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The globally recognized standard of excellence in sonography

2014 ARDMS Musculoskeletal Physician 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 Musculoskeletal (MSK) Physician JTA was designed to collect information on the sonography-related work activities RMSK physician registrants actually perform in practice. The results were used in the development of the test content outline that guides content distribution of the MSK Physician 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 thirteen subject matter experts (SMEs) led this project. All thirteen JTA Working Group members were Exam Development Task Force (EDTF) members and volunteers.

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 MSK job task surveys were used as a starting point in this development. The JTA Working Group reached a consensus on a list of 196 tasks to be used in the survey. These tasks were divided into five domains: (1) General Sonographic Anatomy, (2) General Sonographic Pathology, (3) Ultrasound Guided Interventional Procedures, (4) Integration of Data, and (5) Physics & Instrumentation. All task statements and response options were relevant to MSK Physicians.

The survey questionnaire was pilot-tested with a group of thirteen individuals from the MSK EDTF and volunteers.

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 all 338 RMSK physician registrants. The survey was made available to the participants for four weeks between September 1st and September 13rd, 2014. The participants responded anonymously and no identifying data was collected. All responses were kept confidential.

Of the 338 RMSK physicians, 147 (43.5%) responded to the survey. Of the 147, a total of 144 (98.0%) reported that they currently use DMS in their MSK practice; therefore, the data analysis was based on the responses from the 144 registrants. Not all 144 respondents answered all questions on the survey.

Data Analysis

Respondents were asked the following questions for each of the 196 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.

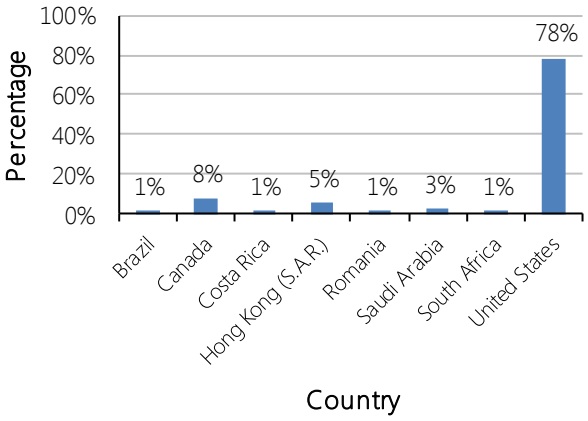
SURVEY RESULTS

Demographics and Backgrounds of Participants

Country of Practice

Of the respondents who reported the country in which they practice, 78% reported practicing in the United States (Figure 1). This result was anticipated, as most RDMS OB/GYN registrants reside in the United States.

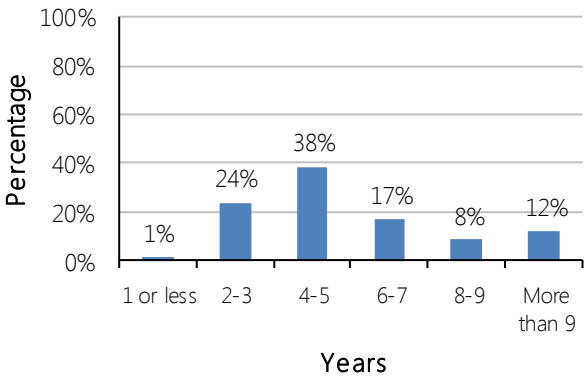
Figure 1. Country of Practice



Work Experience

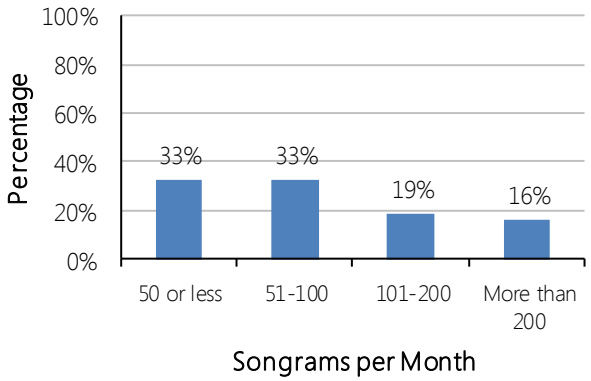
Respondents also reported on the number of years they have been performing MSK sonography. Approximately 75% of the respondents have been performing MSK sonography for at least 4 years.

