



The SonoSim Ultrasound Training Solution in Accordance with the Obstetric and Gynecologic Ultrasound Curriculum

In 2015, the American Institute of Ultrasound in Medicine (AIUM) assembled a multisociety task force of experts in obstetrics & gynecology, radiology, and medical education to develop a consensus-based, standardized curriculum and competency evaluation process for obstetric & gynecologic ultrasound training in residency programs. In January 2018, [American Journal of Obstetrics & Gynecology](#), [Journal of Ultrasound in Medicine](#), and [Ultrasound in Obstetrics & Gynecology](#) officially published the recommendations.^{i,ii,iii} The SonoSim Ultrasound Training Solution matches these new industry recommendations through its computer-based modules of didactic courses, knowledge assessments, and interactive SonoSimulator® scanning cases.

Year 1 Residency	
OB/GYN Essential Topic & Objective	SonoSim® Module & SonoSim® Lesson
Basic Principles of Medical Ultrasound	Fundamentals of Ultrasound
Explain the basic principles of ultrasound physics	<i>Basic Ultrasound Physics</i>
Compare the different types of ultrasound modes (B-mode, M-mode, Doppler, two-dimensional (2D) and three-dimensional (3D)).	<i>Imaging Modes, Doppler Mode Imaging</i>
Describe the bioeffects of ultrasound (mechanical and thermal effects: ALARA Principle – As Low As Reasonably Achievable)	<i>Infection Control & Biosafety</i>
Recognize and describe ultrasound artifacts	<i>Imaging Artifacts</i>
Recognize relevant official statements from professional societies (AIUM, ACOG, ACOOG, ACR, ISUOG, SMFM, and SRU)	<i>Infection Control & Biosafety</i> <i>First-Trimester Pregnancy: General Considerations</i> <i>Second- and Third-Trimester Pregnancy – Part I: General Considerations</i> <i>Fetal Biometry & Pregnancy Dating</i>
Basic Characteristics of the Ultrasound Equipment (Knobology)	Fundamentals of Ultrasound
Ultrasound transducers: explain principles of sound generation; compare transducer characteristics and applications	<i>Introduction, Transducer Basics</i>
Recognize and describe sound penetration and bioeffect with consideration related to acoustic power output	<i>Infection Control & Biosafety</i>
Describe the effect of frequency on resolution and penetration	<i>Transducer Basics</i>
Describe the effect of depth settings on the field of view and image size	<i>Ultrasound System Operation</i>
Explain how to adjust gain settings for optimal image brightness with minimum power output	<i>Ultrasound System Operation</i>
Explain how to adjust focal zone depths to achieve the best resolution of structures of interest	<i>Ultrasound System Operation</i>
Explain how to adjust image persistence settings to reduce background noise	<i>Imaging Artifacts</i>
Input patient information into ultrasound system before starting an ultrasound examination	<i>Imaging Conventions</i>

Year 1 Residency

OB/GYN Essential Topic & Objective	SonoSim® Module & SonoSim® Lesson
Aspects of the Ultrasound Examination	Fundamentals of Ultrasound
Describe effective positioning of patients and application of coupling agents	<i>Basic Ultrasound Physics, Imaging Conventions</i>
Describe ergonomic practices that minimize repetitive stress injuries (positioning of operator and equipment)	<i>Imaging Conventions</i>
Explain correct transducer manipulation and image orientation	<i>Imaging Conventions</i>
Explain ultrasound image labeling and storage	<i>Imaging Conventions</i>
Describe appropriate communication of ultrasound findings to other health professionals	<i>Imaging Conventions</i>
Describe the protocol for transducer cleaning and disinfection	<i>Infection Control & Biosafety</i>
Ultrasound in the First Trimester	First-Trimester Pregnancy
Describe steps for performance of first-trimester transvaginal ultrasound examination	<i>Introduction, General Considerations</i>
Describe indications for a first-trimester ultrasound examination	<i>Introduction, General Considerations, First-Trimester Pregnancy Ultrasound</i>
Describe gestational sac evaluation (intrauterine location, discriminatory human chorionic gonadotropin levels, and differentiation from endometrial fluid)	<i>First-Trimester Pregnancy Ultrasound</i>
Recognize and describe the yolk sac	<i>First-Trimester Pregnancy Ultrasound</i>
Recognize and describe the amnion	<i>First-Trimester Pregnancy Ultrasound</i>
Recognize and describe the embryo/fetus (number)	<i>Anatomy, First-Trimester Pregnancy Ultrasound, Special Scenarios</i>
Recognize embryo/fetus cardiac activity and know how to document with M-mode or movie clip	<i>General Considerations, First-Trimester Pregnancy Ultrasound</i>
Describe criteria for definitive diagnosis of embryonic/fetal death in the first trimester	<i>Detecting Pregnancy Failure</i>
Identify components of sonographic dating in the first trimester	<i>Pregnancy Dating Using Ultrasound</i>
Recognize and describe ultrasound evaluation of ampullary tubal ectopic pregnancies	<i>Pathologic Conditions</i>
Recognize and describe the sonographic appearance of subchorionic hematoma	<i>Pathologic Conditions</i>
Recognize and describe features of a molar pregnancy	<i>Pathologic Conditions, Special Scenarios</i>
Recognize and describe the association between thickened nuchal translucency and fetal chromosomal anomalies	<i>Special Scenarios</i>

