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2014 ARDMS Obstetrics and Gynecology Job Task Analysis – Summary Report

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ABOUT THE REPORT

The American Registry for Diagnostic Medical Sonography (ARDMS) is the globally recognized standard of excellence in sonography. It is responsible for the preparation of valid and reliable certification examinations in sonography. The performance of job task analysis (JTA) at the national level assists ARDMS in evaluating the current practice expectations and performance requirements of the specialty. The 2014 Obstetrics and Gynecology (OB/GYN) Sonography JTA was designed to collect information on the sonography-related work activities RDMS registrants in OB/GYN actually perform in practice. The results were used in the development of the test content outline that guides content distribution of the OB/GYN Examination. This report details the methodology, data collection & analysis and survey results. It also includes the test content outline that resulted from the JTA.

METHODOLOGY

Job Task Analysis (JTA) Working Group

A JTA Working Group consisting of four subject matter experts (SMEs) led this project. All four JTA Working Group members were Exam Development Task Force (EDTF) members.

Survey Questionnaire Development

ARDMS facilitated a process whereby the JTA Working Group developed the task list and demographic items for the survey. Tasks and demographic items from previous OB/GYN job task surveys were used as a starting point in this development. The JTA Working Group reached a consensus on a list of 133 tasks to be used in the survey. These tasks were divided into six domains: (1) Normal Anatomy and Physiology, (2) Pathology, (3) Physics and Instrumentation, (4) Integration of Data, (5) Protocols, and (6) Treatment. All task statements and response options were relevant to OB/GYN sonographers.

The survey questionnaire was pilot-tested with a group of six individuals from the OB/GYN EDTF. This resulted in the addition of two demographic questions.

Survey Administration

The survey was made available to participants as a web-based survey through the survey platform Qualtrics®. An invitation to participate in the study was sent via email to the members.

ARDMS sent the job task analysis survey to 2,002 of their OB/GYN RDMS registrants. The survey was made available to the participants for four weeks between July 14th and July 28th, 2014. The participants responded anonymously and no identifying data was collected. All responses were kept confidential.

Of the 2,002 ACNM members, 641 (15.4%) nurse-midwives responded to the survey. Of the 641, a total of 575 (89.7%) reported that they currently use DMS in their OB/GYN practice; therefore, the data analysis was based on the responses from the 575 registrants. Of these 565, 23% are DMS educators. Not all 575 respondents answered all questions on the survey.

Data Analysis

Respondents were asked the following questions for each of the 133 tasks: How frequently do you perform the task, and how important is the task in affecting clinical decisions and patient outcomes? The frequency and importance rating scales were scored 1-5. The response options for the frequency scale were Never, Rarely, Sometimes, Frequently, and Always. The response options for the importance scale were Unimportant, Little, Moderately, Important, and Very.
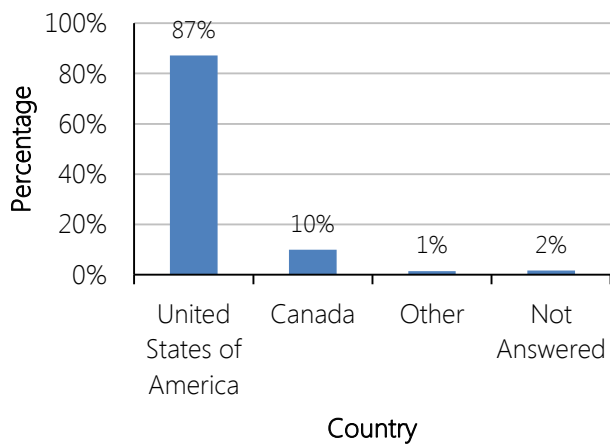
SURVEY RESULTS

Demographics and Backgrounds of Participants

Country of Practice

Of the respondents who reported the country in which they practice, 98% reported practicing in the United States (Figure 1). This result was anticipated, as most RDMS OB/GYN registrants reside in the United States.

