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2014 ARDMS Midwifery Sonography 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 Midwife Sonography JTA was designed to collect information on the sonography-related work activities certified nurse midwives (CNM) and certified midwives (CM) actually perform in practice. The results were used in the development of the test content outline that guides content distribution of the new assessment-based Midwife Sonography Certificate Examination. The Midwife Sonography Certificate Examination will be implemented in early-mid 2015. 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 seven subject matter experts (SMEs) led this project. Six of the seven JTA Working Group members were practicing Certified Nurse Midwives

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 87 tasks to be used in the survey. These tasks were divided into five domains: (1) Normal Anatomy and Physiology, (2) Pathology, (3) Physics and Instrumentation, (4) Protocols, and (5) Treatment. All task statements and response options were relevant to CNM/CM practitioners.

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.

Sample Selection

All CNM and CM were eligible for participation in this survey. Due to the fact that the survey was distributed to the entire American College of Nurse-Midwives (ACNM) membership, the survey also may have reached some student (non-certified) members as well. This issue was not identified until after the survey was closed.

There were also much fewer practicing CMs because they are currently only able to practice in five states (Delaware, Missouri, New Jersey, New York, and Rhode Island). The CMs represent less than one percent of the CNMs and this was reflected on the survey results.

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.

The American College of Nurse-Midwives (ACNM) sent the job task analysis survey to 4,568 of their members on behalf of ARDMS. The survey was made available to the participants for four weeks between May 2nd and 31st, 2014. The participants responded anonymously and no identifying data was collected. All responses were kept confidential.

Of the 4,568 ACNM members, 705 (15.4%) nurse-midwives responded to the survey. Of the 705, approximately 670 were practicing midwife with the CNM or CM credential. Of the 670, a total of 371 (55.4%) reported that they currently use DMS in their midwifery practice. Therefore, the data analysis was based on the responses from the 371 midwives. Not all 371 respondents answered all questions on the survey.

Data Analysis

Respondents were asked the following questions for each of the 87 tasks: How frequently do you perform the task, and how important is it for an entry-level practitioner to competently perform the task? 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.

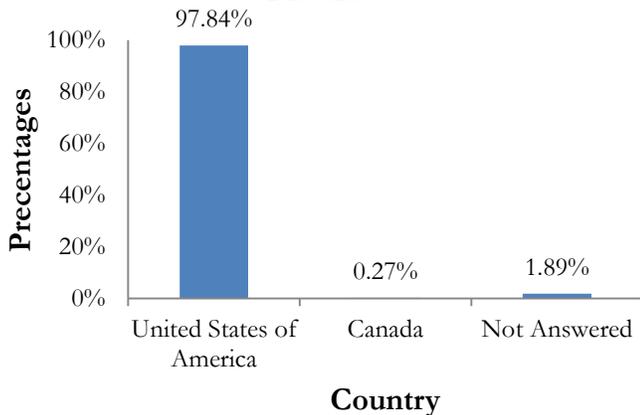
SURVEY RESULTS

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 the participants were informed of the survey through the American College of Nurse-Midwives (ACNM), which is mostly comprised of practitioners in the United States.

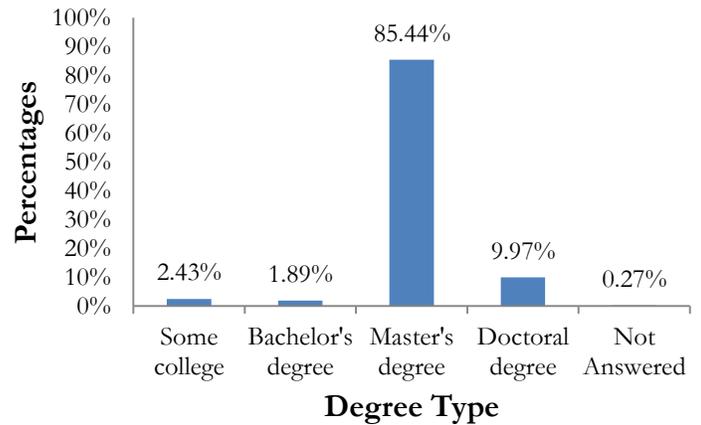
Figure 1. Participant Country of Practice



Educational Background

The majority (85%) of the respondents had at least a Master’s degree, which is the minimum requirement to become a Certified Nurse-Midwife (CNM) or a Certified Midwife (CM). Those 16 individuals who reported having no further than a Bachelor’s degree only made up of 4% of the sample and did not have a large impact on the results, despite not being certified members (Figure 2).

