic physician/patient relationship with pregnant women facing challenging complications of pregnancy. • Communicate effectively with families of high-risk pregnant women, including appropriate use of cultural and language interpretation facilities. • Recognize stress and mental illness in pregnant women and effectively involve psychiatric services. • Formulate and discuss plans for non-interventional care for the fetus. • Demonstrate sensitivity to the cultural, ethnic and religious backgrounds of patients. • Demonstrate ability to deliver bad news effectively with compassion and sensitivity. • Demonstrate an ability to assist families dealing with perinatal loss. • Communicate with and safely manage upset or abusive patients and/ or caretakers.
Collaborator	<ul style="list-style-type: none"> • Establish and maintain healthy inter-and intraprofessional working relationships. • Recognize and describe the roles, responsibilities, and competencies of other health care professionals. • Respectively collaborate with other care providers to assess, plan, and deliver patient care.

	<ul style="list-style-type: none"> • Communicate and coordinate care with all members of the health care team, including nurses, genetic counsellors, ultrasound technologists, medical and surgical consultants, social work, psychiatry, and paediatrics. • Demonstrate ability to overcome language and cultural barriers to effective multi-disciplinary care for genetic indications.
Leader	<ul style="list-style-type: none"> • Demonstrate ability to manage time efficiently. • Demonstrate ability to identify medico-legal risks and take steps to address them.
Health Advocate	<ul style="list-style-type: none"> • Identify the important determinants of health for an individual patient, highlight which determinants are modifiable, and adapt the treatment approach accordingly. • Respond to opportunities to advocate for individual patients and their families. • Assess the health needs of a patient and their family, as well as their ability to access health and social services.
Scholar	<ul style="list-style-type: none"> • Demonstrate an ability to critically evaluate the literature as it pertains to individual patient care. • Demonstrate inquisitiveness around clinical cases and an ability to extract information and previous experience from more senior staff. • Critically appraise medical information to address clinical questions and integrate conclusions into patient care. • Identify gaps in personal knowledge and skill, and develop strategies to correct them by self-directed reading, discussion with colleagues, and ongoing clinical experience.
Professional	<ul style="list-style-type: none"> • Demonstrate honesty, integrity, commitment, respect, empathy, compassion, and altruism. • Demonstrate respect for others and diversity. • Demonstrate reliability, punctuality, responsibility and conscientiousness. • Exhibit appropriate personal and interpersonal professional behavior. • Demonstrate an understanding of ethical practice and apply this to one's work. • Demonstrate insight and self-awareness into limitation of abilities. • Correct knowledge deficits through targeted independent learning.

IMPLEMENTATION:

Location	Prenatal Genetics, Calgary MFM Centre (Cambrian Building) Supervised by Medical Geneticists and Genetic Counsellors Genetics clinics start 8:00 AM
Patient Rounds?	No
Amnios / CVS?	No
Day L&D Shifts?	No
MFM on-call?	No
Integrated Research Time?	No

SCHEDULE:

	Monday	Tuesday	Wednesday	Thursday	Friday
AM	CMB PNG	CMB PNG	CMB PNG	CMB PNG	CMB PNG
PM	AHD	CMB PNG	CMB PNG	CMB PNG	CMB PNG

ASSESSMENT:

One45 Assessments	Other assessment items
End-of-rotation assessment (completed by JL) Narrative observations (2-3 per week)	

f) Neonatal Antenatal Consults, Perinatal Follow-up Clinic, and Pediatric Subspecialty Experience (4 weeks)

GOALS:

The goal of this core MFM experience is to gain knowledge and experience about the neonatal and pediatric outcomes for conditions encountered in the practice of MFM. In doing so, residents will gain an appreciation of the role of our pediatric colleagues, as well as knowledge that will assist in the day to day counselling of MFM patients as to neonatal care and outcomes.

SPECIFIC OBJECTIVES:

CanMEDS Role	During the rotation, the resident will demonstrate competency in their ability to:
Medical Expert	<ul style="list-style-type: none"> Identify and explore issues to be addressed in a patient encounter, including the patient’s context and preferences (under supervision). Elicit a history that is relevant, accurate, well-organized, and adapted to the patient’s clinical status (under indirect supervision). Implement an effective management plan in collaboration with a patient and the patient’s family (under direct supervision). Provide appropriate assessment and recommendations in neonatal antenatal consultation under direct supervision. Recognize and respond to the ethical dimension in medical decision-making. Demonstrate the ability to perform a simple antenatal consultation about prematurity (under direct supervision). Demonstrate both knowledge about and an approach to counselling and shared decision-making at the threshold of viability. Demonstrate both knowledge about and an approach to counselling and shared decision-making regarding palliative care. Provide parent education as to neonatal care in the delivery room, what to expect in the NICU, an introduction to feeding (including lactation support, availability of donor milk), and parental involvement at the neonatal bedside. Describe and understand indications for and principles of resuscitation of the newborn.

- Demonstrate a working knowledge about prematurity (from the limits of viability to late prematurity) appropriate for a practicing MFM, including:
 - Factors influencing neonatal outcome
 - Risks of neonatal mortality and severe disability per gestational age
 - Impact of related obstetric interventions on neonatal outcomes, including betamethasone, in-utero patient transfer, tocolysis, MgSO₄, GBS prophylaxis
 - Short term complications of prematurity, including: hypothermia, respiratory distress syndrome (RDS), bronchopulmonary dysplasia, apnea of prematurity, patent ductus arteriosus, intraventricular hemorrhage, glycemic abnormalities, jaundice, necrotizing enterocolitis, infection / sepsis, and retinopathy of prematurity.
 - Long term complications of prematurity, including: neurodevelopmental outcome (epidemiology and risk factors), chronic health issues, growth impairment, impairment of lung function, and effect on adult health.
 - Long term patient needs and societal cost
- Demonstrate knowledge about the definition of neurodevelopmental outcome, and describe the clinical risk factors for, the approach to diagnosis of, and the benefits of an early intervention program for: cognitive delay, moderate to severe cerebral palsy, hearing loss, severe visual impairment, and behavioral, psychosocial, and functional outcomes.
- Describe the neonatal immediate and long-term risks/complications and (if applicable) approach to immediate management of:
 - Intrapartum asphyxia, hypoxic ischemic encephalopathy, and therapeutic hypothermia
 - Maternal and obstetric conditions, such as:
 - Pre-existing and gestational diabetes
 - Pre-existing and gestational hypertension
 - Maternal BMI
 - Other endocrine disease
 - Intrauterine fetal growth restriction
 - Mid-gestation PPROM / anhydramnios
 - Autoimmune disease
 - Isoimmunization and fetal anemia
 - NAIT
 - Alcohol, narcotic, and other substance use in pregnancy
 - Use of medications in pregnancy
 - Fetal conditions, such as:
 - Major CNS malformations
 - Major cardiac malformations
 - Cleft lip and palate
 - Congenital diaphragmatic hernia
 - Gastroschisis and omphalocele
 - Gastrointestinal atresia
 - Urinary tract abnormalities, including hydronephrosis, severe bilateral renal abnormalities, lower urinary tract obstruction.

	<ul style="list-style-type: none"> ▪ Ovarian cyst ▪ Talipes ▪ Congenital and acquired fetal infection ▪ Hydrops fetalis ▪ Aneuploidy ○ Monochorionic multiple gestation, such as: <ul style="list-style-type: none"> ▪ TTTTS ▪ Selective growth restriction ▪ Intrauterine demise of a co-twin ● Demonstrate knowledge of the biomedical sciences relevant to MFM, specifically including the immunology of the fetus, placental respiratory gas exchange and fetal oxygenation, fetal acid-base balance, fetal cardiovascular physiology, fetal lung development and maturation, and the transition from fetal to neonatal life.
Communicator	<ul style="list-style-type: none"> ● Establish positive therapeutic relationships with patients, their families, and other health care colleagues that are characterized by understanding, trust, respect, honesty, and empathy. ● Deliver information to a patient, a patient’s family, colleagues, and other professionals in a humane manner and in such a way that it is understandable and encourages discussion and participation in decision-making. ● Present oral reports of clinical encounters and plans in an effective manner. ● Accurately elicit and synthesize relevant information and perspectives of patients and families, colleagues, and other professionals ● Accurately and effectively gather information about a patient’s beliefs, concerns, expectations, and illness experience. ● Encourage discussion, questions, and interaction in patient encounters. ● Listen effectively and respond to non-verbal clues. ● Offer compassionate support for families, especially during times of stress and bad news.
Collaborator	<ul style="list-style-type: none"> ● Recognize and respect the diverse roles, responsibilities, and competencies of other health care professionals. ● Respectively collaborate with other care providers to assess, plan, and deliver patient care. ● Participate effectively in interdisciplinary team meetings (under direct supervision). ● Reflect on interprofessional team function.
Leader	<ul style="list-style-type: none"> ● Demonstrate ability to manage time efficiently. ● Recognize the importance of just allocation of health care resources, balancing effectiveness, efficiency, and access with optimal patient care
Health Advocate	<ul style="list-style-type: none"> ● Assess the health needs of a patient and their family, as well as their ability to access health and social services. ● Identify the important determinants of health for an individual patient, highlight which determinants are modifiable, and adapt the treatment approach accordingly.
Scholar	<ul style="list-style-type: none"> ● Demonstrate inquisitiveness around clinical cases and an ability to extract information and previous experience from more senior staff. ● Critically appraise medical information to address clinical questions and integrate conclusions into patient care. ● Identify gaps in personal knowledge and skill and develop strategies to correct them by self-directed reading and discussion with colleagues.

Professional	<ul style="list-style-type: none"> • Demonstrate honesty, integrity, commitment, respect, empathy, compassion, and altruism. • Show self-discipline, responsibility, and punctuality in attending to clinical duties and at meetings and other activities. • Communicate with preceptor as to absences or change in schedule (such as, but not limited to, MFM academic half-day, fetal therapy, opportunities for other pediatric consultations or clinics). • Take initiative to arrange the recommended other clinical experiences in a timely manner and ask for assistance if needed. • Exhibit appropriate personal and interpersonal professional behavior. • Demonstrate insight and self-awareness into limitation of abilities.
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IMPLEMENTATION:

The primary clinical experience is a 2-week block dedicated to antenatal neonatal consultation. During this block, MFM residents work one-on-one with the Neonatologist who is on service for antenatal consultations for the week, undertaking antenatal neonatal consultation at FMC, as well as at the MFM Cambrian site on Wednesdays and Thursdays. This experience is expected to include observation, as well as the opportunity to take a role in information gathering and patient counselling, under direct supervision.

Supplementing this experience is a 1-week clinical experience in Perinatal Follow-up clinic at the Child Developmental Centre, Alberta Children’s Hospital, where residents will gain an appreciation of the long-term complications of prematurity, hypoxic ischemic encephalopathy and complex pediatric therapies, and the importance of early intervention. This is a brief exposure, and the clinical experience will be primarily observational.

Additionally, this rotation includes the opportunity to attend antenatal consults, neonatal consults, and / or clinics with various pediatric (and related) sub-specialties, in areas relevant to future MFM practice. Given the unpredictable nature of scheduling these experiences and logistical considerations, while these experiences may occur during the dedicated 4-week NPM block, they will likely be primarily located during the adjacent MFM: Core Inpatients block rotation (or even other rotations).

As there is significant knowledge to be acquired independently by the resident, it is expected that time free of antenatal neonatal / pediatric consultations will be dedicated to personal study, guided by the objectives above. Residents are NOT expected to lead FD&T rounds during this block.

Location	<ul style="list-style-type: none"> • FMC Antepartum Unit 41A (for inpatient antenatal consults); meet for handover at 8:00 AM Unit 51 • Calgary MFM Centre (Cambrian) (for outpatient antenatal consults); meet at Cambrian at 8:00. • Perinatal Follow-up Clinic – Child Developmental Centre. Tuesday and Friday clinics run in the mornings (8am-approximately 1pm) with team conferences that run on the same day from 2-3pm; Wednesday clinics (8am to 4pm) are followed by a team conference on Thursday afternoons (12 - 2pm). If scheduled, Team inservices will occur on Tuesdays from 1-2pm and Family Conferences will occur on Wednesdays at 230-4pm or Thursdays at 8.30-noon.
Patient Rounds?	No

Amnios / CVS?	Yes (unless conflicts with other specialty clinic experience)
Day L&D Shifts?	No
MFM evenings / weekends on-call?	1 week
Integrated Research Time?	Up to 1 week permitted

SCHEDULE:

For the weeks of Neonatal Antenatal Consultations:

	Monday	Tuesday	Wednesday	Thursday	Friday
AM	FMC Neo Consults	FMC Neo Consults	CMB Neo Consults	Attend FD&T Rounds CMB Neo Consults	FMC Neo Consults
PM	AHD	FMC Neo Consults NPM Grand Rounds (4PM)	FMC Neo Consults	Procedures FMC Neo Consults	FMC Neo Consults

For the week of Perinatal Follow-up Clinic:

	Monday	Tuesday	Wednesday	Thursday	Friday
AM	Study	Perinatal Follow-Up Clinic (8AM-1PM)	Perinatal Follow-Up Clinic (8AM-4PM)	Attend FD&T Rounds Study Possible Family Conference (8:30AM-12PM)	Perinatal Follow-Up Clinic (8AM-1PM)
PM	AHD	Possible Inservice (1PM-2PM) Team Conference (2PM-3PM) NPM Grand Rounds (4PM)	Perinatal Follow-Up Clinic (8AM-4PM) Possible Family Conference (2:30PM-4PM)	Team Conference (12-2 pm)	Team Conference (2PM-3PM)

Other pediatric or related experiences (contact list provided prior to rotation) are to be integrated into either this block or the associated MFM: Core Inpatient block. These experiences may include antenatal consultation, neonatal consultations, or full clinics. Residents are to make primary contact with these clinics, with assistance of the MFM Program Administrator as requested. Available / encouraged experiences for MFM residents include:

- Pediatric palliative care
- Pediatric surgery
- Pediatric nephrology

- Pediatric plastic surgery (cleft lip and palate clinic)
- Pediatric orthopedics (talipes clinic)
- Pediatric neurology
- Pediatric neurosurgery
- Perinatal pathology (fetal autopsy and placental pathology)
- Diagnostic imaging (neonatal head ultrasound, fetal CNS MRI, fetal body MRI)
- Fertility clinic

ASSESSMENT:

One45 Assessments	Other assessment items
Weekly assessments (1 per week, completed by Neonatologist on-call for Antenatal Neonatal Consults and designated Perinatal Follow-up physician) MFM weekend on-call assessment (1 per block) Narrative observations (2-3 per week)	Feedback / Reflection Tool (for other clinic experiences)

TRANSITION TO DISCIPLINE

a) MFM: Transition to Practice Inpatients (4 weeks)

GOALS:

Allows the resident to effectively practice as an independent MFM specialist, but with the available support of an MFM. The resident is expected to independently care for women receiving care with the MFM inpatient service, independently provide complex care for inpatient with complex maternal and fetal problems, and to lead clinical management discussions for women with maternal and fetal complications. They are expected to independently provide MFM consultation at the tertiary care centre. By the end of the clinical experience, the resident is expected to demonstrate appropriate knowledge and decision-making skills to manage the full range of presentations encountered in MFM and demonstrate competence in the evaluation and management of medical and obstetrics complications of pregnancy, as well as technical proficiency in obstetrical ultrasound and prenatal diagnostic procedures.

CanMEDS Role	During this clinical experience, the resident will demonstrate competency in their ability to:
Medical Expert	<ul style="list-style-type: none"> • Independently provide appropriate assessments and recommendations as a consultant for problems in MFM. • Prioritize and respond to multiple competing professional demands in the role of a MFM specialist. • Demonstrate compassionate patient care.

