



Objectives of Training

ObGyn Ultrasound - Senior Rotation

Royal Victoria Hospital

Orientation to Rotation

- **Rotation duration:** One 4-week block
- **Rotation supervisor:** Dr Richard Brown
- **On the first day report for orientation with Objectives of Training document to:** F4 Ultrasound Unit - US Technologist Coordinator (or Attending staff) that will provide an Orientation to the US clinic and ensure that they are familiar with the functioning of the clinic, the techniques of various types of exams and the handling of the equipment. This includes: appropriate handling of equipment, cleaning and disinfection of probes, patient preparation, patient placement, and indications for endovaginal examination.
- **Schedule:** During this rotation, the Resident is expected to participate in the clinical activities, rounds etc. indicated in below:
 - **read** an appropriate ultrasound textbook (suggested below) and
 - **present a case** at Wednesday US rounds; suitability of case should be discussed with attending staff.

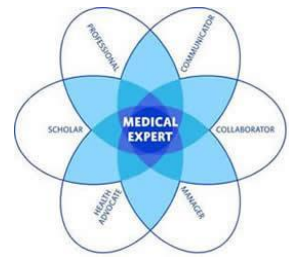
Monday	Tuesday	Wednesday	Thursday	Friday
			Grand ObGyn Rounds 8:00 – 9:00 am F3.10	Fetal Diagnosis Treatment Group 8:00 – 9:00 am F3.10
		Ultrasound and Prenatal Diagnosis Rounds 12:30-1:30 pm F3.10		
				Resident Teaching 2:00-5:00 pm RVH F3.10

At the end of their training the resident should be able to perform a proficient basic obstetrical ultrasound examination. This goal will be accomplished through the attainment of the general objectives below. At the end of the rotation the Senior ObGyn Resident will:

- continue to improve scanning skills and knowledge of image optimization
- continue to expand knowledge of ultrasound findings in pathologic states
- continue to expand knowledge of differential diagnoses of ultrasound findings
- recognize fetal abnormalities and soft markers of fetal aneuploidy in second and third trimester obstetric ultrasound

Specific Objectives and CanMEDS competencies

The role of **medical expert** is central to the function of the obstetrician-gynaecologist, and draws on the competencies for the roles of **scholar, communicator, health advocate, manager, collaborator, and professional**.



1. Medical Expert

a. KNOWLEDGE

The Resident will be expected to have acquired an understanding of the following topics of normal and abnormal obgyn ultrasound:

- First trimester ultrasound
- Down syndrome screening by first and second trimester ultrasound
- Fetal anatomical scans at 20 weeks
- Fetal biometry for the determination of fetal size and growth - determination of large or small for gestational age including appropriate understanding of the limitations of biometry
- Diagnosis and follow-up of multiple gestation
- Determination of fetal position and lie
- Placental evaluation including location and maturity
- Determination of fetal viability
- Determination of ectopic pregnancy
- Evaluation of fetal well-being using ultrasonography
- Principle and use of Doppler ultrasonography
- Fetal abnormalities that require high risk obstetrics referral, including:
 - abdominal masses
 - abdominal wall defects
 - ascites
 - cardiac malformations and arrhythmias
 - cerebral ventriculomegaly, hydrocephalus
 - chest masses
 - chromosomal abnormalities and syndromes such as Down's
 - cleft lip/palate
 - complications of twin pregnancy (TTTS, selective IUGR, TRAP)
 - congenital anomalies
 - congenital infections
 - cystic hygroma
 - Dandy Walker malformation and variants
 - diaphragmatic hernia
 - gastrointestinal tract obstruction/abnormalities
 - holoprosencephaly
 - hydronephrosis
 - hydrops
 - intrauterine growth retardation
 - lower urinary tract obstruction
 - multicystic dysplastic kidney
 - neural tube defects – Arnold chiari malformation
 - renal agenesis
 - skeletal dysplasias syndrome
 - turner's syndrome
- Indications for invasive fetal testing (amniocentesis, CVS, cordocentesis)

b. SKILLS

Gynecological Ultrasound Skills

Ability to recognize normal pelvic anatomy.