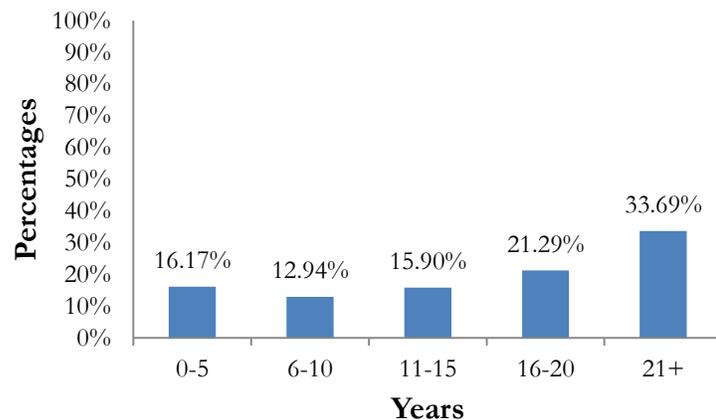
Figure 2. Highest Level of Midwifery Education



Work Experience

Respondents also reported on the number of years they had experience practicing Midwifery. Approximately 55% of the respondents had 16 years or more of experience practicing as a CNM/CM. Approximately 17% of the respondents had five or less years of experience practicing as a CNM/CM.

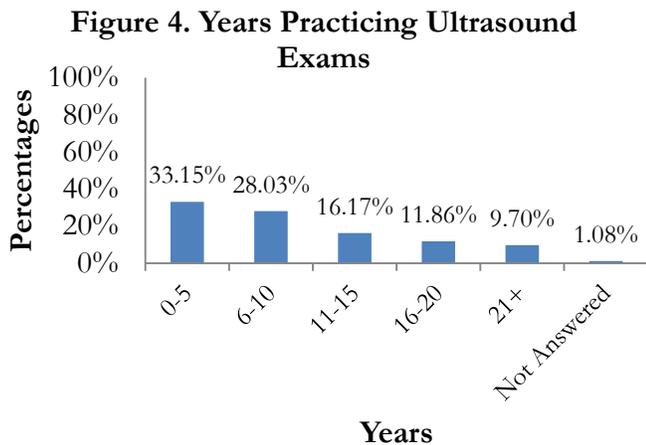
Figure 3. Years Practicing Midwifery



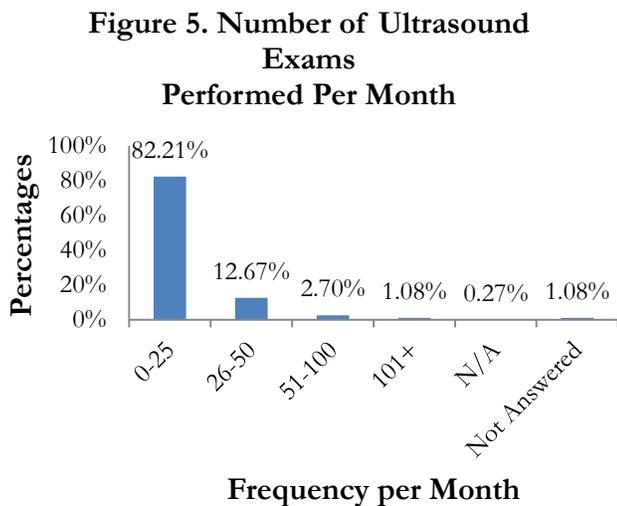
Sonography Experience

When asked about their level of experience or education in DMS, about 53% obtained knowledge of these skills through a 4-year college degree. Approximately 31% of respondents received no formal training (including “on-the-job training”), although they reported using DMS in their practice.