	<ul style="list-style-type: none"> • Demonstrate all appropriate clinical knowledge and skills relevant to the care of women with complex medical disorders, and obstetrical and fetal complications, including transport (independently) • Select appropriate investigations and interprets results for patients with problems in MFM • Demonstrate effective clinical problem-solving and judgement for problems in MFM. • Establish and implement patient-centred management plans for patients with problems in MFM. • Recognize and manage emergency situations common to MFM independently. • Apply appropriate and timely preventative, diagnostic, and therapeutic interventions for problems in MFM. • Obtain appropriate informed consent for high-risk investigations and interventions. • Recognized own limits of expertise. • Seek appropriate consultation with other health professionals.
Communicator	<ul style="list-style-type: none"> • Establish positive therapeutic relationships with patients, their families, and other health care colleagues that are characterized by understanding, trust, respect, honesty, and empathy. • Demonstrate an understanding of and respect for diversity and differences. • Offer compassionate support for families and colleagues, especially during times of stress. • Listen effectively and respond to non-verbal clues • Facilitate a clinical encounter effectively independently. • Organize and facilitate multidisciplinary or family meetings independently • Provide explanations of diagnoses, investigations, and management that are clear, accurate, and adapted to the patients and their family's level of understanding and need. • Engage families and other health care providers in shared decision-making. • Manage emotionally-charged conversations independently. • Independently obtain informed consent for medical and surgical therapies. • Independently prepare clear, accurate, concise, and timely documentation of clinical encounters, procedures, and plans. • Present clear, accurate, and concise oral reports of clinical encounters and plans. • Address challenging communication issues effectively and independently. • Demonstrate the ability to prepare and present information to colleagues and other residents, both informally and formally, including teaching to junior learners.
Collaborator	<ul style="list-style-type: none"> • Establish and maintain healthy inter-and intraprofessional working relationships. • Respectfully collaborate with other care providers to assess, plan, and deliver patient care. • Work with others to prevent identify and resolve conflicts. • Demonstrate safe handover of care, both verbal and written, during a patient transition to a different healthcare professional, setting, or stage of care. • Demonstrate leadership in a multidisciplinary health care team, showing respect, consideration, and acceptance of other team members and their opinions while contributing personal specialty-specific expertise (independently).
Leader	<ul style="list-style-type: none"> • Manage MFM patients with complex conditions independently. • Demonstrate leadership of the Outpatient Unit team / Inpatient MFM unit and the Antepartum unit teams.

	<ul style="list-style-type: none"> • Effectively lead interdisciplinary team meetings • Set priorities and manage time to balance professional and personal responsibilities. • Judiciously allocate healthcare resources. • Effectively and independently manage a clinical MFM practice, including the follow-up and management of normal and abnormal test results and appropriate referral to other specialties. • Demonstrates leadership and insight in directing personal learning needs and desired clinical experience during Transition to Practice. • Demonstrates leadership among MFM residents for issues of organization and communication.
Health Advocate	<ul style="list-style-type: none"> • Assess the health needs of a patient and their family, as well as their ability to access health and social services. • Identify the important determinants of health for an individual patient, highlight which determinants are modifiable, and adapt the treatment approach accordingly. • Respond to opportunities to advocate for individual patients and their families. • Respond to opportunities for health promotion and disease prevention with individual patients and families. • Independently make clinical decisions for an individual patient, when necessary balancing her needs against the needs of the general population and against the available resources. • Ensure an appropriate follow-up plan is in place at discharge for all patients.
Scholar	<ul style="list-style-type: none"> • Consistently correct personal knowledge deficits through targeted learning. • Implement personal change following reflection on teaching encounters, learning issues, and feedback in practice. • Critically appraise medical information to address clinical questions and integrate conclusions into patient care. • Collaboratively identify the learning needs and goals of others. • Facilitate the learning of others using effective teaching strategies independently, while ensuring patient safety is maintained. • Independently provide effective feedback to learners. • Independently present and lead multidisciplinary discussions at FD&T rounds. • Independently lead and actively participate in MFM Journal Club.
Professional	<ul style="list-style-type: none"> • Demonstrate honesty, integrity, commitment, respect, empathy, compassion, and altruism. • Demonstrate commitment to delivering the highest quality care with independence. • Respond to ethical issues in MFM with appropriate consideration. • Maintain appropriate boundaries with patients, family, and colleagues. • Maintain patient confidentiality at all times. • Demonstrate insight and self-awareness into limitation of abilities. • Balance personal and professional priorities to promote personal health and sustainable practice. • Complete evaluations of junior learners, preceptors, rounds, and rotations in a timely and constructive manner.

IMPLEMENTATION:

Location	Foothills Medical Centre MFM Unit Located at FMC Unit 42 (Gyne Onc), Room 451 Supervised by FMC Ultrasound Technologists and MFM physicians Meet at Unit 51 L&D 8 AM daily for Obstetric Handover
Patient Rounds?	Yes
Amnios / CVS?	Yes
Day L&D Shifts?	1-day L&D shift with MFM physicians (8am to 8 pm)
MFM on-call?	1 week
Integrated Research Time?	Up to 1 weeks (or equivalent)

PROTENTIAL SCHEDULE:

	Monday	Tuesday	Wednesday	Thursday	Friday
AM	FMC MFM	MFM Prenatal clinic	FMC MFM	FMC MFM	FMC MFM
PM	AHD	MFM Prenatal clinic	FMC MFM	FMC MFM	FMC MFM

As well as other experiences, such as requested medical subspecialty experience (diabetes in pregnancy, cardiac disease in pregnancy), other requested sub-specialty experience (such as fetal cardiology, anesthesia consultation, pediatric follow-up consultations, etc) (self-directed).

ASSESSMENT:

One45 Assessments	Other assessment items
MFM: Transition to Practice (inpatients) Block Assessment, sent to 3-5 MFM Clinicians per block (always including Fellow MAC preceptor). MFM weekend on-call assessment (1 per block)	Multisource Feedback (RNs, US technicians, referring physicians q6 months) Feedback on Resident Presentations (FD&T presenter assessment, MFM Journal Club)

b) MFM: Transition to Practice Outpatients (16 weeks)

GOALS:

Allows the resident to effectively practice as an independent MFM specialist, but with the available support of an MFM. The resident is expected to independently care for women in MFM outpatient clinics, independently provide complex care for inpatient with complex maternal and fetal problems, and to lead clinical management discussions for women with maternal and fetal complications. They are expected to independently provide MFM consultation in the outpatient clinic, and at the tertiary care centre as arises. By the end of the clinical experience, the resident is expected to demonstrate appropriate knowledge and decision-making skills to manage the full range of presentations encountered in MFM and demonstrate competence in the evaluation and management of medical and obstetrics complications of pregnancy, as well as technical proficiency in obstetrical ultrasound and prenatal diagnostic procedures.

CanMEDS Role	During this clinical experience, the resident will demonstrate competency in their ability to:
Medical Expert	<ul style="list-style-type: none"> • Independently provide appropriate assessments and recommendations as a consultant for problems in MFM. • Prioritize and respond to multiple competing professional demands in the role of a MFM specialist. • Demonstrate compassionate patient care. • Demonstrate all appropriate clinical knowledge and skills relevant to the care of women with complex medical disorders, and obstetrical and fetal complications. • Select appropriate investigations and interprets results for patients with problems in MFM • Demonstrate effective clinical problem-solving and judgement for problems in MFM. • Establish and implement patient-centred management plans for patients with problems in MFM. • Recognize and manage emergency situations common to MFM independently. • Apply appropriate and timely preventative, diagnostic, and therapeutic interventions for problems in MFM. • Obtain appropriate informed consent for high-risk investigations and interventions. • Recognized own limits of expertise. • Seek appropriate consultation with other health professionals.
Communicator	<ul style="list-style-type: none"> • Establish positive therapeutic relationships with patients, their families, and other health care colleagues that are characterized by understanding, trust, respect, honesty, and empathy. • Demonstrate an understanding of and respect for diversity and differences. • Offer compassionate support for families and colleagues, especially during times of stress. • Listen effectively and respond to non-verbal clues. • Facilitate a clinical encounter effectively independently. • Organize and facilitate multidisciplinary or family meetings independently. • Provide explanations of diagnoses, investigations, and management that are clear, accurate, and adapted to the patients and their family's level of understanding and need. • Engage families and other health care providers in shared decision-making. • Manage emotionally-charged conversations independently. • Independently obtain informed consent for medical and surgical therapies.

	<ul style="list-style-type: none"> Independently prepare clear, accurate, concise, and timely documentation of clinical encounters, procedures, and plans. Present clear, accurate, and concise oral reports of clinical encounters and plans. Address challenging communication issues effectively and independently. Demonstrate the ability to prepare and present information to colleagues and other residents, both informally and formally, including teaching to junior learners.
Collaborator	<ul style="list-style-type: none"> Establish and maintain healthy inter- and intraprofessional working relationships. Respectfully collaborate with other care providers to assess, plan, and deliver patient care. Work with others to prevent identify and resolve conflicts. Demonstrate safe handover of care, both verbal and written, during a patient transition to a different healthcare professional, setting, or stage of care. Demonstrate leadership in a multidisciplinary health care team, showing respect, consideration, and acceptance of other team members and their opinions while contributing personal specialty-specific expertise (independently).
Leader	<ul style="list-style-type: none"> Manage MFM patients with complex conditions independently. Demonstrate leadership of the Outpatient Unit team / Inpatient MFM unit and the Antepartum unit teams. Effectively lead interdisciplinary team meetings Set priorities and manage time to balance professional and personal responsibilities. Judiciously allocate healthcare resources. Effectively and independently manage a clinical MFM practice, including the follow-up and management of normal and abnormal test results and appropriate referral to other specialties. Demonstrates leadership and insight in directing personal learning needs and desired clinical experience during Transition to Practice. Demonstrates leadership among MFM residents for issues of organization and communication.
Health Advocate	<ul style="list-style-type: none"> Assess the health needs of a patient and their family, as well as their ability to access health and social services. Identify the important determinants of health for an individual patient, highlight which determinants are modifiable, and adapt the treatment approach accordingly. Respond to opportunities to advocate for individual patients and their families. Respond to opportunities for health promotion and disease prevention with individual patients and families. Independently make clinical decisions for an individual patient, when necessary balancing her needs against the needs of the general population and against the available resources. Ensure an appropriate follow-up plan is in place at discharge for all patients.
Scholar	<ul style="list-style-type: none"> Consistently correct personal knowledge deficits through targeted learning. Implement personal change following reflection on teaching encounters, learning issues, and feedback in practice. Critically appraise medical information to address clinical questions and integrate conclusions into patient care. Collaboratively identify the learning needs and goals of others. Facilitate the learning of others using effective teaching strategies independently, while ensuring patient safety is maintained. Independently provide effective feedback to learners.

	<ul style="list-style-type: none"> Independently present and lead multidisciplinary discussions at FD&T rounds. Independently lead and actively participate in MFM Journal Club.
Professional	<ul style="list-style-type: none"> Demonstrate honesty, integrity, commitment, respect, empathy, compassion, and altruism. Demonstrate commitment to delivering the highest quality care with independence. Respond to ethical issues in MFM with appropriate consideration. Maintain appropriate boundaries with patients, family, and colleagues. Maintain patient confidentiality at all times. Demonstrate insight and self-awareness into limitation of abilities. Balance personal and professional priorities to promote personal health and sustainable practice. Complete evaluations of junior learners, preceptors, rounds, and rotations in a timely and constructive manner.

IMPLEMENTATION:

Location	Calgary MFM Centre (Cambrian Building) and North Tower FMC 2 nd floor Supervised by reporting MFM physicians and MFM physicians providing prenatal care Ultrasound clinics, MAC , and MFM prenatal clinics start 8:00 AM
Patient Rounds?	No
Amnios / CVS?	Yes
Day L&D Shifts?	1-day L&D shift with MFM physicians (8am to 8 pm)
MFM on-call?	1 week
Integrated Research Time?	Up to 1 weeks per block (or equivalent)

PROTENTIAL SCHEDULE:

	Monday	Tuesday	Wednesday	Thursday	Friday
AM	CMB MFM FD&T	Prenatal clinic	CMB MFM FD&T	CMB MFM FD&T	CMB MFM FD&T (or PCC)
PM	AHD	Prenatal clinic	CMB MFM reporting	Procedures CMB MFM reporting	CMB MFM reporting (or PCC)

As well as other experiences, such as Sunridge MFM (2-3x per block), and other requested medical subspecialty experience (diabetes in pregnancy, cardiac disease in pregnancy), other requested sub-specialty experience (such as fetal cardiology, anesthesia consultation, pediatric follow-up consultations, etc) (self-directed).

ASSESSMENT:

One45 Assessments	Other assessment items
MFM: Transition to Practice (outpatients) Block Assessment, sent to 3-5 MFM Clinicians per block (always including Fellow MAC preceptor). MFM weekend on-call assessment (1 per block) Narrative observations (2-3 per week)	Multisource Feedback (RNs, US technicians, referring physicians q6 months) Feedback on Resident Presentations (FD&T presenter assessment, MFM Journal Club)

EVALUATION:

Progress and promotion in the MFM Residency Program is determined by the Competency Committee, at meetings occurring quarterly.

LONGITUDINAL EXPERIENCES

a) Research / Scholarly Activity (12+ weeks and Longitudinal Assessment)

GOALS:

- Learn research methodology appropriate for field of interest
- Develop a research proposal (including timeline and plan for completion / dissemination) and prepare for ethics submission
- Demonstrate interprofessional collaboration for a scholarly project
- Utilize planning and time management to complete the scholarly project

SPECIFIC OBJECTIVES:

CanMEDS Role	During the rotation, the resident will demonstrate competency in their ability to:
Medical Expert	<ul style="list-style-type: none"> • Demonstrate an ability to pose a clinical question, recognize gaps in knowledge around the clinical question, formulate a plan to fill the gap, propose a solution to the clinical question, and evaluate the solution and outcome in practice. • Understand the fundamentals of medical research including research design, recruitment of subjects for trials, responsible use of informed consent, standards of ethical conduct of research, clinical epidemiology, data analysis (biostatistics), and outcomes analysis. • Demonstrate knowledge of criteria for critical appraisal of studies seeking to:

	<ul style="list-style-type: none"> ○ Establish causation. ○ Determine natural history and prognosis. ○ Assess accuracy of diagnostic tests to evaluate therapy of maternal, fetal and neonatal disease. <ul style="list-style-type: none"> ● Demonstrate an ability to assess current scientific developments related to more effective patient care in maternal-fetal medicine.
Communicator	<ul style="list-style-type: none"> ● Respect and protect the patient’s rights to autonomy, confidentiality and privacy ● Communicate and coordinate with all members of the research team (biostatistician, health records, co-investigators), in a comprehensive and timely fashion ● Prepare and submit a comprehensive research protocol and ethics request to the appropriate regulatory bodies ● Prepare and present research findings in a formal setting in a departmental, regional, national or international meeting
Collaborator	<ul style="list-style-type: none"> ● Collaborate effectively with the research / project team.
Leader	<ul style="list-style-type: none"> ● Demonstrate ability to manage personal time efficiently. ● Contributing directly to education, research mentoring and role modeling of junior trainees. ● Maintain detailed, organized and confidential records of research process that can be reviewed and audited by the Research Coordinator as necessary on a regular basis.
Health Advocate	<ul style="list-style-type: none"> ● Understand how clinical decisions and judgments should be based on sound evidence for the benefit of the patient, the family and the larger population served. ● Appreciate the principles of health policy development as applied to Obstetrics and Maternal-Fetal Medicine.
Scholar	<ul style="list-style-type: none"> ● Demonstrate an understanding of how to pose a research question (clinical, basic or population health), how to plan, carry out and evaluate a research project, and how to summarize the results and prepare a report for presentation and peer-reviewed publication. ● Demonstrate an understanding of the principles of adult learning and the ability to teach, supervise and evaluate junior trainees and students, as well as develop a plan for continuing self-education. ● Gain hands-on experience with conducting a clinical research project including research design, subject recruitment, data collection, data analysis, and manuscript preparation. ● Understand principles of grant- and paper-writing. ● Have sufficient exposure to research to make an informed decision about pursuing a career involving research. ● Be competent in using available medical informatics systems and bibliographic retrieval. ● Demonstrate awareness of potential benefits to the patient of active clinical trials appropriate to her case and demonstrate support for enrollment of the patient wishes.
Professional	<ul style="list-style-type: none"> ● Exhibit appropriate personal and interpersonal professional behavior, including reliability, punctuality, responsibility, and conscientiousness. ● Use appropriate strategies to maintain and advance professional competence. ● Demonstrate an understanding of ethical practice and applies this to one's work. ● Demonstrate self-awareness/knowledge

IMPLEMENTATION:

Location	n/a
Patient Rounds?	No
Amnios / CVS?	Yes
Day L&D Shifts?	1-2 per block
MFM on-call?	1 week per block
Integrated Research Time?	n/a

SCHEDULE:

	Monday	Tuesday	Wednesday	Thursday	Friday
AM	Research	Research	Research	Research	Research
PM	AHD	Research	Research	Procedures Research	Research

ASSESSMENT:

One45 Assessments	Other assessment items
Research block assessment (sent to research supervisors) MFM weekend on-call assessment (1 per block) Longitudinal research assessment (sent to research supervisors) (q4 months) Longitudinal research self-assessment (q4 months)	Submission of proposal to RPC Completion of project Dissemination of research

b) MFM: High-Risk Labour and Delivery (Longitudinal Assessment)

SPECIFIC OBJECTIVES:

CanMEDS Role	During the rotation, the resident will demonstrate competency in their ability to:
Medical Expert	<ul style="list-style-type: none"> Recognize and manage emergency situations common to tertiary obstetrics under indirect supervision. Demonstrate appropriate clinical knowledge and skills relevant to the care of women with complex medical disorders, obstetrical and fetal complications, and requiring transport.