Year 1 Residency

OB/GYN Essential Topic & Objective	SonoSim® Module & SonoSim® Lesson
Ultrasound in the Second and Third Trimesters	Second- and Third-Trimester Pregnancy – Part I and II
Describe components of the basic second- and third-trimester ultrasound examinations	<i>Introduction, General Considerations, Basic Fetal Anatomy</i>
Identify and describe the components of fetal biometry in sonographic dating in second and third trimesters	<i>Basic Fetal Anatomy, Fetal Biometry & Pregnancy Dating</i>
Recognize and explain predisposing factors for fetal macrosomia and fetal growth restriction in the third trimester	<i>Fetal Weight, Intrauterine Growth Restriction, & Fetal Macrosomia</i>
Describe imaging parameters for placental localization	<i>Assessment of Extrafetal Anatomy, Twin Gestation</i>
Recognize and describe risks and indications for genetic amniocentesis	<i>Basic Fetal Anatomy</i>
Ultrasound Evaluation of Twin Gestations	Second- and Third-Trimester Pregnancy – Part II
Role of ultrasound in diagnosis of twins	<i>Twin Gestation</i>
Chorionicity and amnionicity in multifetal pregnancies	<i>Twin Gestation</i>
Placental Abnormalities	Second- and Third-Trimester Pregnancy – Part II
Recognize and explain risk factors and sonographic diagnosis of placenta previa and low-lying placenta	<i>Placental Evaluation</i>
Recognize and describe risk factors of placenta accreta	<i>Placental Evaluation</i>
Amniotic Fluid Assessment	Second- and Third-Trimester Pregnancy – Part II
Describe methods for diagnosing oligohydramnios	<i>Amniotic Fluid Assessment</i>
Describe methods for diagnosing polyhydramnios	<i>Amniotic Fluid Assessment</i>
Ultrasound Examination of the Non-Pregnant Uterus	GYN Ultrasound of Nonpregnant Normal Uterus
Recognize and describe indications for pelvic sonography	<i>Introduction</i>
Recognize and describe sonographic features of the normal uterus in relations to the menstrual cycle	<i>Introduction, Normal Anatomy, Female Pelvis Anatomy, Sonographic Imaging, Transabdominal Sonographic Technique, Transvaginal Sonographic Technique, Case Studies</i>
Ultrasound Examination of Adnexa	GYN Ultrasound Normal Adnexa
Recognize and describe sonographic features of the normal ovary in relations to the menstrual cycle	<i>Introduction, Adnexal Anatomy, Female Pelvis Physiology, Sonographic Anatomy, Sonographic Examination, Case Studies</i>
Recognize and describe characteristics of a simple cyst	<i>Introduction, Adnexal Anatomy, Female Pelvis Physiology, Sonographic Anatomy, Sonographic Examination, Case Studies</i>