Ability to discuss the most common and most important pathologic states relevant to ultrasound imaging in gynaecology including:

- Intrauterine pregnancy
- Possible or identified ectopic pregnancy

- Unusual ectopic pregnancy: interstitial, cervical, ovarian, scar, abdominal, rudimentary horn
- Embryonic/fetal demise
- Retained products of conception
- Uterine leiomyomas
- Simple and complex ovarian cysts
 - Functional cysts
 - Endometriomas
 - Dermoid cysts
- Suspected ovarian torsion
- Assessment of endometrial thickness
 - Endometrial hyperplasia and carcinoma
- Features of ovarian carcinoma
 - Complex cysts
 - Evaluation of septation
 - Evaluation of solid excrescences
 - Principles of Doppler interrogation of cysts

Obstetrical Ultrasound Skills

Ability to recognize the following **NORMAL findings of the First Trimester:**

- Gestational sac size
- Embryo
- Cardiac activity including normal embryonic heart rate
- Amnion
- Chorion
- Crown-rump length measurement,
- Correlation with BHCG levels and menstrual dates

Ability to recognize the following **ABNORMAL findings of the First Trimester:**

- Multiple gestations (chorionicity and amnionicity)
- Failed early pregnancy, spontaneous complete/incomplete abortion
- Ectopic pregnancy
- Blighted ovum, embryonic death,
- Gestational trophoblastic disease

Ability to recognize the following **NORMAL findings of the Second and Third Trimester:**

- Routine fetal anatomy scan
- Placenta
- Biometry
- Amniotic fluid volume

Ability to recognize the following **ABNORMAL findings of the Second and Third Trimester:**

- Anencephaly
- Oligohydramnios (spontaneous premature rupture of membranes, renal disease, fetal death, intrauterine growth retardation, infection)
- Polyhydramnios
- Placenta previa
- Cervical appearance and length
- Soft markers of fetal aneuploidy, including:
 - choroid plexus cyst
 - clinodactyly
 - echogenic bowel
 - echogenic cardiac focus

- mild ventriculomegaly
- nuchal thickening
- prenasal edema
- pyelectasis
- two-vessel umbilical cord
- Placental cord insertion site
- Vasa previa
- Velamentous cord insertion
- Placenta accreta, percreta, increta
- Doppler studies
 - MCA Doppler
 - umbilical cord Doppler
- Biophysical profile

2. Communicator

- a. Appropriately communicate and interact with patients and their families, colleagues, students and co-workers from other disciplines to develop a shared plan of care.
- b. Accurately elicit, synthesize and document relevant information regarding urgent or unexpected radiologic findings.
- c. Produce radiologic reports that are accurate, concise and grammatically correct.
- d. Be sensitive to patients receiving bad news

3. Collaborator

- a. Interact effectively and professionally with the healthcare team, referring physicians, and ultrasound technologists.
- b. Work with other health professionals and clinic staff to prevent, negotiate, and resolve conflicts.

4. Manager

- a. Participate in activities that contribute to the effectiveness of the healthcare organizations and systems, when appropriate.
- b. Manage their time and healthcare resources effectively

5. Health Advocate

- a. Respond to individual patient health needs and issues as part of patient care
- b. Identify determinants of health of the population they serve
- c. Promote health of individual patients, communities and populations

6. Scholar

- a. Augment medical and ultrasound knowledge by correlating clinical information, medical literature, and other relevant patient studies.
- b. Attend pertinent conferences / rounds
- c. Present cases at Morbidity and Mortality rounds when appropriate.

7. Professional

- a. Be on time
- b. Present oneself as a professional in appearance and communication.
- c. Demonstrate respect for patients and all members of the health care team.
- d. Respect patient confidentiality.
- e. Demonstrate a responsible work ethic with regard to work assignments.

Evaluation

- The resident will be required to contact Dr Richard Brown for midway feedback.
- Rotation supervisor will be responsible for organizing face-to-face feedback at the end of every four week block.
- The final evaluation will be posted on MRESone45.

Recommended reading

[Ultrasonography in obstetrics and gynecology](#)

Callen, Peter W.

5th ed. Philadelphia, Pa, Elsevier Saunders: 2008.

Call #: WQ 100 U47 2008 Reserve

Location: RVH - Women's Pavilion Library

[Obstetric and gynaecological ultrasound made easy](#)

Smith, N. C.; Smith, A. Pat M.

2nd ed. New York, Churchill Livingstone: 2006.

Call #: WQ 209 S4 2006 Reserve

Location: RVH - Women's Pavilion Library

[Obstetric ultrasound: how, why and when](#)

Chudleigh, Trish; Thilaganathan, Basky.

3rd ed. Edinburgh, Churchill Livingstone: 2004.

Call #: WQ 209 P35o.3 2004 Reserve

Location: RVH - Women's Pavilion Library

[Sonography in obstetrics and gynecology: principles and practice](#)

Fleischer, Arthur C; Manning, Frank A; Jeanty, Philippe; Romero, Roberto.

6th ed. New York, McGraw-Hill: 2001.

Call #: WQ 240 S69.6 2001

Location: RVH - Women's Pavilion Library

[The Society for Maternal-Fetal Medicine](#)

<https://www.smfm.org/default.cfm>

See the RVH Librarian for more information concerning reference texts