The remaining 16% who responded to this question completed another form of training through online courses, classroom courses, or a certificate program. Of the 367 respondents, about 33% stated that they had five or less years of experience practicing DMS exams (Figure 4).

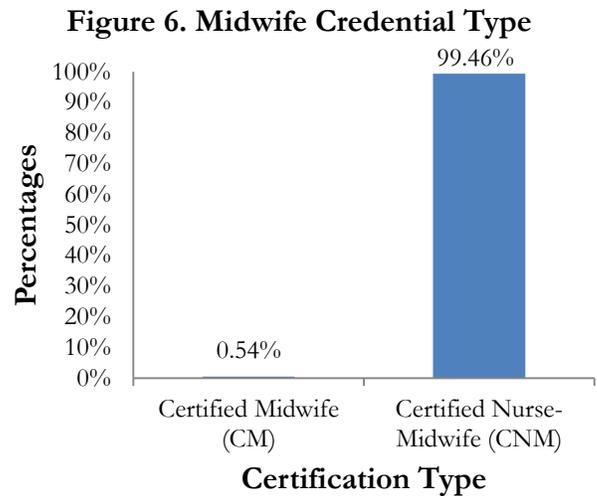


A majority (82%) of the respondents also reported conducting no more than 25 DMS exams per month. Furthermore, about 1% of the respondents reportedly perform greater than 100 DMS exams per month (Figure 5).



Certifications Earned

Of the respondents, 99 percent held the CM credential while less than one percent held the CNMs (Figure 6).



Work Environment

The respondents were asked to indicate the type of environment of their practice. Respondents were allowed to select multiple environments. The highest frequency was seen in the private office (49%) and non-university health system (42%) settings (Table 2). Examples of some of the “other” responses that were written in were non-profit organizations, community health centers, through the clients’ homes, educational facilities, and military healthcare centers.

Table 2. Type of Environment or Facility

Type of Facility	N	% ^a
Private Office	183	49.32%
Hospital (Non-university)	155	41.78%
Outpatient	83	22.37%
Hospital (University)	56	15.09%
Other	19	5.12%

^a Respondents were allowed to select multiple environments.

Task Descriptions

Table 3 contains the Task Summary within Domain. Table 4 contains the preliminary and approved domain breakdowns.

Table 3. Task Summary within Domain

Detailed Content Outline

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1. **NORMAL ANATOMY AND PHYSIOLOGY (18%)**
 - Gynecologic ultrasound exams**
 - 1.1. Assess and record uterine position
 - 1.2. Perform gynecologic sonography exams on postmenopausal patients
 - 1.3. Perform gynecologic ultrasound exams on patients who are postmenarcheal and premenopausal
 - 1.4. Assess both adnexa
 - 1.5. Assess the posterior and anterior cul-de-sac
 - Obstetric ultrasound exams**
 - 1.6. Perform obstetric ultrasound exams
 - 1.7. Perform first trimester obstetric exams
 - 1.8. Identify the yolk sac
 - 1.9. Identify the double decidual sac sign
 - 1.10. Perform second trimester obstetric exams
 - 1.11. Perform third trimester obstetric exams
 - 1.12. Assess the shape of the fetal head at the level of the biparietal diameter (BPD)
 - 1.13. Document the fetal diaphragm
 - 1.14. Identify multiple gestations
 - 1.15. Perform biophysical profiles
 - 1.16. Perform exams on high-risk pregnancies
-
2. **PATHOLOGY (33%)**
 - Gynecologic ultrasound exams**
 - 2.1. Identify endometrial fluid
 - 2.2. Identify ovarian cysts/masses
 - 2.3. Assess for causes of bleeding in gynecologic patients
 - Obstetric ultrasound exams**
 - 2.4. Identify an anembryonic pregnancy
 - 2.5. Identify an ectopic pregnancy
 - 2.6. Identify an enlarged or echogenic yolk sac
 - 2.7. Identify embryonic demise
 - 2.8. Identify fetal demise
 - 2.9. Assess for causes of bleeding in obstetric patients
 - 2.10. Assess for appearance consistent with a placental abruption
 - 2.11. Identify a lethal fetal head anomaly (e. g., anencephaly, acrania, hydranencephaly, other)
 - 2.12. Attempt to correlate human chorionic gonadotropin (hCG) levels with abnormal pregnancies (e. g., ectopic, hydatidiform mole, invasive trophoblastic disease, other)
 - 2.13. Identify a pregnancy with anhydramnios
 - 2.14. Identify a pregnancy with oligohydramnios
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2.15. Identify a pregnancy with polyhydramnios

