



# 2015 ARDMS Musculoskeletal Sonographer 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) Sonographer JTA was designed to collect information on the sonography-related work activities RMSKS sonographer registrants actually perform in practice. The results were used in the development of the test content outline that guides content distribution of the MSK Sonographer 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 seven subject matter experts (SMEs) led this project. All seven 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 128 tasks to be used in the survey. These tasks were divided into six domains: (1) Anatomy and Physiology, (2) Pathology, (3) Integration of Data, (4) Protocols, (5) Physics & Instrumentation, and (6) Treatment. All task statements and response options were relevant to MSK sonographers.

The survey questionnaire was pilot-tested with a group of seven 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 207 RMSKS sonographer registrants and 2,946 randomly selected AE, OB, AB and VT registrants. The survey was made available to the participants for two weeks between January 20<sup>th</sup> and February 03<sup>rd</sup>, 2015. The participants responded anonymously and all responses were kept confidential.

A total of 938 sonographers responded to the survey. Of these, 347 (36.9%) reported that they currently perform and/or teach musculoskeletal sonography. The data analysis was based on the responses from the 347 sonographers. Two of the 347 did not answer all questions on the survey.

## Data Analysis

Respondents were asked the following questions for each of the 128 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, Occasionally, Often, and Frequently. The response options for the importance scale were Not Important, Somewhat Important, Moderately Important, Very Important, and Critically Important.

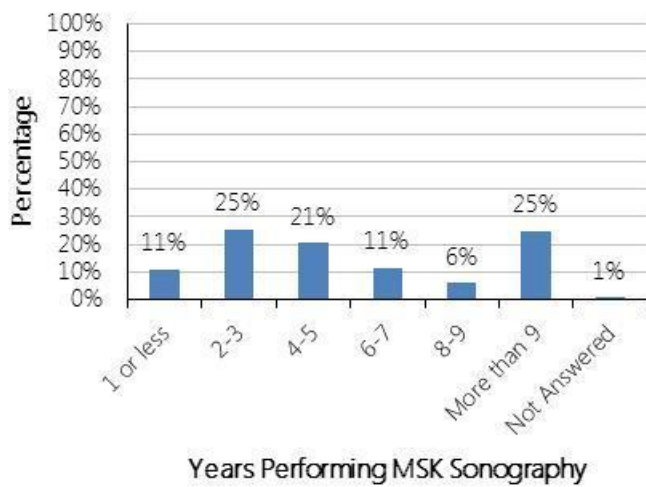
# SURVEY RESULTS

## Demographics and Backgrounds of Participants

### Work Experience

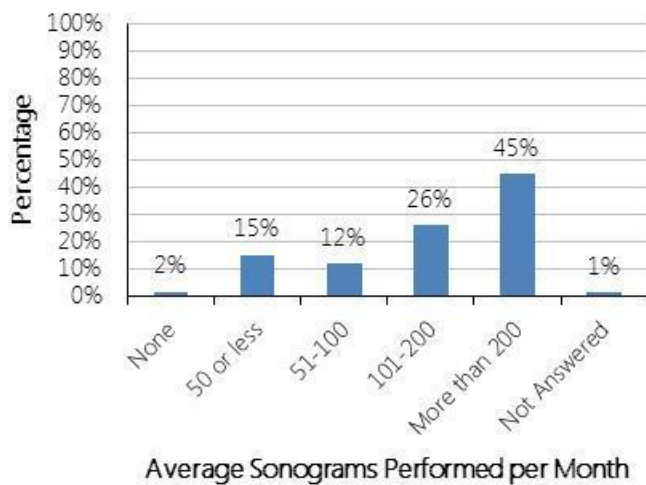
Respondents also reported on the number of years they have been performing MSK sonography. Approximately 63% of the respondents have been performing MSK sonography for at least 4 years (Figure 1).

Figure 1. Years Performing MSK Sonography



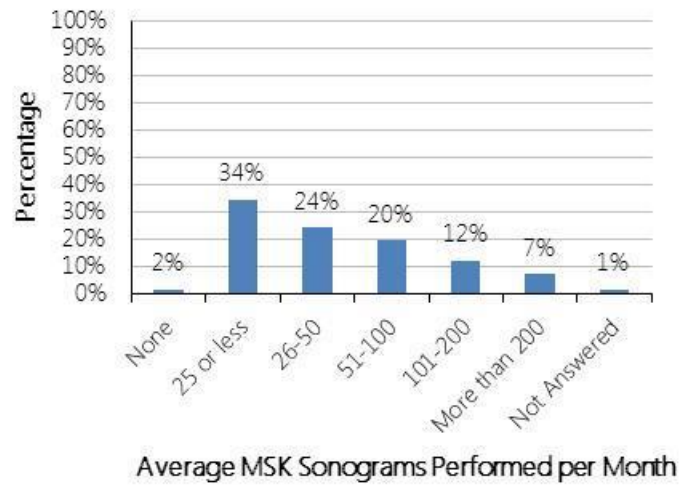
A little over two-thirds (71%) of the respondents also reported conducting more than 100 DMS exams per month. Furthermore, only about one-fifth (17%) of the respondents reportedly perform less than 50 DMS exams per month (Figure 2).

