



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.

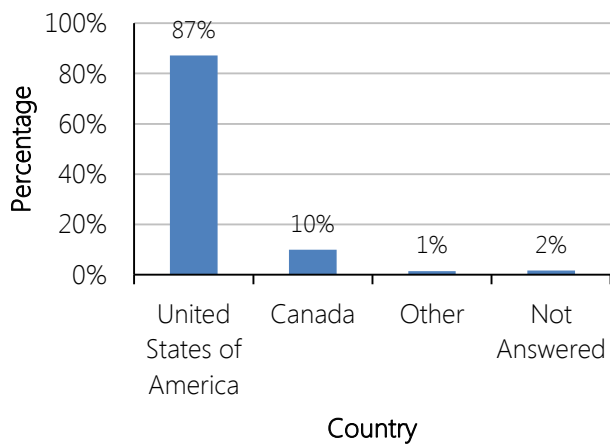
SURVEY RESULTS

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

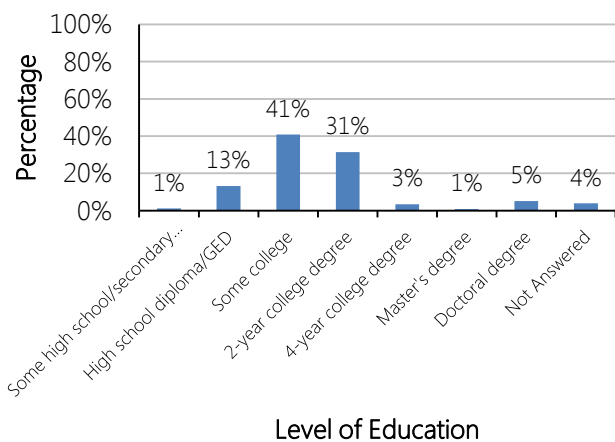
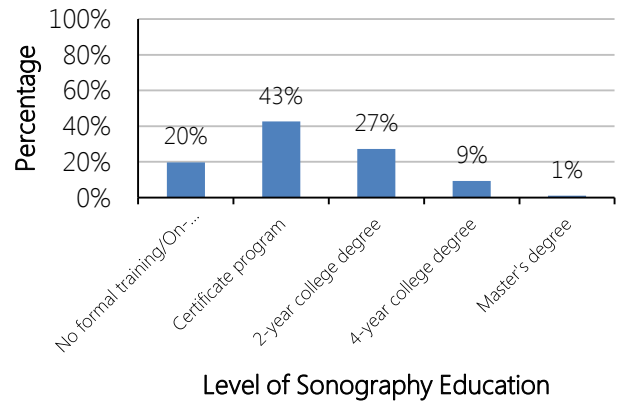


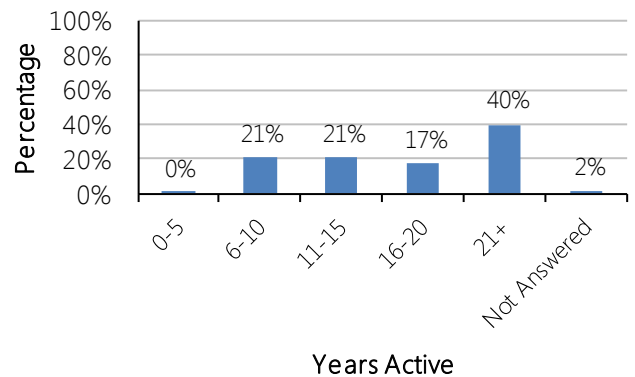
Figure 3. Highest Level of Sonography Education



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

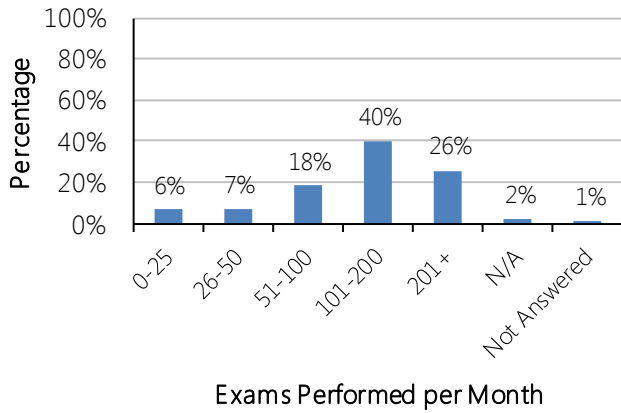
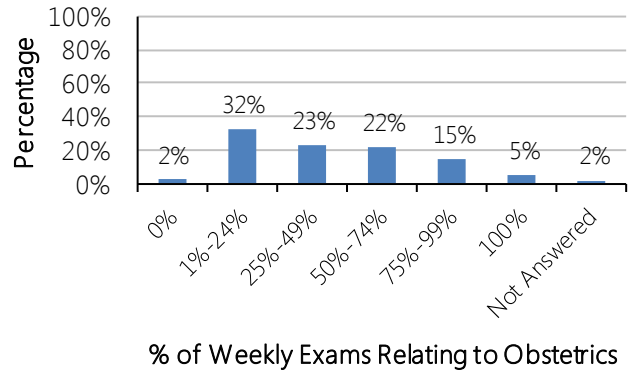
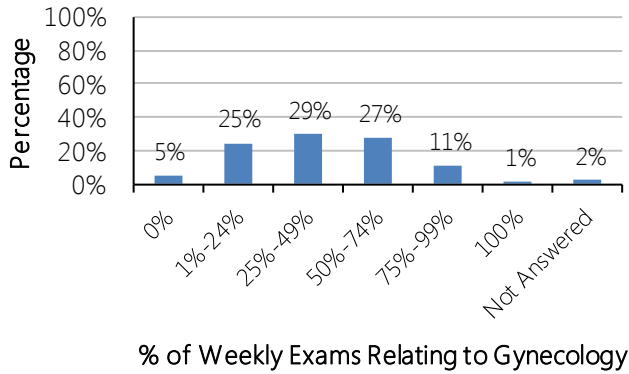


Figure 7. Percent of Weekly Exams Relating to Obstetrics



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



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 amniotic 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 congenital 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, duodenal 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% |
| <i>Total</i> | 100% |

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