Figure 1. Participant Country of Practice

Educational Background

The majority (86%) of the respondents had at least some college (Figure 2). However, only 37% had at least a 2-year college degree in sonography education (Figure 3).
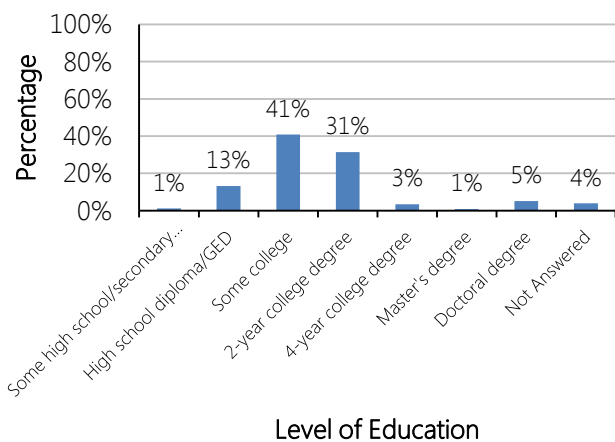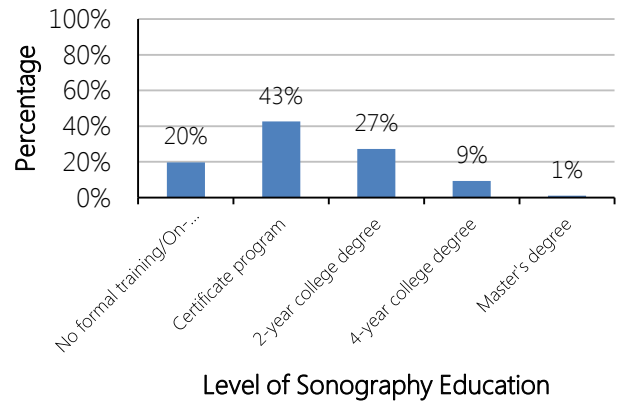
Figure 2. Highest Level of Education

Figure 3. Highest Level of Sonography Education

Work Experience

Respondents also reported on the number of years they have been active in the sonography profession. Approximately 57% of the respondents have been active for 16 years or more. Approximately 21% of the respondents have been active 10 or less years.

Figure 4. Years Active in Sonography Profession
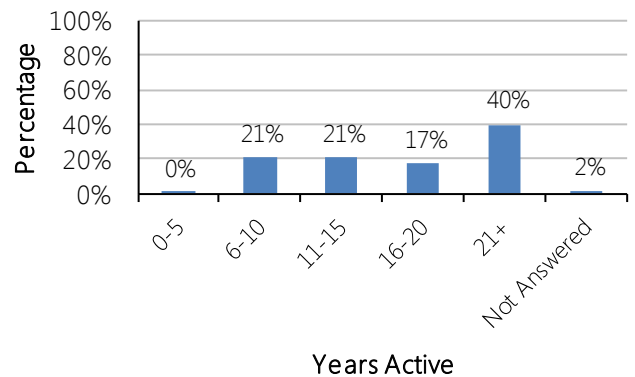
A majority (66%) of the respondents also reported conducting more than 100 DMS exams per month. Furthermore, only about 12% of the respondents reportedly perform less than 50 DMS exams per month (Figure 5).

Figure 5. Exams Performed per Month
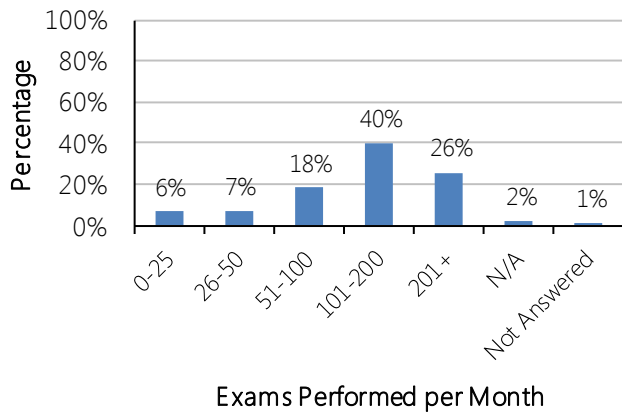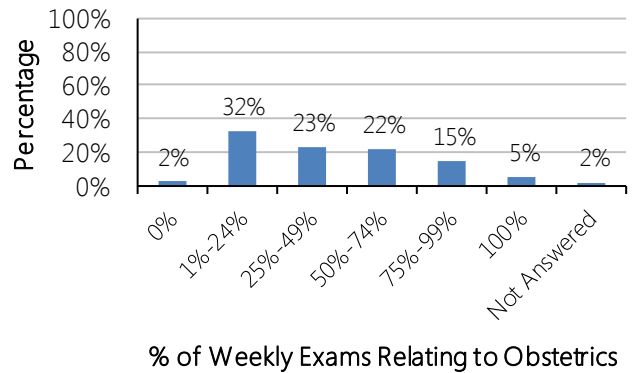

