Chapter 1
Principles of Scanning Technique in Obstetric and Gynecologic Ultrasound

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Objectives
• Explain the basic premise of ALARA
• Describe preparation of the patient for an obstetric or gynecologic sonogram
• Identify the appropriate transducer for an examination
• Discuss the safety of 2D, 3D, and Doppler imaging
• List the certification options available to a practicing sonographer
• Explain the need for laboratory accreditation

As Low As Reasonably Achievable
• Also known as ALARA
• Began as a Radiation protection method
• Sonographically achieved through;
  - Decrease in exam time
  - Using the lowest Power level
  - Appropriate transducer selection

Beginning the Exam
• Automatic patient data population
• Manual Entry

Before the Exam
• Introduce yourself
• Identify patient
  - Date of birth
  - Exam to be performed
  - Referring doctor
  - Arm band
Patient History
- Last menstrual period (LMP)
- Pregnancy history
  - Gravida (G) - number of pregnancies
  - Para (P) – number of term pregnancies
  - Abortion (A) – spontaneous and elective
- Estimated date of delivery (EDD) or Estimated date of confinement (EDC)

Scan Protocol
- Routine used in imaging an organ
- Recommended protocols provided by:
  - American Institute of Ultrasound in Medicine (AIUM)
  - The Society of Diagnostic Medical Sonography (SDMS)
  - American College of Radiology (ACR)

Gynecologic Imaging - Abdominal
- Full bladder
- FINISH four 8 ounces of water before the exam
- What is full enough?

Gynecologic Imaging - Vaginal
- Transducer covered
- Gel placed between transducer and cover
- Insertion method determined by facility

Obstetric Exam
- Obtain previous examinations
- Enter growth data into machine or recall from hard drive
- Aortocaval compression syndrome
  - Compression of great vessels
  - Symptoms
    - Sweating
    - Nausea
    - Faint
Transducer Selection

Large Patient
- 3.5 MHz or lower
  - Increases penetration
  - Decreases detail

Average Patient
- 5.0 MHz or higher
  - Decreases penetration
  - Increases detail

- Image Optimization for any patient
  - Decrease depth
  - Correct placement of focal zone
  - Narrow image/sector size

Completing the Examination

• Generation of electronic / paper report
• Presenting the exam to the clinician

Safety

• Potential hazards from ultrasound energy
• No hazards found below 100 mW/cm² in an unfocused beam or below 1 W/cm² in a focused beam
• ALARA

The Sonographer as a Professional

• Gain Certification
  - American Registry of Diagnostic Medical Sonographers (ARDMS)
    • Gold Standard
  - Nuchal Translucency Quality Review (NTQR)
  - American Registry of Radiologic Technologists (ARRT)
• Join a professional society