	<ul style="list-style-type: none"> • Select appropriate investigations and interpret results for tertiary obstetric patients. • Demonstrate effective clinical problem-solving and judgement for tertiary obstetric patients. • Establish and implement patient-centered management plans for tertiary obstetric patients. • Recognize own limits of expertise. • Seek appropriate consultation with other health professionals.
Communicator	<ul style="list-style-type: none"> • Communicate appropriately by telephone to provide management advice to referring physicians and transport personnel for the safe and appropriate transport of high-risk obstetrical patients. • Establish positive therapeutic relationships with patients, their families, and other health care colleagues that are characterized by understanding, trust, respect, honesty, and empathy. • Provide explanations of diagnoses, investigations, and management that are clear, accurate, and adapted to the patients and their family's level of understanding and need. • Engage families and other health care providers in shared decision-making. • Manage emotionally charged conversations independently.
Collaborator	<ul style="list-style-type: none"> • Respectfully collaborate with other care providers to assess, plan, and delivery patient care. • Works with others to prevent identify and resolve conflicts. • Effectively and safely hand over patient care to on-call providers and receiving care providers during transfer and discharge.
Leader	<ul style="list-style-type: none"> • Manage tertiary obstetric patients with complex conditions under indirect supervision. • Set priorities and manage time to balance competing responsibilities. • Provide leadership, in a multidisciplinary health care team, showing respect, consideration, and acceptance of other team members and their opinions while contributing personal specialty-specific expertise.
Health Advocate	<ul style="list-style-type: none"> • Respond to opportunities to advocate for individual patients and their families
Scholar	<ul style="list-style-type: none"> • Collaboratively identify the learning needs and goals of others. • Facilitate the learning of others using effective teaching strategies independently.
Professional	<ul style="list-style-type: none"> • Demonstrate honesty, integrity, commitment, respect, empathy, compassion, and altruism. • Demonstrate commitment to delivering the highest quality care. • Respond to ethical issues in tertiary obstetrics with appropriate consideration. • Exhibit appropriate personal and interpersonal professional behavior. • Demonstrate insight and self-awareness into limitation of abilities.

SCHEDULE:

- Weekday L&D shifts from 8 AM to 5 PM with a MFM physician at FMC.
- During 6-week "Intro to Inpatients," plan multiple days of L&D (as possible) to assess skills and develop learning plan.

- General “roadmap” of 2 days / block in 1st year and 1 day / block (8am-8pm) can and should be individualized.
- Frequency of L&D days can be personalized based on staff feedback / recommendations and/or by resident self-assessment of needs / request to RPC. Any addition of nights / weekends will affect days of MFM on-call (PARA rules).
- Residents encouraged (and supported) to attend complex (and usually planned) deliveries (outside of planned L&D days) ... should gain as much experience as possible with “MFM” deliveries, complex procedures, and “fellow” patients. As with fetal therapy, residents are freed from their other clinical duties to attend these complex deliveries.
- Programs can be individualized to include additional obstetrical procedural experience (D&E, cerclage) on resident request.
- No required L&D days on off-service rotations (including Obstetric Internal Medicine, Prenatal Genetics, Neonatal Antenatal Consults) and potentially rotations with specific scheduling requirements (Fetal Cardiology and Advanced Fetal Imaging).
- If there are limited shifts with MFM physicians available, options will be considered including deferring the shift to another block.

IMPLEMENTATION:

Location	Foothills Medical Centre Labour and Delivery Located at FMC Unit 51 Supervised by MFM physicians on-call for tertiary obstetrics Meet at Unit 51 L&D 8 AM daily for Obstetric Handover
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ASSESSMENT:

One45 Assessments	Other assessment items
High-risk labour and delivery assessment (1 per shift) Longitudinal high-risk labour and delivery assessment (q4 months)	Obstetrical Procedures Assessment (modified O-SCORE) (1 per shift)

c) MFM: Fetal Procedures (Longitudinal Assessment)

CanMEDS Role	During the rotation, the resident will demonstrate competency in their ability to:
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Medical Expert	<ul style="list-style-type: none"> • Demonstrate the ability to assist at fetal procedures by tracking the needle with ultrasound. • Perform diagnostic and therapeutic procedures relevant to MFM under direct or indirect supervision, then later independently, including: <ul style="list-style-type: none"> ○ Routine amniocentesis ○ Complex amniocentesis ○ Trans-vaginal chorionic villus sampling ○ Trans-abdominal chorionic villus sampling ○ Therapeutic amnioreduction • Assist or perform at advanced therapeutic procedures relevant to MFM under direct supervision, including any of: <ul style="list-style-type: none"> ○ Fetal vesicocentesis +/- bladder shunt insertion ○ Fetal thoracocentesis +/- thoracic shunt insertion ○ Cordocentesis ○ Intrauterine transfusion ○ Fetocide (intracardiac lidocaine injection) ○ Fetocide (radiofrequency ablation) • Minimize risk and discomfort to patient during and following fetal diagnostic and therapeutic procedures. • Recognize the limits of your expertise and ask for help when needed.
Communicator	<ul style="list-style-type: none"> • Obtain informed consent for fetal procedures, under direct or indirect supervision. • Facilitate a fetal procedure effectively (including clear communication to the patient and team) under direct or indirect supervision. • Listen effectively and respond to non-verbal patient clues during fetal procedures. • Prepare clear, accurate, concise, and timely written documentation of fetal procedures and plans of care. • Present clear, accurate, and concise oral reports of fetal procedures • Communicate with referring care providers and other health professionals involved in the patient's care.
Collaborator	<ul style="list-style-type: none"> • Establish and maintain healthy inter-and intra-professional working relationships
Leader	<ul style="list-style-type: none"> • Demonstrate leadership of a fetal procedural team. • Demonstrate safe handover of care, both verbal and written, during a patient transition to a different healthcare professional, setting, or stage of care.
Health Advocate	
Scholar	<ul style="list-style-type: none"> • Identify gaps in personal knowledge and skill, and develop strategies to correct them by self-directed reading, discussion with colleagues, and ongoing procedural experience. • Demonstrate inquisitiveness around clinical cases, and an ability to extract information and previous experience from more senior staff.

Professional	<ul style="list-style-type: none"> • Deliver the highest quality care with integrity, honesty and compassion and empathy. • Demonstrate reliability, punctuality, responsibility, and conscientiousness. • Exhibit appropriate personal and interpersonal professional behavior. • Demonstrate insight and self-awareness into limitation of abilities. • Use appropriate strategies to maintain and advance professional competence.
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SCHEDULE:

- Fetal diagnostic procedures (amniocentesis and CVS) occur weekly on Thursday afternoons at the MFM Centre (EFW – Cambrian).
- Fetocides (including selective fetal reduction) generally occur early on weekdays (7:30 AM) at the MFM Centre (EFW – Cambrian) (optional).
- Intrauterine fetal transfusions, shunt placements, and RFAs generally occur early on weekdays (7:00 AM) at FMC.
- Amnioreductions generally occur on weekdays (or on-call) at FMC.
- Residents encouraged (and supported) to attend all fetal therapy opportunities as they arise. Residents are freed from their other clinical duties to attend these opportunities.

IMPLEMENTATION:

Location	Foothills Medical Centre Calgary MFM Centre (Cambrian Building) 3 rd floor Supervised by proceduralist MFM physicians
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ASSESSMENT:

One45 Assessments	Other assessment items
Fetal procedures assessment (modified OSATS) (1 per shift) Longitudinal fetal procedures assessment (q4 months)	

Resident Teaching and Administrative Activities

During MFM residency, MFM residents will participate in both routine and opportunistic teaching and administrative activities. Teaching and administrative opportunities and expectations include:

- FD&T Rounds (weekly). Presenting 1-2 fetal cases per week while on MFM clinical experiences.
- Fetal pathology rounds (monthly). Presenting 1-2 fetal cases per week while on MFM clinical experiences.
- MFM Journal Club. Presenting and leading discussion 2-3 per year.
- Dept O&G Grand Rounds. Presenting once per residency.
- Calgary Perinatal Mortality Committee (monthly). Presenting 2-3 cases of perinatal mortality and participating in committee cases discussions for 1 year of residency.
- Maternal Cardiac Obstetric Case Conference. Leading the conference presentations and developing complex care plans for 1 year of residency.
- Obstetric Internal Medicine Case Conference (monthly). Potentially presenting 1-2 cases and topic reviews while on MFM Core and TTP rotations.
- Undergraduate Medical Education
 - Course 6 (reproduction). Preceptor of a small group (obstetric-related sessions).
 - O&G Clerkship “boot camp”. Potentially requested to assist in 1-2 sessions per year.
- PGME
 - O&G residency academic half-day. Potentially 1 session per year.
 - O&G residency chief teaching and OSCE. Potentially 1 session per year.
 - Other program’s academic half-day. May be requested.
- CME presenting opportunities may arise, such as:
 - U of C’s Current Obstetric Management Seminars (COMS)
 - Advanced Fetal Imaging Conference
 - SOGC West Central Meeting

The program will endeavor to collect feedback for the resident from teaching sessions.

Resident Assessment and Promotion

Assessment of resident performance is transitioning to a competency-based model. We have transitioned away from traditional ITERs, and towards a system of multiple feedbacks / assessments from clinical supervisors (“coaches”) with assessment of progress / competence determined by our Competence Committee. At present, we are supported by One45, a secure AHS survey platform, and paper-based tools (while awaiting the Royal College E-portfolio). Assessment methods vary by clinical experience / rotation (please see the rotation-specific information section above). We endeavor to have faculty complete assessments in a timely fashion.

Current assessment methods include:

- Rotation-specific block assessments
- Direct observation of counselling (modified mini-CEX)
- Narrative observation from faculty (CBD-based template)
- Ultrasound checklist (Introduction blocks)
- Ultrasound checklist (advanced fetal imaging blocks)
- Feedback and reflection tool (for use with pediatric clinics, anesthesia consults, and other short experiences)
- Fetal procedures assessment (modified OSATS)
- Obstetrical procedures assessment (modified O-SCORE)
- Longitudinal assessments of fetal procedures, high-risk obstetrics, and research
- Longitudinal self-assessments for general MFM and research
- Multi-source feedback (from MFM nurses, ultrasound technicians, learners, and referring physicians)
- Feedback from MFM Journal Club presentations
- Feedback from FD&T Rounds presentations
- Feedback from Grand Rounds presentation
- Short-answer question examinations (2-3 per year)
- Completion of a scholarly project

The Competency Committee meets 3 times per year to review the resident assessments and to determine progress and promotion within the program. Please see Appendix **B** for the Competency Committee Terms of Reference. The Competency Committee findings are summarized within a standard template (please see Appendix **C**). These findings will be provided to the residents by the Program Director in

a timely fashion and uploaded to their resident file. Following the Competence Committee meeting, the resident will meet with the Program Director to review the findings and discuss any adjustment needed to clinical experiences. Residents are encouraged to review the recommendations with their faculty mentor.

MFM will transition to Competency by Design for residents starting July 1, 2022. We anticipate minimal curriculum changes, as we have been preparing for CBD for many years. We will then incorporate RCPSC Mainport for milestone and EPA assessments into our assessment program. Our mentorship role will be transitioning to an Academic Advisor.

The MFM Residency adheres to the PGME Resident Assessment Policy and the Resident Promotion Policy.

<https://cumming.ucalgary.ca/sites/default/files/teams/6/policies/pgme-resident-assessment-policy-final-jul2018.pdf>

<https://cumming.ucalgary.ca/sites/default/files/teams/6/policies/pgme-resident-promotion-policy-final-jul2018.pdf>

Remediation and Probation

The MFM Residency adheres to the PGME Policy on Resident Remediation, Probation and Dismissal.

<https://cumming.ucalgary.ca/sites/default/files/teams/6/policies/pgme-resident-remediation-probation-dismissal-policy-final-jul2018.pdf>

<https://cumming.ucalgary.ca/sites/default/files/teams/6/policies/guidance-notes-learning-support-remediation-probation-13Feb20-v2.pdf>

Any remediation and / or probation periods would be designed and implemented with support and guidance from the University of Calgary PGME Director of Learner Resources and with input from the Associate Dean.

If there are personal or medical factors that are causing or contributing to performance deficiencies, a Leave of Absence (until determined fit to return to residency) is encouraged prior to Remediation. PGME Leave of Absence Policy and documents include:

<https://cumming.ucalgary.ca/sites/default/files/teams/6/policies/pgme-resident-leave-of-absence-policy-final-aug20-v1.pdf>

<https://cumming.ucalgary.ca/sites/default/files/teams/6/policies/process-resident-leaves-of-absence-pgme-apr18-v1.pdf>

https://cumming.ucalgary.ca/sites/default/files/teams/6/policies/form-resident-leave-request-calgary-zone-Nov2020_COV.pdf

In the case of remediation, the program director will meet with the resident to discuss the Remediation Program. The Remediation Program will be documented in a letter sent to the resident and the Associate Dean PGME. The Remediation Program will include a statement of the documented performance deficiencies, learning experiences / supports to address these deficiencies, any special reporting / evaluation

requirements, objectives of the remediation (developed by the program director and resident), how the resident will be evaluated as to accomplishment of the objectives, and a tentative (non-binding) statement regarding the resident's promotion date (if possible). Additionally, a remediation contract will be developed (with support from PGME) and signed by the program director, remedial supervisor, and resident, with clear objectives, requirements, and consequences. The remediation program will be approved by the RPC. The remediation program may include repeating rotations or program-specific requirements, at the discretion of the RPC. The resident is expected to comply with the remediation program.

In the case of Probation, the resident meets with the program director to discuss, and the program director develops a Letter of Probation sent to the resident and the Associate Dean PGME. The letter will include the same information as described in the Remediation Program Letter (described above). Probation may include repeating rotations or program-specific requirements, at the discretion of the RPC. Assessment will occur at least every 4 weeks during probation, and the resident will meet with the program director to review every evaluation while on Probation. Upon successful completion of the Probation, the resident will be notified in writing, copied to the Associate Dean PGME, and include the following: that Probation has been completed and the resident has returned to satisfactory standing in the training program, whether any further remediation is required, and the resident's promotion date.

Remediation and / or probation clinical activities will be arranged at a central Calgary site and with an experienced preceptor / evaluator. Clinical experiences will be chosen specifically to address the identified performance deficiencies. Other program requirements (i.e., research) may be deferred (at the discretion of the RPC / program director) during these periods, to permit the resident to focus fully on the remediation / probation.

In the case of remediation and / or probation, the resident will be given information by the program director about available personal emotional supports, encouraged to attend to personal well-being, and will meet regularly with their faculty mentor. We would also endeavor to offer an additional support person with experience in remedial and/or probation to the resident (from within the O&G Department).

Resident Appeals

The MFM Residency adheres to the PGME Resident appeals policy and process.

<https://cumming.ucalgary.ca/sites/default/files/teams/6/policies/pgme-resident-appeal-policy-dec2020-v2.pdf>

<https://cumming.ucalgary.ca/sites/default/files/teams/6/policies/resident-appeal-linear-timeline-pgme-sept%202020-v1.pdf>

Residents are oriented by program director at beginning of residency as to the appeals process, and the appeals process is discussed as needed annually with the program director. The appeals process is reviewed annually by the RPC. If there was ever unsatisfactory resident performance, residents would be reminded of the appeals process by the program director. Residents are encouraged to explore all aspects of the PGME website, and links are provided in the MFM Residency Handbook. The MFM Residency Handbook is provided electronically to all residents and is available on the internal Calgary Health Zone Department of O&G Webpage and the MFM Shared AHS Drive, to which all MFM residents have access.