Figure 2. Years Performing MSK Sonography



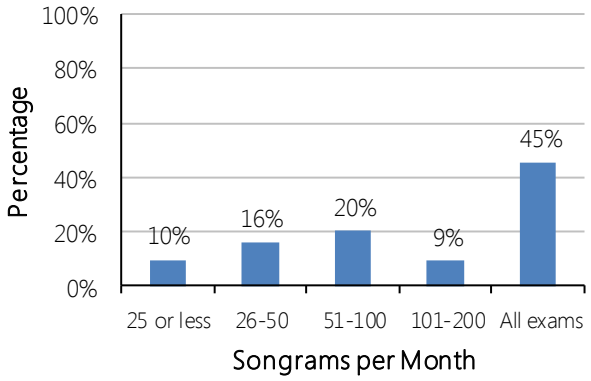
A little over one third (37%) of the respondents also reported conducting more than 100 DMS exams per month. Furthermore, only about one third (33%) of the respondents reportedly perform less than 50 DMS exams per month (Figure 3).

Figure 3. Sonograms Performed per Month



Of exams performed in a month, about 45% conduct all of these related to MSK (Figure 4).

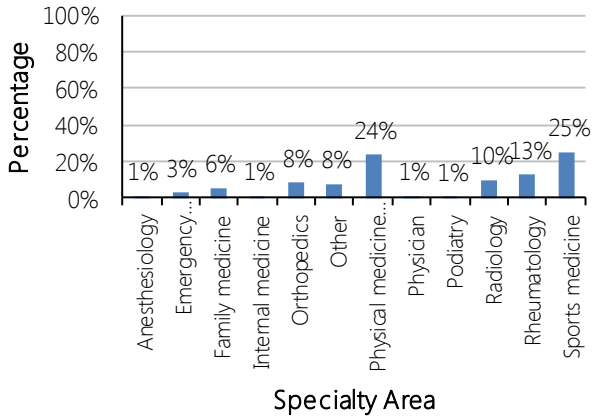
Figure 4. Sonograms Performed per Month Related to MSK



Specialty Area

Respondents also reported the specialty area they primarily work in. About 25% reported that they work in Sports Medicine and 24% reported that they work in Physical Medicine and Rehabilitation (Figure 5).

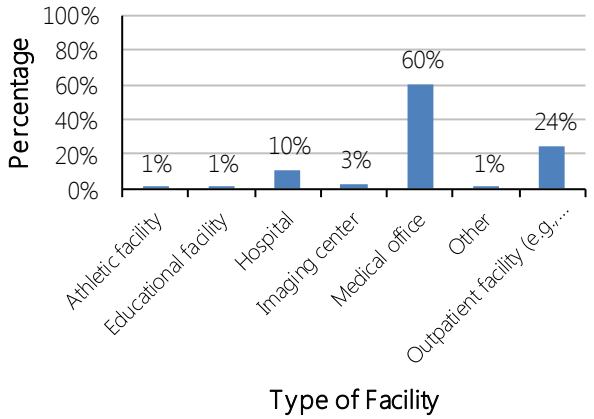
Figure 5. Specialty Area



Work Environment

The respondents were asked to indicate the type of environment they perform most of their MSK sonographic examinations. The highest frequency was seen in medical office settings (Figure 6).

Figure 6. Type of Facility



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/MSK_Content%20Outline.pdf

Table 3. Task Summary within Domain

Musculoskeletal Sonography (RMSK) Tasks
General Sonographic Anatomy 26%
Abdominal wall
Perform general ultrasound of the ligaments, neurovascular system, and tendons of the abdominal wall
Ankle and foot
Perform general ultrasound of the bones, bursae, cartilage, and joints of the ankle and foot
Perform general ultrasound of the fascia, ligaments, and tendons of the ankle and foot
Perform general ultrasound of the neurovascular system of the ankle and foot
Chest wall
Perform general ultrasound of the bones, bursae, cartilage, ligaments, muscles, neurovascular system, and tendons of the chest wall
Elbow
Perform general ultrasound of the bones, bursae, cartilage, and joints of the elbow
Perform general ultrasound of the tendons of the elbow
Hand and wrist
Perform general ultrasound of the bones, cartilage, joints, and ligaments of the hand and wrist
Perform general ultrasound of the neurovascular system of the hand and wrist
Perform general ultrasound of the tendons of the hand and wrist
Hip and groin
Perform general ultrasound of the bursae, cartilage, joints, and ligaments of the hip and groin
Perform general ultrasound of the neurovascular system of the hip and groin
Perform general ultrasound of the tendons of the hip and groin
Knee
Perform general ultrasound of the bones, bursae, joints, ligaments, and tendons of the knee
Perform general ultrasound of the neurovascular system of the knee
Shoulder
Perform general ultrasound of the bones, bursae, cartilage, joints, and ligaments of the shoulder
Perform general ultrasound of the neurovascular system of the shoulder
Perform general ultrasound of the tendons of the shoulder
General Sonographic Pathology 23%
Abnormal physiology
Evaluate abscesses
Evaluate bone erosion
Evaluate cartilage pathology
Evaluate crystal deposits
Evaluate cystic structures
Evaluate for gas in soft tissues
Evaluate foreign bodies
Evaluate fractures
Evaluate infections
Evaluate joint instability/altered function
Evaluate joint effusions
Evaluate ligament tears
Evaluate masses
Evaluate muscle tears