% of Weekly Exams Relating to Obstetrics label: Exams Performed per Month

Figure 7. Percent of Weekly Exams Relating to Obstetrics

% of Weekly Exams Relating to Obstetrics

Of exams performed in a week, about 39% conduct at least 50% of these in gynecology (Figure 6) and about 42% conduct at least 50% of these in obstetrics (Figure 7).

Figure 6. Percent of Weekly Exams Relating to Gynecology

% of Weekly Exams Relating to Gynecology
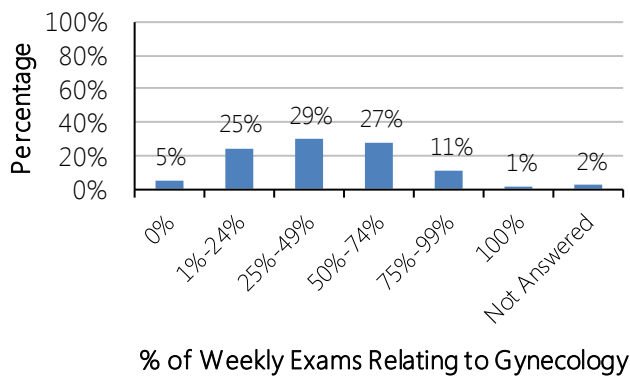
Work Environment

The respondents were asked to indicate the type of environment they perform most of their sonographic examinations. The highest frequency was seen in non-university hospital settings (Table 2).

Table 2. Type of Environment or Facility

Type of Environment	N	%
Educational facility	13	2%
Hospital: non-university	228	40%
Hospital: university	46	8%
Imaging center	72	13%
Medical office	102	18%
Mobile unit	4	1%
Multiple environments	29	5%
Other	6	1%
Outpatient facility	73	13%
Grand Total	**573**	**100%**

Task Descriptions

Table 3 contains the Task Summary within Domain. Table 4 contains the preliminary and approved domain breakdowns. For the complete final content outline please visit http://www.ardms.org/Content%20Outlines/OB_Content%20Outline.pdf.

Table 3. Task Summary within Domain

Domain & Task
Normal Anatomy and Physiology
Assess both adnexa (i.e. ovaries, fallopian tubes)
Identify structures in the first trimester obstetrical exam less than 10 weeks (e.g. decidual reaction, gestational sac, yolk sac, embryo)
Assess placenta (e.g. size, location)
Assess the endometrium
Assess amnionic fluid volume
Assess intracranial structures
Assess fetal lie and presentation
Assess the umbilical cord (e.g. insertion into placenta, vessel number)
Assess uterus (i.e. position, orientation, contour)
Assess the cervix
Assess the fetal heart (e.g. axis, chambers, outflow tracts)
Assess the skeletal system (e.g. cranial contour, long bones evaluation,ribs, vertebrae, skull, spine)
Identify multiple gestations (e.g. fetal number, chorionicity/amnionicity)
Assess the facial anatomy (e.g. nose/ lips, nasal bones, orbits, profile)
Assess the diaphragm
Assess the abdomen (e.g. gallbladder, stomach, liver)
Assess the cul-de-sacs
Assess patients of reproductive age
Assess postmenopausal patients
Assess neck
Identify fetal anatomy in the first trimester obstetrical exam 10-14 weeks (e.g. calvarium, stomach, cord insertion, extremities)
Assess the thorax (e.g. thymus,lungs)
Assess the extremities (i.e. ankles, feet, fingers, hands)
Assess the genitalia
Assess premenarchal patients
Pathology
Assess multiple gestations (e.g. conjoined twins, acardiac twin, TTTS, discordance)
Identify ectopic pregnancy
Identify ovarian pathology
Identify embryonic/fetal demise
Identify uterine masses (e.g. leiomyomas, sarcomas)
Identify abnormal amniotic fluid volume
Identify abnormal fetal growth
Identify previa