Year 2 Residency

OB/GYN Essential Topic & Objective	SonoSim® Module & SonoSim® Lesson
Ultrasound in the First Trimester	First-Trimester Pregnancy
Recognize and describe the sonographic appearance of major fetal malformations in early gestation	<i>Pathological Conditions, Special Scenarios</i>
Describe atypical locations of ectopic pregnancies including interstitial, ovarian, cervical, abdominal and Cesarean scar implantations	<i>Pathological Conditions</i>
Review workup of pregnancy of unknown location	<i>Detecting Pregnancy Failure</i>
Ultrasound Evaluation of Twin Gestations	Second- and Third-Trimester Pregnancy – Part II
Describe methods of determining twin placentation by ultrasound	<i>Twin Gestation</i>
Explain the role of ultrasound in follow-up of twin gestations	<i>Twin Gestation</i>
Explain the role of ultrasound in serial evaluation of discordant twins	<i>Twin Gestation</i>
Recognize and describe the sonographic findings with monochorionic monoamniotic twins	<i>Twin Gestation</i>
Placental Abnormalities	Second- and Third-Trimester Pregnancy – Part II
Explain risk factors and recognize sonographic diagnosis of vasa previa	<i>Placental Evaluation</i>
Explain risk factors and recognize sonographic findings of placenta accreta	<i>Placental Evaluation</i>
Recognize and describe the role of ultrasound assessment of placental abruption	<i>Placental Evaluation</i>
Amniotic Fluid Assessment	Second- and Third-Trimester Pregnancy – Part II
Recognize and explain ultrasound estimation of amniotic fluid volume in twin gestations	<i>Amniotic Fluid Assessment</i>
Cervix	Second- and Third-Trimester Pregnancy – Part I
Ultrasound measurement of cervical length in second and third trimesters of pregnancy	<i>Cervical Length</i>
Abnormalities of the Non-Pregnant Uterus	GYN Ultrasound of Nonpregnant Abnormal Uterus – Part I
Recognize and describe ultrasound evaluation of anatomic locations of leiomyomas (anatomic locations)	<i>Leiomyomas</i>
Abnormalities of the Non-Pregnant Uterus	GYN Ultrasound of Nonpregnant Abnormal Uterus – Part II
Recognize and describe endometrial abnormalities (myoma, etc.)	<i>Evaluating the Endometrium, Endometrial Polyps & Submucosal Leiomyomas, Endometrial Adhesions, Retained Products of Conception, Arteriovenous Malformation, Subinvolution of the Placental Site, Endometrial Cancer & Endometrial Hyperplasia, Tamoxifen Effect on Endometrium</i>

Year 2 Residency

OB/GYN Essential Topic & Objective	SonoSim® Module & SonoSim® Lesson
Ultrasound Evaluation of Adnexa	GYN Ultrasound Nonmalignant Adnexal Conditions
Recognize and describe sonographic characteristics of hemorrhagic cysts and their evolution (grayscale and color Doppler)	<i>Ovarian Cysts</i>
Recognize and describe sonographic characteristics of endometriomas (grayscale and color Doppler)	<i>Ovarian Cysts</i>
Recognize and describe sonographic characteristics of mature teratomas (gray scale and color Doppler)	<i>Ovarian Cysts</i>
Recognize and describe sonographic characteristics of pedunculated leiomyomas and ovarian fibromas	<i>Ovarian Cysts, Pedunculated Leiomyoma</i>
Recognize and describe sonographic characteristics of hydrosalpinges	<i>Hydrosalpinx</i>
Recognize and describe sonographic characteristics of tubo-ovarian inflammatory process (tubo-ovarian complex/abscesses)	<i>Tubo-Ovarian Abscess</i>
Recognize and describe sonographic characteristics of peritoneal inclusion cysts	<i>Peritoneal Inclusion Cyst & Paraovarian Cyst</i>
Recognize and describe sonographic characteristics of polycystic ovaries	<i>Ovarian Cysts</i>
Recognize and describe sonographic characteristics of adnexal torsion	<i>Adnexal Torsion</i>
Ultrasound Evaluation of the Adnexa	GYN Ultrasound Malignant Adnexal Conditions
Recognize and describe sonographic characteristics of malignant adnexal masses	<i>Adnexal Anatomy, Evaluation of Adnexal Masses, Sonographic Technique, Sonographic Characterization of Adnexal Masses, Borderline Tumors, Ovarian Cancer, Ovarian Cancer Screening</i>