PGME and Other Policies

Residents should be aware of the resources provided at the Calgary PGME's webpage.

<https://cumming.ucalgary.ca/pgme>

The PGME has several policies and operating standards about which residents should be familiar.

<https://cumming.ucalgary.ca/pgme/current-trainees/residents/starting-residency-training/policies-guidelines>

Including policies / operating standards on:

- Resident accommodation policy
- Electronic resources and information policy
- Safe learning environment operating standard (with links and resources)
- Resident safety policy
- Supervision of residents
- Social media
- Teacher assessment

University of Calgary Cummings School of Medicine's Professional standards for faculty members and learners

https://cumming.ucalgary.ca/sites/default/files/teams/6/policies/faculty-of-medicine-professional-standards-code-of-conduct-pgme-mar08-v1_0.pdf

University of Calgary Code of Conduct

<https://cumming.ucalgary.ca/sites/default/files/teams/6/policies/code-of-conduct-uofc-july2019.pdf>

CPSA's Code of Conduct, Standards of Practice, and Advice to the profession <https://cpsa.ca>

CMA Policy on Medical Professionalism and Code of Ethics

<https://cumming.ucalgary.ca/sites/default/files/teams/6/policies/cma-policy-medical-professionalism-2005.pdf>

<https://cumming.ucalgary.ca/sites/default/files/teams/6/policies/cma-code-of-ethics-2018-v2.pdf>

Academic Curriculum

The MFM Residency offers a 2-year curriculum to residents addressing knowledge / medical expert role, as well as all other CanMEDS roles. This curriculum assigns a subject area to residents for every block (26 total) and includes both preceptor-led teaching and self-study.

BLOCK	CYCLE 1	CYCLE 2
1	Fetal and maternal physiology	Amniotic fluid physiology and disorders
2	Placental physiology and placenta-related complications	Hydrops fetalis
3	Prenatal screening and diagnosis	Diabetes in pregnancy
4	Aneuploidy	Isoimmunization and NAIT
5	Fetal anomalies of the abdominal wall, GI, and GU systems	Maternal thyroid, adrenal, and hematologic disease
6	Fetal anomalies of the skeleton	Fetal cardiac abnormalities
7	Maternal hypertension	Fetal anomalies of the thorax
8	Maternal cardiac disease	Maternal pituitary and neurologic disease
9	Multiple gestation	Fetal anomalies of the CNS
10	Maternal and fetal infections	Fetal anomalies of the face and neck, and fetal exposure to drugs

11	Maternal renal disease, autoimmune disease, and venous thromboembolism	Severe obstetric complications
12	Neonatology for MFM Residents	Preterm birth
13	Key concepts in epidemiology, biostatistics, and critical appraisal	Surgery and trauma in pregnancy, and obstetric anesthesia

The MFM Residency collaborates with Diagnostic Imaging Residency on Obstetrical Ultrasound teaching monthly (2-year cycle of topics). Please see Appendices D&E for the complete 2-year cycle of monthly topics, objectives, and associated CanMEDS roles. Residents sometimes attend the Neonatal-Perinatal Medicine Residency academic half-day for sessions appropriate for MFM. Additionally, the MFM Residency accesses other learning opportunities at the University of Calgary, including PGME workshops (<https://cumming.ucalgary.ca/pgme/events>), NRP, and the University of Calgary Taylor Institute for Teaching and Learning, as well as various excellent online learning resources (CMPA, MD Management, Joule PLI, Fetal Medicine Foundation, ISUOG, CLEAR).

Residents have a protected academic half-day weekly (Mondays 1PM-4PM), and incorporates both direct teaching, resident-lead sessions, and independent study. The academic half-days are protected, and residents are not expected on any clinical service (regardless of if on MFM Core or off-service rotations). Should a resident be away from Calgary on elective, we will offer web-conferencing (Zoom). Medical Expert topics are taught, as well as sessions dedicated to or inclusive of the other CanMEDS roles relevant to MFM PGY-6/7 learners.

A resident google calendar is used for scheduling of AHD sessions, teaching rounds, and other program information (calgarymfm@gmail.com).

An excellent curriculum is offered through PGME for all residents and is especially beneficial for small programs like ours. As part of our curriculum, some of the PGME workshops are designated as mandatory and some as optional for our residents.

Residents are made aware of the mandatory and optional certifications for our program, including those financially supported by PARA (NRP, ACLS, BCLS). Residents are required to provide evidence of the NRP Certificate / Recertification by the end of the residency. Certification from the Fetal Medicine Foundation in Nuchal Translucency and Nasal bone are also expected.

Residents participate in a variety of other sectional and departmental learning activities, as described below:

Event Title	RCPCSC Accred	When	Frequency	Total per year	Resident Role	Attendance by residents	Description
Department of O&G Grand Rounds	Yes	Fridays 7:30-8:30 AM	Weekly, Sept to June	40	<ul style="list-style-type: none"> • Participating • Presenting 1x/residency 	Mandatory	Weekly presentations by local and visiting faculty (from O&G and from other specialties), as well as senior residents on topics from general as well as sub-specialty O&G. All presentations are evidence-based and include 25% time reserved for interaction. Additional topics include current research, QA/QI reviews, medical education, and morbidity and mortality reviews.
Department of O&G Tuesday EBM Rounds	Yes	Tuesdays 7:30-8:30 AM	Weekly, Sept to June	40	<ul style="list-style-type: none"> • Participating 	Mandatory (for Obstetric Topics)	Weekly presentations generally by O&G residents on clinical questions and the EBM reviews in general and sub-specialty O&G. All presentations are evidence-based and include 25% time reserved for interaction.
Department of O&G Journal Club	Yes	Evenings	4x/year	4	<ul style="list-style-type: none"> • Participating 	Mandatory (for Obstetric Topics)	Recent journal articles of significance are critically appraised as to their methodology and applicability of results, in a social setting.
Obstetric Internal Medicine Complex Care Rounds	Yes	Tuesdays 3:00-4:00 PM	Monthly, Sept to June	10	<ul style="list-style-type: none"> • Participating • Presenting 1-2x/residency 	Mandatory	Multidisciplinary rounds presented by Obstetric Internal Medicine staff or residents. Rounds usually highlight a current patient case, and the review the published and pertinent evidence from the medical literature. Rounds attended by MFM, O&G, OB-IM, Obstetric Anesthesia, and other medical specialties as appropriate. All presentations are evidence-based and include 25% time reserved for interaction.
Maternal Cardiac	Yes	Tuesdays 4-5:30 PM	Monthly, year-round	12	<ul style="list-style-type: none"> • Participating 	Mandatory	Multidisciplinary rounds presented by senior MFM residents. Updates on all current obstetric patients with

Obstetrical Case Conference					<ul style="list-style-type: none"> • Leading and preparing case conference in 2nd year 		maternal cardiac issues are presented (clinical, investigations). Evidence is presented as needed on maternal cardiology. Multidisciplinary patient care plans are developed for antepartum, intrapartum, and postpartum case. Rounds attended by MFM, O&G, OB-IM, Obstetric Anesthesia, and other medical specialties as appropriate. All presentations are evidence-based, and include >25% time reserved for interaction
Fetal Diagnosis and Therapy Rounds	Yes	Thursdays 8-9 AM	Weekly, year-round	40	<ul style="list-style-type: none"> • Participating • Frequently presenting cases when on MFM Core rotations 	Mandatory	Multidisciplinary rounds presented by MFM staff and senior MFM residents. New fetal anomaly cases are presented (and complicated cases updated) with respect to patient history, ultrasound findings, consultations, and plans of care (including plans for interruption of pregnancy). Rounds are routinely attended by MFM, Diagnostic Imaging, Genetics, Neonatology, Pediatric Cardiology, Pediatric Surgery, and other pediatric specialties (as dictated by cases). Updates are also provided by neonatology on recently delivered neonates.
Fetal Pathology Rounds	Yes	Thursdays 8-9 AM	Every 3 rd Thursday, year-round	12	<ul style="list-style-type: none"> • Participating • Frequently presenting cases when on MFM Core rotations 	Mandatory	Once per month, the FD&T rounds are modified to focus on fetal and placental pathology cases. Complex cases are presented with history, ultrasound findings, and the fetal and/or placental pathology results. Rounds are routinely attended by Perinatal Pathology, MFM, Diagnostic Imaging, Genetics, Neonatology, Pediatric Cardiology, Pediatric Surgery, and other pediatric specialties (as dictated by cases).
MFM / DI Obstetric Imaging Seminars	No	Wednesdays 7:30-8:30 AM	Every 3 rd Wed, year- round	12	<ul style="list-style-type: none"> • Participating 	Mandatory	MFM residents present educational sessions and cases to MFM residents and senior Diagnostic Imaging residents. On a 2-year cycle, all key areas of imaging are discussed. Sessions include active learning

Section of MFM Journal Club	Yes	Evenings	5x/year	5	<ul style="list-style-type: none"> • Participating 50% • Presenting 50% 	Mandatory	The Section of MFM (and occasionally including OB-IM, DI, and other guests) gathers at a restaurant and review of 1-2 significant journal articles. Articles are presented by the MFM residents, as to critical appraisal of the study methodology and applicability of the results to our patient population.
Department of Obstetrics and Gynecology Clara Christie Day	Yes	2 nd Friday in May	Annually	1	<ul style="list-style-type: none"> • Participating • Presenting at least once during residency 	Mandatory	The Department of Obstetrics and Gynecology hosts an annual research day, where both faculty and trainees at all levels present their research. There are poster and oral presentations of completed research, as well as poster presentations of works in progress. Presentations are assessed, and awards given for best oral / poster for faculty and trainees. Usually a visiting professor also presents at Clara Christie Day. Following the research day, residents are hosted by faculty at an annual social event / dinner.

Resident Feedback on Preceptors / Rotations / Program

Residents routinely evaluate individual preceptors in One45 after every rotation, and these evaluations are mandatory for the resident to complete. A collated summary is sent to individual preceptors annually (or as soon as volume of evaluations will permit, to protect confidentiality in our small program). If there is critical or significant feedback, this would be managed by the program director in a timely fashion. This information is also provided to the O&G Department Head and is included in faculty semi-annual performance reviews.

MFM residents meet annually and discuss the preceptors in the program, give them a global rating, as well as narrative feedback about what they do well and what they can improve upon.

Residents also give verbal feedback directly to the program director at annual meetings. The program director can then give appropriate feedback to faculty.

MFM residents (along with other levels of learners, nurses, sonographers, and collaborating physicians) provide multisource feedback to all MFM faculty via a survey that is collated and then anonymized. Our goal is that sufficient feedbacks can be collected to provide feedback to MFM faculty annually.

MFM residents complete rotation evaluations at the end of every rotation. The information is reviewed annually at the scheduled RPC review of each rotation / program element. Urgent issues are managed by the program director.

Resident support and well-being

1) Career planning

The program director serves as career counselor to the resident prior to their initiation to the program and during the formal meetings 3x per year. As early as possible in the program, the resident's career goals are identified and the educational program is coordinated (e.g., through electives, scholarly activities, recommended conferences) to achieve these goals. As we remain a small program, we are able to customize clinical experiences to prepare residents for their future careers (given the variety of MFM practice patterns in Canada).

There exists a close working relationship between trainees and faculty. This allows trainees to gain a broad perspective on all career possibilities: academic, clinical, combined, primary care practice, consultative practice, etc. Within our Section of MFM, there exist a variety of careers / practice patterns in MFM, and thus residents are exposed to several options for future practice. Faculty may advise residents to other faculty contacts at other centers to arrange potential electives, and/or advise residents of career opportunities at Calgary or other centers.

Residents are encouraged to attend local and national meetings to establish contact with specialists from across the country, which can be instrumental in future employment opportunities. Attendance at meetings may supported financially by the Program / PGME. Residents are also made aware of the best resources for current advertisements for MFM positions.

Residents are encouraged to become members of the specialty professional organizations (SOGC, CSMFM, ISUOG, SMFM) and look for opportunities to contribute and collaborate through these organizations (i.e., committees, guideline development).

Residents are counseled regarding choice of elective rotations, as they may relate to networking, exposure of the resident to potential employers, and developing needed skills for employment.

Residents are either assigned or select a mentor for the duration of the residency. Mentors meets with the resident at least quarterly. These meetings include discussion and counseling regarding career planning.

2) Resident health, well-being, and stress management

On starting the program, residents are oriented by the program director, and both personal health and wellbeing are discussed, as are resources for Calgary residents (University of Calgary, Alberta Medical Association). Stress management is generally discussed at the MFM interview and is revisited by the program director at orientation and future meetings. The program director maintains an open-door policy to meet with residents to discuss their concerns confidentially, whether personal or professional difficulties.

Residents meet with our program ombudsperson q6 months as part of the academic half day. Our current ombuds is Dr. Paul Gibson of Obstetric Internal Medicine. Information about ombuds at PGME is linked below.

<https://cumming.ucalgary.ca/pgme/contacts/residency-program-directory/residency-program-ombuds>

<https://cumming.ucalgary.ca/sites/default/files/teams/6/residents/role-of-ombuds-pgme-july-2020-v1.pdf>

We advertise the broad range of resources available, in particular the Physician and Family Support Program offered through the Alberta Medical Association, phone 1-877-767-4637 available 24/7

<https://www.albertadoctors.org/services/physicians/pfsp>

Residents are encouraged to contact the Office of Resident Affairs and Wellness through the PGME

<https://cumming.ucalgary.ca/pgme/wellness/residents>

Resources are also available through the Office of Equity, Professionalism, and Diversity

<https://cumming.ucalgary.ca/office/professionalism-equity-diversity>

Student Success Centre <http://www.ucalgary.ca/ssc/> and Student Accessibility Services <http://www.ucalgary.ca/access/> are also available for residents as needed (i.e. MCQ taking strategy, exam stress management, learning assessments).

Residents are also encouraged to interact with their PARA representatives when necessary, regarding contract issues, and additionally PARA is a resource for support for residents (<http://para-ab.ca>).

We recognize that there can be significant stress associated with our field of medicine (adverse events in obstetrics). There are initiatives through MORE-OB that lead to routine debriefing after adverse events in obstetrics, and support for residents is offered through our faculty

in the case of an adverse outcome / patient concern. The CMPA (1-800-267-6522, <https://www.cmpa-acpm.ca/home>) and CPSA (<http://www.cpsa.ab.ca>) are always available as resources to residents involved in difficult clinical cases.

Residents are expected to attend PGME teaching sessions related to physician health and wellbeing. For our program, some of these sessions are optional, and some are mandatory for residents to attend.

We recognize that residency itself is stressful, and that residents may experience many other stressful events during their training. We watch closely for healthy stress management and changes in performance, and attempt to act quickly when there is a concern. Personal wellbeing and stress / stress management are discussed at quarterly meetings with the program director. The program director maintains an open-door policy.

All MFM residents are assigned a Mentor for their residency. Well-being and stress management are frequent discussions at meetings with mentors (which occur at least quarterly).

Residents are urged to have a Family Physician, and resources are available to assist residents in finding a Family Physician.

Residents are allowed leaves of absence as needed in order to deal with personal problems such as family illnesses. The commonest reason for a leave of absence is maternity, but other types of leaves of absence can be granted. As MFM is a small program, we are flexible to the needs of our residents, and to support / accommodate our residents to be successful (most commonly due to maternity / family issues).

PGME Leave of Absence Policy and documents include:

<https://cumming.ucalgary.ca/sites/default/files/teams/6/policies/pgme-resident-leave-of-absence-policy-final-aug20-v1.pdf>

<https://cumming.ucalgary.ca/sites/default/files/teams/6/policies/process-resident-leaves-of-absence-pgme-apr18-v1.pdf>

https://cumming.ucalgary.ca/sites/default/files/teams/6/policies/form-resident-leave-request-calgary-zone-Nov2020_COV.pdf

Further information about various leaves is found in the PARA resident physician agreement.

<https://para-ab.ca/wp-content/uploads/2019/07/PARA-Final-Agreement-2018-2020.pdf>

3) Intimidation and Harassment

MFM Residents are made aware of the MFM Residency Program policies on intimidation and harassment at Orientation, meetings with the Program Director, and in the MFM Residency Handbook. Intimidation and harassment are not tolerated in our program.