Domain & Task
Identify subchorionic hemorrhage
Identify anembryonic pregnancy
Identify adnexal pathology other than ovarian
Identify endometrial pathology (e.g. polyps, hyperplasia)
Identify free fluid in the pelvis
Identify maternal pelvic pathology
Identify abnormal abdominal wall defect (e.g. omphalocele, gastroschisis)
Identify abnormal multiple gestations
Identify abnormal congential anomalies
Identify abruption
Identify abnormal genitourinary system (e.g. hydronephrosis, cystic renal dysplasia, hydroureter, renal agenesis, bladder outlet obstruction, ureterocele, abnormal genitalia, ovarian cyst)
Identify abnormal fetal heart (e.g. axis, chambers, outflow tracts)
Identify abnormal central nervous system anomaly (e.g. anencephaly, acrania, hydranencephaly, dandy-walker malformation, encephalocele)
Identify abnormal umbilical cord (e.g. insertion, vessels)
Identify abnormal yolk sac
Identify abnormal intracranial structures (e.g. choroid plexus cyst)
Identify abnormal face (e.g. nose/ lips, orbits, profile)
Identify vasa previa
Identify abnormal skeletal system (e.g. skull, spine)
Identify molar degeneration
Identify abnormal abdomen (e.g. gallbladder, stomach, liver)
Identify abnormal gastrointestinal system (e.g. echogenic bowel, duodental atresia, bowel obstruction, esophageal atresia, cysts)
Identify cervical pathology (e.g. polyps, dilated cervix, cervical funneling)
Identify abnormal neck (e.g. goiter, cystic hygroma)
Identify Müllerian Duct developmental anomalies (e.g. septated, subseptate, bicornuate, unicornis uterus)
Identify accreta, increta, percreta
Identify a thickened nuchal translucency
Identify mass (e.g. chorioangioma)
Identify abnormal diaphragm
Identify abnormal thorax
Identify abnormal trisomy (e.g. 13, 18, 21)
Identify adenomyosis
Identify abnormal ankles and feet (e.g. club feet, polydactyly)
Identify abnormal membrane/insertion shape (e.g. circumvallate)
Identify infarction
Identify abnormal hands/fingers
Identify accessory lobe
Identify abnormal genitalia
Identify vaginal pathology (e.g. imperforated hymen)

Domain & Task
Integration of Data
Obtain pertinent clinical history as a part of the exam
Correlate previous exams
Review lab results as a part of the exam (e.g. hCG levels, CA 125)
Protocols
Measure crown rump length
Measure BPD
Measure endometrium thickness
Measure femur length
Perform transvaginal technique
Measure abdomen circumference
Measure head circumference
Perform transabdominal technique
Measure ovarian dimensions
Measure uterine dimensions
Measure amniotic fluid (e.g. AFI, deepest pocket)
Measure cervical length
Measure mean sac diameter
Measure cisterna magnum
Measure cerebellum
Measure cerebral lateral ventricle
Perform biophysical profiles
Measure yolk sac
Measure cephalic index
Measure BPD corrected
Perform quality assurance checks on the equipment
Measure transverse cerebellar diameter
Measure nuchal fold between 15 and 20 weeks gestation
Measure nuchal translucency in first trimester
Measure humerus length
Perform translabial technique
Measure orbital, intraorbital or outer orbital diameters
Measure other long bones (e.g. radius, ulna, tibia)
Measure nasal bone
Perform 3-D imaging
Physics and Instrumentation
Assess embryonic and/or fetal heart rate and rhythm with M-mode
Apply knowledge of artifacts
Apply m-mode
Apply color-flow imaging
Assess ovarian vasculature with Doppler
Apply harmonics
Assess the umbilical cord vessels with Doppler

Domain & Task
Apply pulsed spectral Doppler
Assess fetal heart rate using Doppler
Apply power (angio, amplitude) Doppler
Assess arteriovenous malformations using Doppler
Assess the middle cerebral artery with Doppler
Assess the uterine arteries with Doppler
Assess the ductus venosus
Treatment
Provide guidance for sonohysterography
Provide guidance for amniocentesis after 15 weeks
Provide guidance for chorionic villus sampling

Table 4. Content Outline Breakdown by Domain

Domain	Approved % of Examination
Normal Anatomy and Physiology	25%
Pathology	41%
Protocols	25%
Physics and Instrumentation	8%
Treatment	1%
Total	100%

Note. Forms built to this outline may not match approved percentages exactly.