Year 3 Residency

OB/GYN Essential Topic & Objective	SonoSim® Module & SonoSim® Lesson
Ultrasound in the Second and Third Trimesters	Second- and Third-Trimester Pregnancy – Part I and II
Recognize and describe normal fetal head anatomy and common malformations	<i>Basic Fetal Anatomy</i>
Recognize and describe normal fetal facial anatomy and common malformations	<i>Basic Fetal Anatomy</i>
Recognize and describe normal fetal thoracic anatomy and common malformations	<i>Basic Fetal Anatomy</i>
Recognize and describe normal fetal heart anatomy and common malformations	<i>Basic Fetal Anatomy</i>
Recognize and describe normal fetal abdominal anatomy and common malformations	<i>Basic Fetal Anatomy</i>
Recognize and describe normal fetal pelvic anatomy and common malformations	<i>Basic Fetal Anatomy</i>
Recognize and describe normal fetal skeletal anatomy and common malformations	<i>Basic Fetal Anatomy</i>
Explain the use of umbilical artery Doppler studies in the evaluation of fetal growth restriction	<i>Fetal Weight, Intrauterine Growth Restriction, & Fetal Macrosomia</i>
Recognize and describe ultrasound diagnosis of hydrops	<i>Basic Fetal Anatomy</i>
Ultrasound Evaluation of Twin Gestations	Second- and Third-Trimester Pregnancy – Part II
Explain and recognize the role of ultrasound in diagnosis & management of twin-twin transfusion syndrome	<i>Twin Gestation</i>
Explain the role of ultrasound in the evaluation of twin anemia-polycythemia sequence and selective intrauterine growth restriction in monochorionic twins	<i>Twin Gestation</i>
Explain the use of umbilical artery Doppler studies in the evaluation of fetal twin-twin transfusion syndrome	<i>Twin Gestation</i>
Ultrasound Evaluation of the Non-Pregnant Uterus	GYN Ultrasound of Nonpregnant Abnormal Uterus – Part I
Recognize and describe sonographic features of adenomyosis	<i>Adenomyosis</i>
Explain classification of congenital uterine malformations (2D and 3D ultrasound)	<i>Sonographic Imaging, Congenital Uterine Malformations</i>
Recognize and describe intrauterine contraceptive devices (2D and 3D localization)	<i>Sonographic Imaging, Localization of Intrauterine Devices</i>
Evaluation of the Adnexa	GYN Ultrasound of Malignant Adnexal Conditions
Recognize and describe the role of color Doppler in the evaluation of adnexal masses	<i>Adnexal Anatomy, Evaluation of Adnexal Masses, Sonographic Technique, Sonographic Characterization of Adnexal Masses, Ovarian Cancer</i>
Explain and compare prediction models of ovarian cancer	<i>Ovarian Cancer, Ovarian Cancer Screening</i>
Recognize and describe the International Ovarian Tumor Analysis (IOTA) simple rules for classification of adnexal masses	<i>Evaluation of Adnexal Masses</i>
Evaluation of the Adnexa	GYN Ultrasound of Nonmalignant Adnexal Conditions
Recognize and describe sonographic features of endometriosis	<i>Ovarian Cysts</i>

Year 4 Residency

OB/GYN Essential Topic & Objective	SonoSim® Module & SonoSim® Lesson
Ultrasound in the Second and Third Trimesters	Second- and Third-Trimester Pregnancy – Part II
Recognize and describe the role of middle cerebral artery peak systolic velocity in screening for fetal anemia	<i>Fetal Weight, Intrauterine Growth Restriction, & Fetal Macrosomia</i>
Ultrasound Evaluation of Twin Gestations	Second- and Third-Trimester Pregnancy – Part II
Recognize and describe sonographic features of conjoined twins	<i>Twin Gestation</i>
Recognize and describe the role of ultrasound in the diagnosis and evaluation of twin reversed arterial perfusion	<i>Twin Gestation</i>

¹Abuhamad A, Minton KK, Benson CB, et al. Obstetric and gynecologic ultrasound curriculum and competency assessment in residency training programs: consensus report. Am J Obstet Gynecol. 2018 Jan;218(1):29-67.

²Abuhamad A, Minton KK, Benson CB, et al. Obstetric and gynecologic ultrasound curriculum and competency assessment in residency training programs: consensus report. J Ultrasound Med. 2018 Jan;37(1):19-50.

³Abuhamad A, Minton KK, Benson CB, et al. Obstetric and gynecologic ultrasound curriculum and competency assessment in residency training programs: consensus report. Ultrasound Obstet Gynecol. 2018 Jan;51(1):150-155.