3. PHYSICS AND INSTRUMENTATION (18%)

–Imaging Instruments

- 3.1. Adjust display depth based on the exam being performed
- 3.2. Adjust overall gain
- 3.3. Adjust the focal zone
- 3.4. Change the number of focal zones during the exam
- 3.5. Adjust time gain compensation
- 3.6. Use harmonic imaging
- 3.7. Choose a specific transducer frequency based on the area being scanned
- 3.8. Use a curved linear array transducer
- 3.9. Use a linear array transducer
- 3.10. Use a phased array sector transducer
- 3.11. Modify the exam based on gray-scale artifacts
- 3.12. Modify the exam based on the displayed mechanical index
- 3.13. Modify the exam based on the displayed thermal index
- 3.14. Practice ALARA (as low as reasonably achievable) principle
- 3.15. Recognize the mechanisms for potential biological effects
- 3.16. Use knowledge of sound reflection to modify scanning technique
- 3.17. Clean and disinfect transducers in accordance with manufacturer's guidelines

–Hemodynamics

- 3.18. Modify the exam based on Doppler artifacts
 - 3.19. Document embryonic and/or fetal cardiac activity
 - 3.20. Evaluate measurements of blood flow velocities
-

4. PROTOCOLS (31%)

–Clinical standards and guidelines

- 4.1. Obtain pertinent clinical history as a part of the exam
- 4.2. Review lab results as a part of the exam

–Gynecologic ultrasound exams

- 4.3. Check the results of a previous ultrasound exam
- 4.4. Inform a physician of findings that may be of an emergent nature
- 4.5. Measure cervical length
- 4.6. Identify components of an incompetent cervix
- 4.7. Measure uterine depth, width, and length
- 4.8. Use transabdominal scans in gynecologic patients
- 4.9. Use transvaginal scans in gynecologic patients
- 4.10. Measure the endometrium in the anteroposterior diameter
- 4.11. Identify intrauterine device (IUD) placement

–Obstetric ultrasound exams

- 4.12. In the first trimester, measure gestational sac using the mean sac diameter
 - 4.13. Measure the crown-rump length
 - 4.14. Determine necessity of maternal bladder filling based on indication of the exam
 - 4.15. Assess amniotic fluid
 - 4.16. Measure the amniotic fluid index (AFI)
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- 4.17. Establish fetal lie and presentation
 - 4.18. Document placental location
 - 4.19. Measure the biparietal diameter (BPD)
 - 4.20. Measure the fetal head circumference
 - 4.21. Measure the fetal abdomen circumference
 - 4.22. Measure fetal femur length
 - 4.23. Document the fetal stomach
 - 4.24. Use transabdominal scans in obstetric patients
 - 4.25. Use transvaginal scans in obstetric patients
 - 4.26. Perform exams for assisted reproduction techniques
 - 4.27. Tailor the exam to evaluate pregnancies where a maternal and/or fetal condition indicates a potential complication
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Table 4. Content Outline Breakdown by Domain

Domain	Percentage of Examination
Normal Anatomy and Physiology	18%
Pathology	33%
Physics and Instrumentation	18%
Protocols	31%

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