Both the Program Director and Program Administrator maintain an open-door policy and grievances of this nature are taken seriously. The program director is available by pager, mobile phone, and email (and if away, an Acting Program Director is identified and contact information is circulated to residents and faculty). Residents who are uncomfortable voicing such complaints to the Program Director have the option of anonymous reporting on the Preceptor Evaluation, may seek advice another resident or faculty member, or the MFM Residency Ombuds (Dr. Paul Gibson Obstetric Internal Medicine, not a member of the MFM RPC, but an experienced in postgraduate educational leadership). Residents are also made aware of resources / confidential contacts within the Cummings School of Medicine Associate Dean Office of Equity and Professionalism.

PGME offers various resources related to the safe learning environment, including:

Directors of Resident Support (DRS), who are available for confidential discussion / advice via email at pgme.drs@ucalgary.ca

<https://cumming.ucalgary.ca/sites/default/files/teams/6/Operating%20Standards/drs-bios-pgme-jan21-v1.pdf>

Safe learning environment operating standard

<https://cumming.ucalgary.ca/sites/default/files/teams/6/Operating%20Standards/safe-learning-environment-operating-standard-pgme-nov20-v2.pdf>

Safe learning environment operating standard appendix

<https://cumming.ucalgary.ca/sites/default/files/teams/6/Operating%20Standards/safe-learning-environment-operating-standard-nov20-appendix%20A-v1.pdf>

Once a complaint is made, there are a number of options for resolution, depending on the severity of the complaint and the wishes of the resident. It is recognized that residents may only wish to be heard, without any further action. However, in some cases the resident may request action. The most likely course of action in those circumstances would be a discussion between the faculty member and Program Director, possibly with the Department Chair in attendance. In more complex situations, the assistance of the Associate Dean PGME would be sought.

The Office of Diversity, Equity, and Protected Disclosure on main campus serves the Cummings School of Medicine for all types of harassment complaints.

<https://www.ucalgary.ca/student-services/womens-centre/resources/womens-resource-database/office-diversity-equity-and-protected>

Additional links and resources regarding resident safe learning environment.

University of Calgary Harassment Policy <https://cumming.ucalgary.ca/sites/default/files/teams/6/policies/uofc-policies-harassment-policy-jan2016-v1.pdf>

University of Calgary Protected Disclosure and Research Integrity Office <https://ucalgary.ca/pdri>

4) Resident Safety and Fatigue Risk Management

The MFM Residency maintains our own program-specific Resident Safety Policy (see Appendix F).

The MFM residency also adheres to the University of Calgary PGME Resident Safety Policy.

<https://cumming.ucalgary.ca/sites/default/files/teams/6/policies/resident-safety-pgme-sept20-v2.pdf>

The MFM Residency maintains our own program-specific Resident Fatigue Risk Management Policy (see Appendix G).

The MFM residency also adheres to the University of Calgary PGME Fatigue Risk Operating Standard.

<https://cumming.ucalgary.ca/sites/default/files/teams/6/Operating%20Standards/pgme-operating-standard-frm-final-june20-v1.pdf>

The fatigue risk management toolkit is also a useful resource.

<https://cumming.ucalgary.ca/sites/default/files/teams/6/policies/fatigue-risk-management-toolkit-july2020.pdf>

Calgary and Surrounding Areas

Calgary is a fantastic city for a 2-year residency (also a great place to stay and build your life and career!). Calgary is a vibrant and growing urban centre (population of > 1 200 000), recently ranked as the “World’s 5th Most Liveable City” by Forbes. Whatever you like, Calgary’s got it – fantastic restaurants to impress the toughest foodie (from fine dining to local farmers markets), a busy arts scene (including Calgary Philharmonic Orchestra, Calgary Opera, Theatre Calgary as well as many other professional and amateur theatre companies, and a thriving folk / blues scene), and of course sports (Calgary Flames, Calgary Stampeders, Calgary Hitmen, Winsport, Olympic Oval, fly-fishing, rafting the Bow River). You could be part of the “sea of red!” Festivals abound in Calgary ... you might have heard of the Calgary Stampede – the greatest outdoor show on Earth! And of course, the Rocky Mountains are just 1 hour’s drive from Calgary, for all the hiking, skiing, and adventure you could want. If you can’t see the mountains from your house, you definitely see them on your way into work every day. We have lots of sunshine here ... and don’t be too afraid of the winters (It’s a dry cold, not a wet cold! No ice storms! Frequent chinooks - when everything melts! The mountains!). Calgary is also fantastic city for young families, with great options for public and private schools, and lots of family-friendly activities (Calgary Zoo, Telus Spark, Calaway Park, Canadian Music Centre, Glenbow Museum, Heritage Park, Calgary Parks, Bow River ...) Join us in Calgary and “Be a part of the energy!”

The City of Calgary <https://www.calgary.ca/home.html>

Visit Calgary <http://www.visitcalgary.com>

Life in Calgary <http://www.lifeincalgary.ca/moving>

20 things you should know before moving to Calgary <https://notablelife.com/20-things-you-should-know-before-moving-to-calgary/>

Be a part of the energy <http://www.bepartoftheenergy.ca>

Banff National Park <http://www.pc.gc.ca/en/pn-np/ab/banff>

Banff Lake Louise Tourism <https://www.banfflakelouise.com>

Tourism Canmore <http://www.tourismcanmore.com>

Travel Alberta <https://www.travelalberta.com/ca/>

50 things to do with kids in Calgary <https://where.ca/alberta/calgary/50-things-to-do-with-kids-in-calgary/>

115 things to do with kids in and around Calgary <https://www.calgaryschild.com/family-fun/activities/1581-115-things-to-do-with-kids-in-and-around-calgary>

Appendix A: Maternal-Fetal Medicine Residency Program Committee Terms of Reference & Committee Composition

The Residency Program Committee is responsible for all aspects of the postgraduate training program in MFM. This responsibility is delegated from the University of Calgary Cummings School of Medicine through the office of the Postgraduate Medical Education. Specific responsibilities include selection, evaluation, and promotion of residents, as well as provision of an educational program that meets the standards of the RCPSC.

The Committee strives to supervise and provide leadership in all aspects of postgraduate medical education in the specialty of Maternal-Fetal Medicine within the Cummings School of Medicine, University of Calgary, and its affiliated teaching hospitals and outpatient clinics.

Purpose

- Address issues of objectives, implementation, and evaluation in the MFM residency.
- Report to the Associate Dean PGME, O&G Department Head, and O&G Regional Executive Committee.
- Operate a program that meets or exceeds the educational standards set by the Royal College of Physicians and Surgeons of Canada.

Objectives

- Select of candidates for admission to the residency (by subcommittee).
- Maintain current and appropriate goals and objectives that are reflected in program planning and operation, as well as in evaluation of residents.
- Develop and bi-annually re-evaluate program and rotation objectives, with reference to the Royal College objectives of training for MFM (v2018; 2015 Addendum). <http://www.royalcollege.ca/rcsite/ibd-search-e?N=10000033+10000034+4294967040>
- Manage the implementation of the residency, providing all required components of training (including MFM and off-service clinical experiences, scholarship requirements, and academic half-day program).
- Review resident performance and determine resident promotion (by MFM Competence Committee, presently a sub-committee of the RPC).
- Maintain an appeal mechanism for residents.
- Establish mechanisms to provide career planning and counseling for residents.
- Execute routine program review, including resource allocation, components, meeting of objectives, and balance of service demands on teachers and learners.
- Develop innovative educational methods to further enhance resident learning in the program.
- Respond to feedback received from residents and faculty to further improve the MFM residency curriculum.
- Advocate for and balance both the needs of our residents and the needs of the educators within the residency program.
- Maintain resident and (when applicable) program confidentiality.

Meetings

The committee meets every 6 weeks, usually alternating 2nd and 4th Wednesdays at 7:15 AM either in the Calgary MFM Centre Classroom, 3rd floor Cambrian Centre or virtually using Zoom. There are a minimum of 6 meetings per academic year. The RPC retreat is planned annually or bi-annually as needed. Additional RPC or subcommittee meetings may be called at the discretion of the Program Director as needed.

An agenda is pre-circulated, and minutes are recorded. All members are required to respect the confidentiality of the Committee's deliberations, decisions, and communications. Resident representatives are excused from all discussions of individual resident performance and promotion, and this discussion is included in separate minutes (with no circulation).

The curriculum and trainee feedback will be reviewed as a standing item on the agenda, with each clinical experience / rotation / policy reviewed (at minimum) bi-annually, including:

- MFM: Introduction rotations (Ultrasound, Inpatients, Outpatients)
- MFM: Core (Inpatient and Outpatient)
- Obstetric Internal Medicine
- Prenatal Genetics
- Antenatal Neonatal Consults & Pediatric Sub-Specialties
- Obstetric Anesthesia
- MFM: Core (Advanced Fetal Imaging) including Fetal Cardiology, 3D Imaging, and U/S <11 weeks
- MFM: Transition to Practice (Inpatient and Outpatient), Fellow Clinic
- Longitudinal Fetal Procedures
- Longitudinal High-Risk Obstetrics
- Longitudinal Scholarship Requirements and Process
- Residency Policies
- Overall Residency Curriculum Structure

Membership

While many members of the Committee are appointed as representatives of various groups and sites serving the program, all members must act in a manner that places the overall good of the education program ahead of any subspecialty or geographical interest.

The committee membership consists of:

- 1) Program Director (chair)

- 2) Deputy Program Director
- 3) 2-3 Members-at-Large from the Section of MFM, representing outpatient fetal medicine clinics, MFM antenatal clinics, inpatient MFM units, labor and delivery, fetal procedures, and the O&G residency training in MFM.
- 4) 1-4 MFM Resident Representatives, including all senior and junior residents.
- 5) Ad hoc members (non-voting) representing affiliated disciplines and off-service rotations, including epidemiology / research, Obstetric Internal Medicine, Obstetric Anesthesia, Neonatal-Perinatal Medicine, Medical Genetics, Perinatal Pathology, Pediatric Surgery, and Pediatric Cardiology. Ad hoc members attend RPC meetings only when specifically invited to discuss relevant rotations or issues.

The Program Director is selected by the Department of Obstetrics and Gynecology and appointed by the PGME Associate Dean. The Program Director, after consultation with the RPC, appoints individual committee members. These members are typically chosen because of their interest and/or leadership in resident education, and the MFM residency clinical experience they represent. All MFM Residents are representatives on the RPC. Physician members have a 3-year term, with unlimited renewal. Resident representatives have a 2-year term, with no renewal.

Current Committee Composition

Role	Name
Program Director	Dr. Anne Roggensack
Deputy Program Director	Dr. Stephanie Cooper
Resident Representatives	Dr. Audrey Labrecque Dr. Patrick O'Farrell Dr. Genviève Quesnel
MFM Members-at-Large (2-3)	
- Outpatient imaging, fetal procedures	Dr. David Somerset
- MFM Antenatal Clinic, FMC L&D	Dr. Nancy Soliman
- TBC	TBC
Ad hoc members (non-voting):	
• Epidemiology / Research Representative	Dr. Amy Metcalfe
• Obstetric Internal Medicine Representative (FMC)	Dr. Meghan Vlasscheart
• Obstetric Anesthesia Representative (FMC)	Dr. Paul Zakus
• Neonatology Representative (FMC)	Dr. Prashanth Murthy

- Genetics Representative (FMC & ACH)
- Pathology Representative (ACH)
- Pediatric Surgery Representative (ACH)
- Pediatric Cardiology Representative (ACH)

Dr. Julie Lauzon
Dr. Marie-Anne Brundler, Dr. Elaine Chen
Dr. Robin Eccles
Dr. Deborah Fruitman

Approval and Sign-Off

Revised and approved by MFM RPC: June 15, 2017
Updated and discussed by MFM RPC: Sept 11, 2019
Updated and discussed by MFM RPC: June 29, 2021

Appendix B:

Maternal-Fetal Medicine Residency Competence Committee Terms of Reference & Committee Composition

As part of Competence by Design, specialist education is broken down into a series of integrated stages. Promotion or advancement from one stage to the next is determined away from the individual teacher-learner interaction at a group decision-making process of the Competence Committee. In this way, a Competence Committee is a critical component of Competence by Design (CBD) because it supports the regular, systematic and transparent review of a resident's progress towards competence. While MFM as a sub-specialty is part of a later CBD cohort (starting July 2022), we have already adopted principles of CBD with respect to resident assessment and progress into our program.

Purpose

- Interpret multiple sources of qualitative and quantitative observation data to achieve consensus, where possible, in order to make judgments on outcomes.
- Ensures that all learners achieve the requirements of the discipline, through the synthesis and review of qualitative and quantitative assessment data at each stage of training, and then by providing recommendations to learners on their future learning activities.
- Reports outcomes of discussions on resident assessment and make recommendations for progress through the program stages to the MFM Residency Program Committee (for validation), Associate Dean PGME, and the Resident (and their Academic Advisor).

Role and Responsibilities

- Allows for an informed group decision-making process where patterns of performance can be collated to reveal a broad picture of a resident's progression toward competence.
- Review and discuss learner portfolios in order to:
 - Advise/guide resident learning and growth.
 - Modify a resident's learning plan.
 - Make decisions on a learner's achievement of EPAs.
 - Recommend learner status changes to the Residency Program Committee.
- Monitor and exercise judgment on the progress of each resident in demonstrating achievement of the rotation and program objectives (and when available, EPAs or independent milestones) within each stage of the residency training program.
- Synthesizing the results from multiple assessments and observations to make recommendations to the RPC related to:
 - The promotion of residents to the next stage of training.

- The review and approval of individual learning plans developed to address areas for improvement.
- Determining readiness to enter independent practice on completion of the transition to practice stage
- Determining that a trainee is failing to progress within the program.
- Monitoring the outcome of any learning or improvement plan established for an individual resident.
- Maintaining confidentiality and promoting trust by sharing information only with individuals directly involved in the development or implementation of learning or improvement plans.

Committee Composition

The Competence Committee will be composed of individuals with interest, experience and expertise in assessment and medical education relevant to the discipline. There are no Resident members on this committee. The Committee membership consists of:

- Competence Committee Chair
- 2 to 4 Members-at-Large from the Section of MFM (including the MFM Program Director)

The Competency Committee Chair has a 5-year term, with unlimited renewal. MFM Physician Members-at-Large have a 3-year term, with unlimited renewal. The MFM Program Director serves on this committee while in their leadership role.

Meetings, Procedures, and Reports

The MFM CC meets 3 times per academic year (approximately every 4 months), with additional ad-hoc meetings as needed requested by the Chair, usually Wednesdays at 7:15 AM in the MFM Classroom at the Calgary MFM Centre (Cambrian building) or virtually using Zoom. All members are required to respect the confidentiality of the Committee's discussions, deliberations, and recommendations.

Meetings are usually planned in:

- September / October
- January / February
- May / June

Meeting quorum is defined as at least 50% attendance of the Competence Committee, with an absolute minimum of 3 committee members present. The Program Director should be present for all discussions.

Every MFM resident's progress will be reviewed (at minimum) three times annually, given the short length of the MFM residency. Residents may be selected for Competence Committee review based on any one of the following criteria:

- Regularly timed review

- A concern has been flagged on one or more completed assessments
- Completion of stage requirements and eligible for promotion or completion of training
- Requirement to determine readiness for Royal College exam
- Where there appears to be a significant delay in the resident’s progress or academic performance
- Where there appears to be a significant acceleration in the resident’s progress

Prior to the meeting, a Primary Reviewer will be assigned to review the resident’s assessment and progress (portfolio of completed observations and other assessments or reflections), using the MFM Residency Competency Committee Worksheet as a guide. All other committee members are responsible for reviewing all trainees on the agenda as secondary reviewers. All secondary reviewers are required to come prepared to discuss all residents’ progress.

The Primary Reviewer considers the resident’s recent progress, identifies patterns of performance from the observations, including both numerical and narrative data, and any other valid sources of data. The primary reviewer will provide a succinct verbal synthesis and impression of the resident’s progress (as well as their prepared document) to the Competence Committee. The primary reviewer will then propose a resolution (motion) on that resident’s status going forward, using the table below.