Evaluate nerve entrapment
Evaluate neuromas
Evaluate subcutaneous abnormalities
Evaluate synovial proliferation
Evaluate synovitis
Evaluate tendon calcification
Evaluate tendon tears
Ultrasound-guided Interventional Procedures 18%
Ankle and foot
Perform interventional procedures (e.g., aspirations, biopsies, injections) on the bursae and joints of the ankle and foot
Perform interventional procedures (e.g., aspirations, biopsies, injections) on the fascia, ligaments, and tendons of the ankle and foot
Perform interventional procedures (e.g., aspirations, biopsies, injections) on the neurovascular system of the ankle and foot
Chest wall
Perform interventional procedures (e.g., aspirations, biopsies, injections) on the bursae, ligaments, muscles, sternoclavicular joints, neurovascular system, and tendons of the chest wall
Elbow
Perform interventional procedures (e.g., aspirations, biopsies, injections) on the bursae, joints, and tendons of the elbow
Hand and wrist
Perform interventional procedures (e.g., aspirations, biopsies, injections) on the joints and ligaments of the hand and wrist
Perform interventional procedures (e.g., aspirations, biopsies, injections) on the tendons of the hand and wrist
Perform interventional procedures (e.g., aspirations, biopsies, injections) on the neurovascular system of the hand and wrist
Hip and groin
Perform interventional procedures (e.g., aspirations, biopsies, injections) on the bursae and joints of the hip and groin
Perform interventional procedures (e.g., aspirations, biopsies, injections) on the tendons of the hip and groin
Perform interventional procedures (e.g., aspirations, biopsies, injections) on the neurovascular system of the hip and groin
Knee
Perform interventional procedures (e.g., aspirations, biopsies, injections) on the bursae and joints of the knee
Perform interventional procedures (e.g., aspirations, biopsies, injections) on the ligaments and tendons of the knee
Perform interventional procedures (e.g., aspirations, biopsies, injections) on the neurovascular system of the knee
Shoulder
Perform interventional procedures (e.g., aspirations, biopsies, injections) on the bursae, joints, and ligaments of the shoulder
Perform interventional procedures (e.g., aspirations, biopsies, injections) on the neurovascular system of the shoulder
Perform interventional procedures (e.g., aspirations, biopsies, injections) on the tendons of the shoulder
Integration of Data 7%
Incorporate outside data (e.g., clinic assessment, history and physical, lab values)
Assess anatomy as it relates to trauma
Assess joints with dynamic scanning
Correlate information with previous tests
Correlate sonographic findings with clinical presentation
Report results of the exam
Physics and Instrumentation 26%
Imaging instruments
Adjust beam angle to correct for anisotropy
Adjust imaging depth
Adjust overall gain
Adjust power output
Adjust pulse repetition frequency (PRF)
Adjust sound beam and needle angle for proper visualization of needle
Evaluate acoustic shadowing and refractile shadowing and identify artifacts
Evaluate Doppler artifacts
Focus the image

Identify artifacts (e.g., through transmission, shadowing)
Identify potential risks related to performing the exam
Manipulate transducer position for optimal image acquisition
Perform image measurements
Select appropriate transducer
Select proper ultrasound imaging mode for examination
Use color Doppler
Use curvilinear array transducer
Use dynamic range
Use linear array transducer
Use phased array transducer
Use power Doppler
Use pulsed wave Doppler
Use time gain compensation (TGC)
Use two-dimensional, real-time, gray-scale imaging (e.g., B-mode)

Table 4. Content Outline Breakdown by Domain

Domain	Percentage of Examination
General Sonographic Anatomy	26%
General Sonographic Pathology	23%
Ultrasound Guided Interventional Procedures	18%
Integration of Data	7%
Physics & Instrumentation	26%
Total	100%

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