Status Recommendations

Learner Status	Learner – Resident Action	PG Dean approval / awareness
Progressing as expected	Monitor resident	NR
	Modify learning plan with a suggested focus	NR
	Promote resident to Stage 2 (Foundations of Discipline)	NR
	Promote resident to Stage 3 (Core of Discipline)	NR
	Promote resident as RC exam eligible	Awareness
	Promote resident to Stage 4 (Transition to Practice)	NR
	Promote resident as Royal College Certification Eligible	Required
Not progressing as expected	Modify learning plan with an additional focus	NR
	Formal remediation	Required
Progress is accelerated	Modify learning plan with a suggested focus	Awareness
	Promote resident to Stage 3 (Core of Discipline)	Awareness
	Promote resident to Stage 4 (Transition to Practice)	Awareness

	Promote resident as Royal College Certification Eligible	Required
Failure to progress	Modify learning plan with an additional focus	Awareness
	Formal remediation	Required
	Withdraw from program	Required
Inactive	Monitor learner (i.e. expected to return – parental leave, sick leave, etc)	Required
	Withdraw from program	Required

If seconded by another committee member, all members are invited to discuss the motion. The Chair will call a vote on the proposed recommendation. If the recommendation of the primary reviewer is not seconded or the motion does not achieve a majority of votes, the Chair will then request another motion regarding the resident. This will continue until a majority of committee members support a status motion. Decisions can only be deferred if additional information is required. However, this deferred decision must be revisited within 4 weeks.

The Committee Chair finalizes the summary of each resident’s assessment (on behalf of the committee) and sends the written status report (within 2 weeks) to the Residency Program Committee (RPC) for validation (status decision will be recorded in ePortfolio when available), as well as to the Committee archives (with the MFM Residency Program Administrator). The RPC will be asked to ratify recommendations and action any implications (i.e. status / promotion, formal remediation, inform the PGME office, etc.).

The decisions of the Competence Committee must be shared with the resident (within 2 weeks of ratification) by the Program Director (or Academic Advisor), followed by a discussion with the Program Director (or Academic Advisor) of what the resident should work on next. Changes to the resident’s learning plan, assessments, or rotation schedule will be developed with the resident and implements as soon as feasible (if applicable).

For residents who do not agree with the decision of the competence committee, and appeal mechanism is in place, as described in MFM Residency Handbook and University of Calgary PGME (<http://cumming.ucalgary.ca/pgme/current-trainees/residency-training-policies>). The appeal process conforms with university guidelines, and the decision at the University is final.

Current Committee Composition

<i>Role</i>	<i>Name</i>
Competence Committee Chair (interim)	Dr. Anne Roggensack
MFM Members-At-Large	Dr. Nancy Soliman Dr. David Somerset

Dr. Stephanie Cooper

Approval and Sign-Off

Original proposal: May 9, 2018

Approved by MFM RPC and CC: May 9, 2018

Reviewed by MRM RPC and CC: Sept 11, 2019

Reviewed by MRM RPC and CC: June 29, 2021

Appendix C: MFM Competence Committee Summary Template

Resident:

PGY:

Stage of Training:

Period of Review:

Primary Reviewer:

Assessment Tools	Summary / Notes	
Block Assessments from:	Medical Expert	
Feedback from:	Communicator	
	Collaborator	
	Manager	
	Health Advocate	
	Scholar	
	Professional	
	Misc Comments	
Direct observation assessments		
Multisource feedback <i>-Nursing</i> <i>-Ultrasound techs</i> <i>-Physicians</i>		

<p>Fetal Procedures</p> <ul style="list-style-type: none"> -Amnio -CVS -Advanced 	
<p>Labour and Delivery</p> <ul style="list-style-type: none"> -Complex cases -Complex procedures -Leadership / management 	
<p>Scholarly project progress</p>	<p><i>Project(s):</i> <i>Presentations:</i> <i>Timeline:</i> <i>Planned dissemination:</i> <i>Progress and update:</i> <i>Preceptor comments:</i> <i>Self-assessment:</i></p>
<p>Resident self-assessment</p>	
<p>Other tools:</p> <ul style="list-style-type: none"> -Checklists -Feedback / reflection tool 	
<p>Teaching:</p> <ul style="list-style-type: none"> -Journal Club -FD&T -Grand Rounds -AHD -Other 	
<p>Practice SAQ Exams</p>	
<p>Other feedback communicated</p>	

Professionalism concerns?	
Patient safety concerns?	

Certifications /courses / CME:

Awards:

CC Discussion Notes:

Recommendations:

Learner Status	
Resident Action	
PG Dean approval / awareness	
Ratification by RPC	
Comments: Resident strengths	
Comments: Comments: Recommendations for suggested areas of focus	
Documentation & Reporting to Resident	

Appendix D: Formal Academic Curriculum Learning Objectives

Preamble:

- Monthly topics for review over 2-year cycle
- Resident will have 1-2 preceptored half-days per month (both preceptors and residents will present)
- Remaining 2-3 half-days used for self-directed learning, and attending relevant NPM academic half-days
- Relevant CanMEDS competencies identified: Medical Expert, Communicator, Collaborator, Health Advocate, Manager, Scholar and Professional
- Opportunities for collaboration identified

Year 1 of Cycle:

Fetal and maternal physiology

Following this month of study and teaching session, the MFM resident will be able to:

- 1) Describe fetal cardiovascular physiology
- 2) Identify how normal fetal physiology relates to various methods of antenatal fetal assessment (BPP, Doppler studies).
- 3) Describe the normal maternal physiologic changes in pregnancy.
- 4) Identify the maternal physiologic changes that contribute to increased anesthetic risk in pregnancy.
- 5) Demonstrate how normal physiologic cardiovascular changes of pregnancy lead to complications in maternal cardiac disease.
- 6) Use your understanding of maternal physiologic changes in pregnancy to provide consultation to the obstetric patient in intensive care.

CanMEDS Roles: Medical Expert, Scholar, Communicator, Collaborator

Collaborate with: Obstetric Internal Medicine

Placental physiology and placenta-related complications

Following this month of study and teaching session, the MFM resident will be able to:

- 1) Describe the basic physiology of the placenta
- 2) Identify abnormalities of the placenta, membranes, and cord, and discuss the associated risks for adverse pregnancy outcome with these abnormalities.
- 3) Develop an approach to antenatal assessment, investigation, intrapartum management, and prognosis of pregnancies complicated by:
 - a. Intrauterine growth restriction
 - b. Placental abruption
 - c. Placenta previa
 - d. Morbidly adherent placenta
- 4) Counsel patients with previous adverse pregnancy outcomes regarding assessment of risk and current pregnancy management.

CanMEDS Roles: Medical Expert, Scholar, Communicator, Collaborator

Collaborate with: Perinatal Pathology

Prenatal screening and diagnosis

Following this month of study and teaching session, the MFM resident will be able to:

- 1) Counsel patients effectively regarding the options for prenatal screening for aneuploidy:
 - a. First Trimester Screening
 - b. Nuchal Translucency Screening
 - c. Maternal Serum Screening
 - d. Integrated Prenatal Screening
 - e. Non-invasive prenatal testing
 - f. Fetal anatomic survey
- 2) Use the prenatal screening results to identify patients at risk for other pregnancy complications.
- 3) Describe the indications, risks, and technique for invasive prenatal diagnosis
 - a. Amniocentesis
 - b. CVS
- 4) Identify indications for additional genetic screening. Interpret results and counsel patients regarding management in pregnancy / outcomes for:
 - a. Metabolic syndromes
 - b. Thalassemia
 - c. Sickle cell
 - d. Cystic fibrosis

CanMEDS Roles: Medical Expert, Scholar, Communicator, Collaborator, Health Advocate, Manager

Collaborate with: Genetics

Aneuploidy

Following this month of study and teaching session, the MFM resident will be able to:

- 1) Effectively counsel patients regarding the implications and pregnancy management of all soft ultrasound markers of fetal aneuploidy.
- 2) Identify the fetal ultrasound findings and prognosis of common fetal aneuploidies:
 - a. Trisomy 21
 - b. Trisomy 18
 - c. Trisomy 13
 - d. Turner's Syndrome
 - e. Triploidy
- 3) Discuss the implications and pregnancy management of cystic hygroma identified in the first and second trimesters.

- 4) Counsel patients regarding the benefits and complications associated with various methods of termination of pregnancy in the second trimester:
 - a. Induction of labour
 - b. D&E
 - c. Intra-cardiac KCL injection
 - d. Selective termination of an anomalous twin

CanMEDS Roles: Medical Expert, Scholar, Communicator, Health Advocate, Professional

Collaborate with: Genetics

Fetal anomalies of the abdominal wall, gastrointestinal system, and genitourinary system

Following this month of study and teaching session, the MFM resident will be able to:

- 1) Describe the epidemiology, genetics, ultrasound findings / associated anomalies, pregnancy / intrapartum management, neonatal care, prognosis, and risk of recurrence of:
 - a. Abdominal wall defects
 - b. Gastrointestinal system abnormalities
 - c. Urinary tract abnormalities
- 2) Identify the risks, benefits, appropriate patient selection, and neonatal outcomes for fetal bladder shunt insertion for megacystis

CanMEDS Roles: Medical Expert, Scholar, Collaborator

Collaborate with: Pediatric Surgery

Fetal anomalies of the skeleton (including amniotic band syndrome)

Following this month of study and teaching session, the MFM resident will be able to:

- 1) Describe the epidemiology, genetics, ultrasound findings / associated anomalies, pregnancy / intrapartum management, neonatal care, prognosis, and risk of recurrence of:
 - a. Skeletal dysplasias
 - b. Limb defects
 - c. Amniotic band syndrome

CanMEDS Roles: Medical Expert, Scholar, Collaborator

Collaborate with: Genetics

Maternal hypertension, renal disease, autoimmune disease, and venous thromboembolism

Following this month of study and teaching session, the MFM resident will be able to:

- 1) Counsel a patient regarding the associated maternal and fetal risks, pregnancy management, prognostic factors, and medical therapy in pregnancy of:
 - a. Pre-existing and gestational hypertension

- b. Renal disease
- c. Autoimmune diseases (including SLE)
- d. Venous thromboembolism / Thrombophilia

CanMEDS Roles: Medical Expert, Scholar, Collaborator

Collaborate with: Obstetric Internal Medicine

Maternal cardiac disease

Following this month of study and teaching session, the MFM resident will be able to:

- 1) Discuss normal cardiovascular changes of pregnancy and their effect on maternal pre-existing cardiac disease.
- 2) Identify maternal cardiac patients at greatest risk for adverse outcomes.
- 3) Determine the antepartum risk assessment for various maternal cardiac diseases.
- 4) Counsel patients regarding the fetal risks and fetal assessment in patients with cardiac disease.
- 5) Identify risks associated with labour, delivery and the postpartum time for patients with cardiac disease, and develop a plan of management.
- 6) Describe the indications for and known complications of anticoagulation in pregnancy.

CanMEDS Roles: Medical Expert, Scholar, Communicator, Collaborator

Collaborate with: Obstetric Internal Medicine, Cardiology

Multiple gestation

Following this month of study and teaching session, the MFM resident will be able to:

- 1) Counsel patients regarding both maternal and fetal complications associated with multiple gestation.
- 2) Discuss appropriate antenatal fetal assessment and indications for delivery in multiple gestations.
- 3) Identify, discuss, and develop a plan of management for complications in monochorionic multiple gestations:
 - a. Discordant fetal growth
 - b. Twin-twin transfusion syndrome
 - c. Twin anemia-polycythemia sequence
 - d. Twin reversed arterial perfusion sequence
 - e. Monoamniotic twin pregnancies
- 4) Counsel patients regarding the risks and benefits of invasive fetal therapy in multiple gestations, including:
 - a. Multi-fetal pregnancy reduction
 - b. Selective reduction of an anomalous twin
 - c. Laser of placental anastomoses
 - d. Cord ligation

CanMEDS Roles: Medical Expert, Scholar, Communicator

Maternal and fetal infections

Following this month of study and teaching session, the MFM resident will be able to:

- 1) Describe the epidemiology, laboratory interpretation, ultrasound findings, pregnancy / intrapartum management, neonatal care, and prognosis of:
 - a. CMV
 - b. Toxoplasmosis
 - c. Parvovirus
 - d. Rubella
 - e. Varicella
 - f. Syphilis
 - g. Hepatitis B and C
 - h. HIV

CanMEDS Roles: Medical Expert, Scholar, Collaborator

Collaborate with: Obstetric Internal Medicine

Neonatology for MFM Residents

Following this month of study and teaching session, the MFM resident will be able to:

- 1) Describe the physiology of fetal transition to neonatal life.
- 2) Counsel patients regarding the risks and benefits of antenatal corticosteroid administration.
- 3) Certify (or recertify) for Neonatal Resuscitation Program (NRP).
- 4) Counsel patients regarding decision-making at the threshold of viability.
- 4) Counsel patients regarding common complications of prematurity, HIE, and neonatal care of common fetal anomalies.

CanMEDS Roles: Medical Expert, Scholar, Communicator, Collaborator, Health Advocate. Manager

Collaborate with: Neonatology

Key concepts in epidemiology, biostatistics, and critical appraisal

Following this month of study and teaching session, the MFM resident will be able to:

- 1) Describe the following essential key concepts:
 - Study design
 - Bradford-Hill criteria for causation
 - Epidemiological concepts
 - Reliability and validity
 - Sample size
 - Diagnostic test statistics

- Measurement of risk
 - How to choose the correct statistic
 - Methods of analysis
- 2) Identify resources for evidence-based medicine.
 - 3) Demonstrate an approach to critical appraisal of the literature.
 - 4) Review the resident's choice of landmark articles using learned appraisal techniques.

CanMEDS Roles: Medical Expert, Scholar

Collaborate with: Research Coordinator

Year 2 of Cycle:

Amniotic fluid physiology and disorders

Following this month of study and teaching session, the MFM resident will be able to:

- 1) Understand amniotic fluid dynamics and physiology.
- 2) Discuss the investigation, antenatal, intrapartum, and neonatal management / risks of polyhydramnios.
- 3) Identify the indications, risks and benefits of therapeutic amnioreduction.
- 4) Discuss the differential diagnosis of, and antenatal, intrapartum, and neonatal management / risks of oligohydramnios

CanMEDS Roles: Medical Expert, Scholar, Communicator

Hydrops fetalis

Following this month of study and teaching session, the MFM resident will be able to:

- 1) Describe the natural history, pertinent ultrasound findings, pregnancy / intrapartum management, neonatal care, prognosis, and risk of recurrence of non-immune fetal hydrops.
- 2) Develop a differential diagnosis and plan appropriate investigation of a fetus with hydrops.

CanMEDS Roles: Medical Expert, Scholar, Communicator, Collaborator

Collaborate with: Genetics

Isoimmunization and neonatal alloimmune thrombocytopenia

Following this month of study and teaching session, the MFM resident will be able to:

- 1) Counsel patient regarding associated risk of various antibodies and titres.
- 2) Describe the laboratory and / or ultrasound findings, pregnancy / intrapartum management, neonatal care, prognosis, and risk of recurrence in Rh isoimmunization.
- 3) Counsel a patient regarding the risks and benefits of cordocentesis and intrauterine transfusion.
- 4) Identify fetuses at risk for NAIT and develop a plan for diagnosis and management.

CanMEDS Roles: Medical Expert, Scholar, Collaborator, Communicator, Manager

Fetal cardiac abnormalities

Following this month of study and teaching session, the MFM resident will be able to:

- 1) Describe the epidemiology, genetics, ultrasound findings / associated anomalies, pregnancy / intrapartum management, neonatal care, prognosis, and risk of recurrence of:
 - a. Structural cardiac anomalies
 - b. Fetal arrhythmia (tachycardia and bradycardia)
- 2) Identify indications for fetal echocardiography.
- 3) Describe an approach to performing fetal echocardiography.

CanMEDS Roles: Medical Expert, Scholar, Collaborator

Collaborate with: Pediatric Cardiology

Fetal anomalies of the thorax

Following this month of study and teaching session, the MFM resident will be able to:

- 1) Describe the epidemiology, genetics, ultrasound findings / associated anomalies, pregnancy / intrapartum management, neonatal care, prognosis, and risk of recurrence of:
 - a. Abnormalities of the fetal thorax
- 2) Identify the risks, benefits, appropriate patient selection, and neonatal outcomes for fetal chest shunt insertion
- 3) Identify the risks, benefits, appropriate patient selection, and neonatal outcomes for in-utero treatment of congenital diaphragmatic hernia

CanMEDS Roles: Medical Expert, Scholar, Communicator

Collaborate with: Pediatric Surgery

Fetal anomalies of the central nervous system

Following this month of study and teaching session, the MFM resident will be able to:

- 1) Describe the epidemiology, genetics, ultrasound findings / associated anomalies, pregnancy / intrapartum management, neonatal care, prognosis, and risk of recurrence of:
 - a. Abnormalities of the fetal central nervous system

CanMEDS Roles: Medical Expert, Scholar, Collaborator

Collaborate with: Pediatric Neurosurgery

Fetal anomalies of the face and neck, and fetal exposures to drugs

Following this month of study and teaching session, the MFM resident will be able to:

- 1) Describe the epidemiology, genetics, ultrasound findings / associated anomalies, pregnancy / intrapartum management, neonatal care, prognosis, and risk of recurrence of:
 - a. Fetal anomalies of the face and neck
 - b. Antenatal fetal exposure to:
 - i. Alcohol
 - ii. Cocaine and illicit drugs
 - iii. Anticonvulsant drugs
 - iv. Warfarin
 - v. Methotrexate
 - vi. Other medications

CanMEDS Roles: Medical Expert, Scholar, Communicator, Collaborator, Health Advocate

Collaborate with: Genetics

Maternal pituitary and thyroid disease

Following this month of study and teaching session, the MFM resident will be able to:

- 1) Counsel a patient regarding the associated maternal and fetal risks, pregnancy management, prognostic factors, and medical therapy in pregnancy complicated by:
 - a. Pituitary disease
 - b. Thyroid disease

CanMEDS Roles: Medical Expert, Scholar, Collaborator

Collaborate with: Obstetric Internal Medicine

Maternal hematologic and neurologic disease

Following this month of study and teaching session, the MFM resident will be able to:

- 1) Counsel a patient regarding the associated maternal and fetal risks, pregnancy management, prognostic factors, and medical therapy in pregnancy complicated by:
 - a. Hematologic disease
 - b. Neurologic disease

CanMEDS Roles: Medical Expert, Scholar, Collaborator

Collaborate with: Obstetric Internal Medicine

Diabetes in pregnancy

Following this month of study and teaching session, the MFM resident will be able to:

- 1) Identify the maternal and fetal complications associated with Type 1, 2, and GDM.

- 2) Describe White's Classification and associated pregnancy risk / outcomes.
- 3) Demonstrate an approach to pre-conceptual and antenatal consultation, and investigations.
- 4) Identify counsel patients regarding fetal and neonatal risks associated with pre-existing and gestational diabetes.
- 5) Manage severe maternal complications associated with diabetes, including DKA.

CanMEDS Roles: Medical Expert, Scholar, Collaborator, Health Advocate

Collaborate with: Endocrinology

Severe obstetric complications, surgery and trauma in pregnancy, and obstetric anesthesia

Following this month of study and teaching session, the MFM resident will be able to:

- 1) Identify maternal physiologic changes that complicate airway management and general anesthesia.
- 2) Identify obstetric patients at risk for complications related to anesthetic, as well as options to modify that risk.
- 3) Discuss the appropriate antenatal / intrapartum collaborative management of patients with:
 - a. PPROM / Chorioamnionitis
 - b. Severe antepartum or postpartum hemorrhage
 - c. Morbidly adherent placenta
 - d. Massive transfusion
 - e. Severe hypertension
 - f. Uterine inversion
 - g. Amniotic fluid embolism
- 4) Counsel a patient regarding the associated maternal and fetal risks, pregnancy management, prognostic factors, and medical therapy in pregnancy complicated by:
 - a. Surgery in pregnancy
 - i. Including laparoscopy, ovarian masses, and cardiac bypass.
 - b. Trauma in pregnancy
 - i. Describe appropriate indications for perimortem-C-section.
- 5)

CanMEDS Roles: Medical Expert, Scholar, Communicator, Collaborator, Manager

Collaborate with: Obstetrical Anesthesia, Obstetrics and Gynecology, Critical Care Medicine

Preterm birth

Following this month of study and teaching session, the MFM resident will be able to:

- 1) Discuss the epidemiology, incidence and known risk factors for preterm birth, spontaneous preterm labour, and incompetent cervix.
- 2) Counsel patients regarding prediction of preterm birth with ultrasound assessment of cervical length.
- 3) Discuss the maternal / fetal risks and neonatal outcomes with tocolytic therapy, MgSo4 therapy, and progesterone therapy.

4) Discuss the indications, complications, and success of cervical cerclage.

5) Offer pre-conceptional counseling and pregnancy management plans for patients with a history of preterm birth or cervical insufficiency.

CanMEDS Roles: Medical Expert, Scholar, Communicator, Collaborator, Health Advocate

Collaborate with: Neonatology

Appendix E: MFM Academic Curriculum by Block

Cycle 1 (starting July 1, even years)

BLOCK	THEME	SESSIONS		Teacher	Field
1	Fetal and maternal physiology	Maternal Physiology: review and applications	2	Roggensack	MFM
		Fetal Physiology: review and applications	2	Roggensack	MFM
		Physiology of antenatal fetal assessment	1	Roggensack	MFM
		Education: Short snappers about teaching	1	Roggensack	MFM
2	Placental physiology and placenta-related complications	Placental physiology: review and applications	2	Roggensack	MFM
		Fetal growth restriction: approach, ultrasound, management	2	Roggensack	MFM
		Antepartum haemorrhage: ultrasound and management of abruption and placenta previa	1	Roggensack	MFM
		Placenta accreta / increta / percreta: review and imaging	1	Cooper	O&G
		Preoperative assessment and surgical management of placenta accrete/increta/percreta	1	Birch	MFM
		MRI of invasive placentation	1	Suchet	DI
		Placental pathology primer (when to send placentas, key findings, impact on pre-conceptual counselling)	1	Brundler / Chan	Path
3	Prenatal screening and diagnosis	First trimester screening: ultrasound findings and early anatomical survey	1	Johnson / Walsh	MFM
		First and second trimester screening: serum analytes and implications	1	Walsh	MFM
		Non-invasive prenatal testing: Geneticist's perspective	1	Lauzon	Genet
		Health Advocacy: Introducing provincial prenatal screening	1	Johnson	MFM
		Fetal procedures: Invasive prenatal diagnosis (amniocentesis and CVS review)	1	Somerset	MFM-P
		Simulation: amniocentesis	1	Somerset	MFM-P
		Other pregnancy and neonatal genetic screening (metabolic syndromes, thalassemia, sickle cell, CF, etc)	1	Lauzon	Genet
4	Aneuploidy	Ultrasound soft markers of aneuploidy: implications and counselling	1	Soliman	MFM
		Common aneuploidies: review, ultrasound diagnosis, natural history, counselling, patient resources	1	Somerset	MFM
		Non-directive counselling	1	Lauzon	Genet

		Ethics: Termination of pregnancy	1	Zadunayski	Ethics
		Interruption of pregnancy: induction of labour	1	Cooper	MFM
		Interruption of pregnancy: D&E preoperative and intraoperative management	1	Baranowski & Brar	O&G
		Fetal procedures: Intracardiac injection, selective termination of an anomalous twin	1	Somerset	MFM-P
		Pregnancy loss, grief counselling, requires and resources	1	A Lakhadi & R Uppal	SW
		Perinatal Autopsy (including consent, yield, alternatives)	1	Brundler / Chan	Path
		Pre-implantation genetic diagnosis	1	Wong	REI
5	Fetal anomalies of the abdominal wall, GI, and GU systems	Gastroschisis and omphalocele: ultrasound assessment and management	1	Connors	MFM
		Gastrointestinal abnormalities: ultrasound assessment and management	1	Chadha	MFM
		GI and abdominal wall abnormalities: Pediatric surgeon's perspective	1	Eccles	Ped Sg
		Urinary tract abnormalities: ultrasound assessment and management	1	Walsh	MFM
		Fetal urinary tract abnormalities: counselling and post-natal care	1	Wade	Nph/U
		Fetal Procedures: Megacystis, vesicocentesis, bladder shunts – patient selection, counselling, and outcomes	1	Somerset	MFM-P
		Education: MCQ and SAQ - developing and analysing written examinations	1	Roggensack	MFM
6	Fetal anomalies of the skeleton	Approach to ultrasound assessment, counselling, and pregnancy management of skeletal dysplasias	1	Suchet	DI
		Maternal and fetal osteogenesis imperfecta	1	Cooper	MFM
		Amniotic band syndrome and isolated limb defects, including fetal therapy	1	Olyomi-Obi	MFM
		Abnormalities of the ankles, feet, and hands: implications, counselling, and management	1	Connors	MFM
		Postnatal management of talipes and outcomes	1	Joughin	Ortho
		MFM Practice Management: Billing for MFM services in Alberta	1	Chadha	MFM
		Administration and leadership in MFM (DW)	1	Wilson	MFM
7	Maternal hypertension	Canadian hypertension guidelines: review / discussion	1	Chadha	MFM
		Pre-existing hypertension: pre-conceptual counselling, investigations, and pregnancy management	1	Hawkins	OB-IM
		Predicting preeclampsia: recurrence risks and early pregnancy screening	1	Johnson	MFM

		Predicting placental syndromes: maternal serum analytes, uterine artery Doppler, and placental morphology	1	Roggensack	MFM
		Timing of delivery in gestational hypertension, preeclampsia, severe preeclampsia, and HELLP	1	Dwinnell	MFM
		Obstetric management in severe preeclampsia	1	Cooper	MFM
		Anti-hypertensives in pregnancy: medical therapy and goals of management	1	Hawkins	OB-IM
		Future maternal cardiovascular risk after hypertension or placental syndrome	1	Nerenberg	OB-IM
		MCQ Exam Review & Examsmanship	1	Roggensack	MFM
8	Maternal cardiac disease	Approach to stratifying risk in pregnancies with maternal cardiac disease (NYHA, Toronto criteria, other classification, etc)	1	Dwinnell / Kealey	MFM
		Planning for delivery: monitoring, mode of delivery, management of 2 nd stage, fluid management	1	Dwinnell / Kealey	MFM
		Complex care plans for maternal cardiac patients: multidisciplinary collaboration	1	Dwinnell / Kealey	MFM
		Management of maternal left outflow tract obstruction: Mitral stenosis, aortic stenosis, coarctation	1	Dwinnell / Kealey	Card
		Higher risk lesions: Marfan's syndrome, pulmonary hypertension, myocardial infarction, artificial valves	1	Dwinnell / Kealey	Card
		Cardiomyopathy in pregnancy (including peripartum cardiomyopathy)	1	Dwinnell / Kealey	Card
		Common and rare dermatoses of pregnancy: diagnosis and management	1	Parsons	Derm
		Research: the 'how to' of peer review	1	Metcalfe	Res
9	Multiple gestation	Canadian Multiples guidelines: review / discussion	1	Soliman	MFM
		Maternal and fetal complications of multiple gestation	1	Roggensack	MFM
		Ultrasound assessment of twins and higher-order multiples, throughout gestation	1	Cooper	MFM
		Twin-twin transfusion syndrome: diagnosis, management, fetal therapy, and short / long term outcomes	1	Cooper	MFM
		Other complications of monochorionic gestation: sIUGR, TAPS, TRAP, stillbirth, MCMA, conjoined twins	1	Soliman	MFM
		Timing and mode of delivery in twins and higher-order multiples: the evidence	1	Olyomi-Obi	MFM
		REI perspective: counselling patients regarding embryo transfer, indications for multi-embryo transfer, and superovulation/IUI optimal management	1	Wong	REI
10	Maternal and fetal infections	CMV and Zika in pregnancy	1	Kuret / Castillo	MFM, IM
		Toxoplasmosis and Parvovirus (including fetal therapy) in pregnancy	1	Kuret	MFM

		Rubella and Varicella in pregnancy	1	Kuret	MFM
		Hepatitis B, C, and Syphilis in pregnancy	1	Chadha	MFM
		HIV in pregnancy: prenatal care, mode of delivery	1	Chadha	MFM
		Drugs in Pregnancy: anti-retrovirals	1	Chadha	MFM
		HIV in pregnancy: ID perspective	1	Castillo	Ob-IM
		Congenital infections: neonatal care and outcomes	1	Neo Fellow	Neo
		QA/QI: How to get started	1	Leung	O&G
11	Maternal renal disease, autoimmune disease, and venous thromboembolism	Urinary tract infection, urolithiasis, and acute renal failure in pregnancy	1	Olyomi-Obi	MFM
		Pregnancy in chronic renal failure and with renal transplant	1	Soliman	MFM
		SLE and APS in pregnancy	1	Cooper	MFM
		Hematologic disorders in pregnancy	1	Skeith	Heme
		Thrombosis and anticoagulation in pregnancy	1	Sam	Ob-IM
12	Neonatology for MFM Residents	Betamethasone for fetal lung maturity: review of evidence	1	Neo Fellow	Neo
		Decision making at the threshold of viability (22-25 weeks and severe IUGR)	1	Neo Fellow	Neo
		Complications of prematurity <34 weeks (short and long term)	1	Neo Fellow	Neo
		Complications of late prematurity (>34 weeks) and early term delivery	1	Neo Fellow	Neo
		Intrapartum asphyxia and hypoxic ischemic encephalopathy	1	Neo Fellow	Neo
		Approach to antenatal neonatal consultation: prematurity, infection, and common anomalies	1	Neo Fellow	Neo
		Ethics: Resuscitation at the edge of viability	1	Zadunayski	Ethics
		NRP Course Review	3	Self study	---
13	Key concepts in epidemiology, biostatistics, and critical appraisal	Approach to critical appraisal	1	Metcalfe	Res
		Designing and assessing RCTs	1	Wood	O&G
		Evaluating studies of diagnostic and screening tests	1	Metcalfe	Res
		Qualitative and Educational Research: Overview	1	Roggensack	MFM
		Key Epi concepts for RC exam survival	1	Roggensack	MFM
		Management of references	1	HealthSci	Library
		TBA: Resident-selected topics	?	??	??
		Recurrent early pregnancy loss	1	Wong	REI
		Early first trimester ultrasound: imaging and outcomes	1	Mahallati	DI
		MCQ Exam Review & Examsmanship	1	Roggensack	MFM

Cycle 2 (starting July 1, odd years)

BLOCK		Title	Hr	Teacher	Field
1	Amniotic fluid physiology and disorders	Polyhydramnios: ultrasound assessment, etiology, and perinatal management	1	Roggensack	MFM
		Fetal therapy: amnioreduction	1	Roggensack	MFM
		Oligohydramnios: ultrasound assessment, etiology, and perinatal management	1	Roggensack	MFM
		Mid-gestation PPRM assessment, counselling, and outcomes	1	Roggensack	MFM
		Ethics: Obstetric consent, including informed maternal refusal of C-section	1	Zadunayski	Ethics
2	Hydrops fetalis	Fetal hydrops: diagnostic approach and clinical management	2	Cooper	MFM
		Metabolic syndromes associated with hydrops, polyhydramnios, and other in utero findings: diagnosis and management	1	Khan	Metab
		Maternal age and pregnancy: REI and MFM considerations	1	Johnson and Wong	REI and MFM
		Education: Curriculum design and evaluation	1	Roggensack	MFM
		Academic writing – papers and grants	1	Metcalfe	Res
3	Diabetes in pregnancy	Pre-existing Type 1 and Type 2 DM: endocrinologist approach to pre-conceptual, antepartum, and intrapartum care	1	Donovan	Endo
		DKA and other maternal severe complications of diabetes	1	Donovan	Endo
		Gestational diabetes: screening, diagnosis, and pregnancy management	1	Cooper	MFM
		Pre-existing diabetes: pre-conceptual, antepartum, and intrapartum care	1	Cooper	MFM
		Communication: With referring OB providers, radiologists, and high-risk triage and transport	1	Kuret	MFM
		MFM / DI Practice Management: Human resources in MFM: Nursing, ultrasound technicians, and administration	1	Mahallati	MFM
		Research: Clustered data – study design and statistical analysis when you have 2 patients not 1	1	Metcalfe	Res
4	Isoimmunization and NAIT	Management of isoimmunization in pregnancy: overview and principles Management of common and unusual antibodies (including Rh, Kell, Duffy, etc) MCA Doppler: technique and interpretation	2	Somerset	MFM

		Fetal therapy: fetal blood sampling and intrauterine transfusion	2	Somerset	MFM-P
		NAIT: diagnosis, treatment options, and delivery	1	Dwinnell	MFM
		Research: Development of clinical practice guidelines	1	Metcalfe	Res
5	Maternal thyroid, adrenal, and hematologic disease	Hyper and hypothyroid disease in pregnancy and postpartum (including screening and sub-clinical hypothyroidism)	2	Donovan	Endo
		Adrenal disease in pregnancy: Cushing's syndrome, adrenal insufficiency, pheochromocytoma	1	Donovan	Endo
		Congenital adrenal hyperplasia: pregnancy management and fetal risk / therapy	1	Donovan	Endo
		Hemoglobinopathies (Sickle cell, thalassemia): screening, pregnancy management	1	Castillo	IM
		Hematologic malignancy in pregnancy (including chemotherapy)	1	Vlasschaert	Ob-IM
		Thrombocytopenia in pregnancy	1	Hawkins	Ob-IM
6	Fetal cardiac abnormalities	Indications for fetal echocardiogram (and options for enhanced cardiac screening)	1	Paterson	MFM
		Common structural cardiac anomalies	2	Fruitman	PedCard
		Fetal tachyarrhythmias and medical therapy	1	Fruitman	PedCard
		Anti Ro/La antibodies and congenital heart block	1	Fruitman	PedCard
7	Fetal anomalies of the thorax	Approach to fetal thoracic abnormalities	1	Suchet	DI
		Diaphragmatic hernia: diagnosis, prognosis, pregnancy management, fetal therapy	1	Olyomi-Obi	MFM
		CCAM and other chest lesions: diagnosis, prognosis, management	1	Dwinnell	MFM
		Fetal therapy: pleurocentesis and shunt placement	1	Dwinnell	MFM-P
		Anomalies of the thorax: paediatric surgery perspectives	1	Brindle or Eccels	PedSurg
		The role and best use of fetal MRI (including safety of MRI / contrast in pregnancy)	1	Wei	DI
		MCQ Exam Review & Examsmanship	1	Roggensack	MFM
8	Maternal pituitary and neurologic disease	Pituitary disease in pregnancy: prolactinoma, pituitary insufficiency	1	Donovan	Endo
		Epilepsy in pregnancy	1	Hawkins	Ob-IM / Neuro?
		Pregnancy management in epilepsy	1	Soliman	MFM
		Spinal cord injury pregnancy management	1	Kuret	MFM

		Respiratory disease in pregnancy	1	Vlasschaert	Ob-IM
		Inflammatory bowel disease in pregnancy: management and medical therapy	1	C Seow or Y Leung	GI
		Ethics: Prolongation of pregnancy in vegetative patients	1	Zadunayski	Ethics
9	Fetal anomalies of the CNS	Ultrasound assessment of neurologic structures (including maturity)	1	Olyomi-Obi	MFM
		Role of the fetal CNS MRI	1	Wei	DI
		Neural tube defects: prevention, diagnosis, counselling, fetal surgery	2	Wilson	MFM
		The spectrum of ventriculomegaly: diagnosis, investigation, counselling, intrapartum management	1	Rivo-Cabrin	PedNeuro
		Common intracranial abnormalities (ACC, DWM, haemorrhage, tumors)	2	Somerset	MFM
		Education: Feedback and clinical assessment	1	Roggensack	MFM
10	Fetal anomalies of the face and neck, and fetal exposure to drugs	Cleft lip and palate: imaging, investigation, counselling	1	Suchet	DI
		Cleft lip and palate: postnatal management	1	McIntyre or Harrop	Peds
		Abnormalities of the fetal face and neck	1	Walsh	MFM
		EXIT procedure	1	Wilson	MFM
		Addiction in pregnancy (including methadone)	1	Chadha	MFM
		Drugs and EtoH in pregnancy: illicit	1	Chadha	MFM
		Top 10 teratogens in pregnancy	1	Soliman	MFM
11	Severe obstetric complications	PPROM: Diagnosis, pregnancy management, and delivery timing	1	Dwinnell	MFM
		Management of severe postpartum haemorrhage	1	Olyomi-Obi	MFM
		Massive obstetric transfusion	1	Fellow	Heme
		Obstetric cholestasis and other liver disease in pregnancy	1	Vlasschaert	Ob-IM
		Severe obstetric complications: management and future pregnancy planning	1	Cooper	MFM
		Macrosomia: ultrasound assessment and pregnancy management	1	Cooper	MFM
		Psychiatric illness in pregnancy and postpartum (including psychiatric medication in pregnancy and breastfeeding)	1	Gagnon	Psych
12	Preterm birth	Preterm birth, preterm labour, and cervical insufficiency	2	Kuret	MFM
		Cervical length screening, cerclage, pessary and progesterone	2	Olyomi-Obi	MFM
		Improving neonatal outcomes? Betamethasone, tocolysis, MgSO4	1	Walsh	MFM
		Cervical cerclage and outcomes: prophylactic, indicated, rescue, abdominal	1	Kuret	MFM
		Labour and delivery management at the threshold of viability	1	Cooper	MFM

		Intrauterine fetal demise: investigations, management, and future pregnancy	1	Cooper	MFM
		QA/QI: Provincial Perinatal Quality Assurance and Obstetric Imaging	1	Roggensack	MFM
13	Surgery and trauma in pregnancy, and obstetric anesthesia	Regional and general anaesthesia in pregnancy	1	Chow / Zakus	Anest
		Obstetric anaesthesia: approach to antenatal consultation and management of complex intrapartum patients (including cardiac patients)	1	Chow/ Zakus	Anest
		Trauma in Pregnancy	1	Soliman	MFM
		Fetal risks of surgery and monitoring around surgery, perimortem C-section	1	Dwinnell	MFM
		Cancer and chemotherapy in pregnancy	1	Vlasschaert	Ob-IM
		Breast cancer: diagnosis treatment in pregnancy, and planning future pregnancy	1	Vlasschaert	Ob-IM
		SAQ Exam Review & Examsmanship	1	Roggensack	MFM

APPENDIX F: MFM Residency Resident Safety Policy

Residents have the right to work in a safe environment during training.

The purpose of this document is to provide a policy regarding workplace safety for postgraduate residents in the Maternal-Fetal Medicine Residency Program at the University of Calgary, and to demonstrate the commitment of the Residency Program to the protection, safety, and overall wellbeing of its residents. Safety includes physical, psychological, and professional well-being.

It is recognized that the responsibility for resident safety is jointly shared between the resident, residency program, Faculty of Medicine, University of Calgary and its Affiliated Hospital Sites, and Alberta Health Services.

This policy complies with the Royal College accreditation standards A2.5 and B3.1.9 and does not supersede any University wide or Health Services Policy that is also established. While this is a residency-specific document, the MFM Residency also subscribes to:

- 1) **The University of Calgary Postgraduate Medical Education Residency Safety Policy**
<https://cumming.ucalgary.ca/sites/default/files/teams/6/policies/resident-safety-pgme-june2013-v2.pdf>
- 2) **The Professional Association of Resident Physicians of Alberta Contract, Article 28**
<https://para-ab.ca/wp-content/uploads/2019/07/PARA-Final-Agreement-2018-2020.pdf>
- 3) **The Alberta Health Services Workplace Health and Safety Policy** (<https://extranet.ahsnet.ca/teams/policydocuments/1/clp-ahs-pol-workplace-health-safety.pdf>)
- 4) **The Alberta Health Services Workplace Violence: Prevention and Response Policy**
<https://extranet.ahsnet.ca/teams/policydocuments/1/clp-ahs-pol-workplace-violence-prevention-response.pdf>
- 5) **The Alberta Health Services Safe Disclosure / Whistleblower Policy**
<https://extranet.ahsnet.ca/teams/policydocuments/1/clp-ahs-pol-safe-disclosure.pdf>

Scope

This policy covers resident safety in the areas of travel, patient encounters, including house calls, after-hours consultations in isolated departments and patient transfers (transports) (Royal College Standard B1.3.9). It also includes Occupational Health and Safety as well as Workplace Environmental Health and Safety.

These policies apply only during residents' activities that are related to the execution of residency duties.

Program-specific policies

- Residents should not assess violent or psychotic patients without the backup of security or a supervisor and also an awareness of accessible exits.
- Residents are not expected to make unaccompanied home visits or perform air transports.
- A supervisor must always be present if the resident is seeing a patient in an ambulatory setting after hours. This does not apply if patients are being seen in the emergency room, labour and delivery, FMC MFM unit, or hospital ward.
- Residents should perform physical examinations (and specifically gynecologic or intimate examinations) in the ambulatory care settings in the presence of a nurse or other health professional.
- Residents must observe universal precautions and isolation procedures when indicated. Residents are subject to the policies of the Faculty of Medicine and PGME Office with respect to procedures during epidemics.
- International electives must occur in a stable political environment with a qualified preceptor to provide appropriate supervision and evaluation. Additionally, there must be a Canadian Consulate in that country.
- Pregnant residents can have specific risks to themselves and the fetus. Therefore, their learning environment and their duties may be modified to minimize these risks.
- Learning environments must be free from intimidation, harassment, and discrimination.

Responsibilities of the Resident

- Must comply with safety policies and be responsible for providing information and communicating concerns to the program.
- Must participate in required safety sessions including Fire Safety, Workplace Hazardous Materials Information and safety (WHMIS), Infection Control, and follow the safety codes of the site where they are training.
- Must report any situation where personal safety is threatened and should be aware of the contact for security at participating training sites.
- Overseas travel immunizations and advice should be organized well in advance when traveling abroad for electives or meetings.

- Residents traveling for clinical or other academic duties by private vehicle should maintain their vehicle adequately and travel with appropriate supplies and contact information. Residents must be aware of and comply with Alberta's Distracted Driving Legislation (Bill 16). If the resident has determined that it is unsafe to travel (i.e. due to extreme weather concerns), they may elect not to attend their clinic or academic half day; however, they must behave as a professional and inform their clinical supervisor immediately.
- Residents who feel unsafe to drive post-call should opt to take a taxi home and then back to get their car. Reimbursement for this is covered under the PARA contract.
- Should not walk alone for any major or unsafe distances at night. Residents doing home call and arriving after hours should be aware of their environment before leaving their car and have a cell phone available to contact security, if it is deemed an escort is required from AHS Protective Services. If a resident feels a potential threat to their safety, they should not exit their car and proceed to leave the site accordingly. In the rare event this occurs, the resident should notify the attending on-call.

Responsibilities of the Program

- Must act promptly to address identified safety concerns and incidents and be proactive by providing a safe learning environment.
- Ensure that information sessions on WHIMIS and Occupational safety are available for the trainees in the participating sites.
- Ensure that there is an initial specialty-specific, site-specific orientation session available.
- Ensure that each rotation and or site remains compliant with the program policy.
- Ensure that appropriate parking is provided proximal to the Calgary Maternal-Fetal Medicine Centre outpatient facility.

Reference

General Standards of Accreditation for Residency Program (version 1.2)

Standard 5: Safety and Wellness is promoted throughout the learning environment

5.1.1 Residents are appropriately supervised

5.1.2 Residency education occurs in a safe learning environment

5.1.3 Residency education occurs in a positive learning environment that promotes resident wellness

<http://www.canera.ca/canrac/general-standards-e>

Specific standards of accreditation for residency programs in Maternal-Fetal Medicine

<http://www.royalcollege.ca/rcsite/ibd-search-e?N=10000033+10000034+4294967040>

Approval and sign off

Originally signed off August 27, 2014

Updated by MFM RPC September 11, 2019

Appendix G: MFM Residency Fatigue Risk Management Policy

Fatigue is an occupational risk in medical education that impacts residency training and workplace health and safety, with potential implications for patient safety. Successful management of fatigue risk is the shared responsibility among all those who have a role within medical education. The safety and well-being of learners and patients is a priority for our Program and faculty.

The purpose of this document is to provide a policy regarding Fatigue Risk Management for postgraduate residents in the Maternal-Fetal Medicine Residency Program at the University of Calgary, and to demonstrate the commitment of the Residency Program to the protection, safety, and overall wellbeing of its residents.

It is recognized that the responsibility for Fatigue Risk Management is jointly shared between the resident, residency program, the Office of Resident Wellness, and the Postgraduate Medical Education Office.

This policy complies with the Royal College accreditation standards and does not supersede any University wide or Health Services Policy that is also established. While this is a residency-specific document, the MFM Residency also subscribes to:

- 6) **The University of Calgary Postgraduate Medical Education Operating Standard in Postgraduate Medical Education**
<https://cumming.ucalgary.ca/sites/default/files/teams/6/Operating%20Standards/pgme-operating-standard-frm-final-june20-v1.pdf>
- 7) **The Professional Association of Resident Physicians of Alberta Contract, Article 28 (28.04)**
<https://para-ab.ca/wp-content/uploads/2019/07/PARA-Final-Agreement-2018-2020.pdf>

Additional reference(s):

- 1) **Resident Doctors of Canada Fatigue Risk Management Toolkit.** <https://residentdoctors.ca/wp-content/uploads/2018/11/Fatigue-Risk-Management-ToolkitEN.pdf>

Preamble

“Fatigue” means a condition characterized by a lessened capacity for work and reduced efficiency of accomplishment, usually accompanied by a feeling of weariness and tiredness. Fatigue can be acute and come on suddenly or chronic and persist. “Fatigue Risk Management” (FMR) means prevention and mitigation practices designed to monitor and manage the effects of fatigue and attendant risks for the health and safety of Resident Physicians.

Program-specific policies

- Historically, MFM residents have preferred their evening and weekend on-calls from home occur daily for 1 week, and residents have requested a waiver for this from PARA. This system is as requested by the residents and has been annually approved by PARA. If such scheduling ever not requested by MFM residents and / or not approved by PARA, the MFM Residency will then follow policies for frequency and scheduling of at-home call as described in the Resident Physician Agreement.
- In the case a busy MFM on-call evening (particularly if inpatient care is provided after 11 PM), the MFM resident would be relieved of clinical duties the following AM at 8:00.
- MFM residents participate in Labor and Delivery service with MFM-OB physicians for 1-2 weekday shifts per MFM block from 8am-5pm. MFM residents would not routinely participate in Labor and Delivery service overnight; but should this occur, MFM residents would be relieved of clinical duties the following AM at 8:00.
- While in good standing with the Program, MFM residents may pursue locum O&G work outside of the MFM Residency. If a MFM resident accepts overnight O&G locum work, they are required to take a flex or vacation day from the program the following day.
- In the case of overnight clinical work (or otherwise the resident recognizes fatigue), the MFM resident should not operate a motor vehicle, and instead utilize taxi services (with reimbursement through PARA / AHS).
- Our program recognizes MFM resident duties and roles related to administration, quality assurance, and medical education, as well as personal study needs. The MFM program will account for these duties with appropriate scheduling of daytime hours to complete these roles.

Responsibilities of the Resident

- Learners share responsibility for FRM and are expected to bring forward individual or program concerns to the Program Director and/or appropriate Program Committee.

- Residents who identify sleep deprivation as negatively impacting performance should bring this concern to the attention of the Most Responsible Physician (MRP), Program Director, or Program Ombudsperson. For both resident and patient safety, MFM residents must not provide clinical duties when fatigued.
- Learners who identify a performance concern related to sleep disruption will be supported by the Program. Learners may be temporarily re-assigned to non-clinical duties or relieved of clinical responsibilities for a specified period of time, as determined collaboratively by the program and the learner.
- Residents and Fellows who recognize the effects of sleep deprivation on a co-Resident has a duty to bring this to the attention of the learner concerned and/or the MRP in order to support initiation of appropriate measures to address wellness and ensure patient safety.
- Residents will utilize the flexibility inherent to the MFM program to ensure that adequate daytime hours are provided when needed for study, administrative duties, and scholarly activities.

Responsibilities of the Program

- Clinical duties and on-call schedules for residents must be developed in compliance with the terms of the Resident Physician Agreement.
- The program will monitor issues related to learner fatigue as part of a wellness and patient safety strategy with a standing review annually by the Residency Program Committee.
- The Program arranges for MFM residents to meet with the Program Ombudsperson every 6 months. Fatigue and fatigue risk management with the program will be reviewed at these meetings as a standing agenda item.
- MFM faculty and RPC will take proactive measures to support our residents and ensure patient safety.

Reference

General Standards of Accreditation for Residency Program (version 1.2)

Standard 5: Safety and Wellness is promoted throughout the learning environment

5.1.2 Residency education occurs in a safe learning environment

5.1.3 Residency education occurs in a positive learning environment that promotes resident wellness

<http://www.canera.ca/canrac/general-standards-e>

Specific standards of accreditation for residency programs in Maternal-Fetal Medicine

<http://www.royalcollege.ca/rcsite/ibd-search-e?N=10000033+10000034+4294967040>

Signed off by MFM RPC: September 2020.