Figure 2. Sonograms Performed per Month



Of exams performed in a month, about 39% conduct at least 50 of these related to MSK (Figure 3).

Figure 3. MSK Sonograms Performed per Month



### Specialty Area

Respondents also reported the specialty area they primarily work in. About 64% reported that they work in Radiology (Figure 4). About 90% reported seeing an increased demand in MSK (Figure 5).

Figure 4. Specialty Area

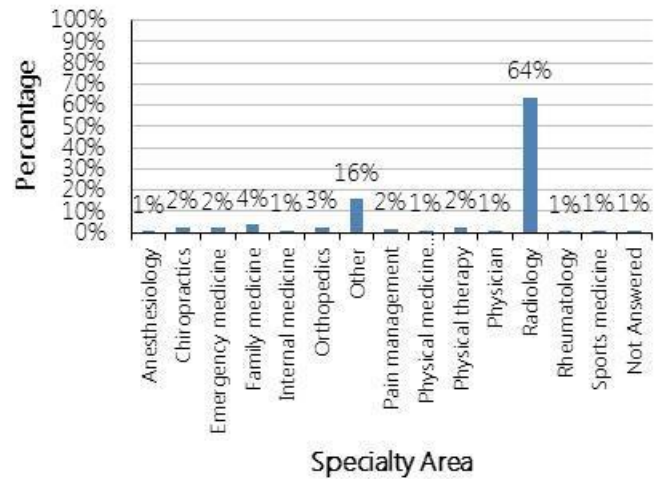


Figure 5. Seeing Increased Demand in MSK

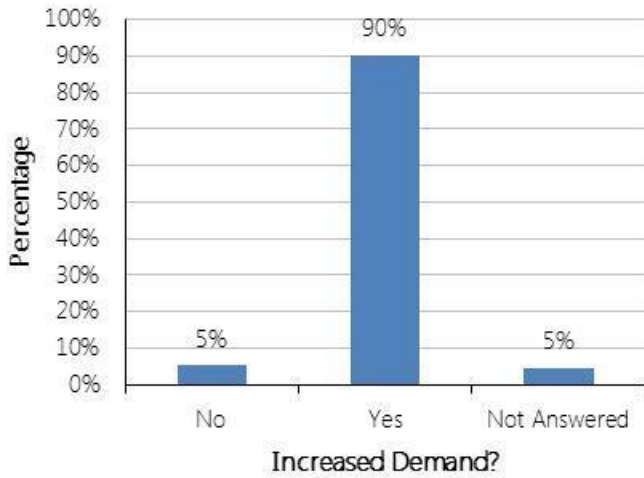
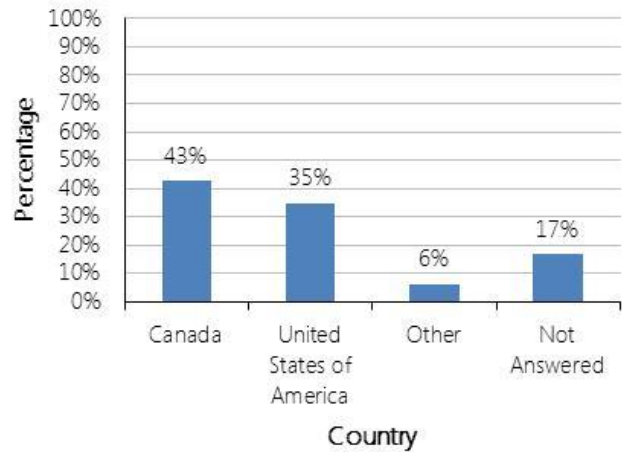


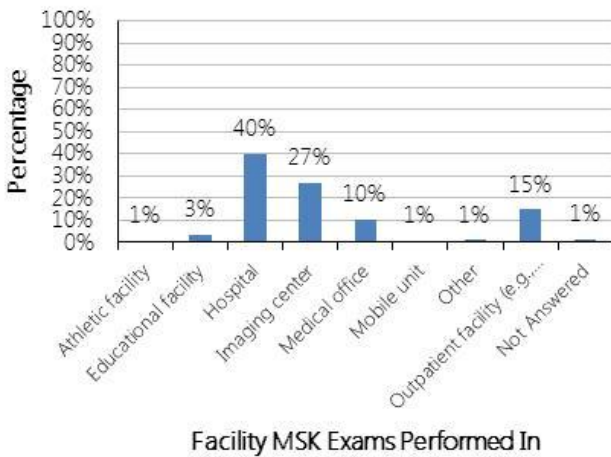
Figure 7. Country



### Work Environment

The respondents were asked to indicate the type of environment they perform most of their MSK sonographic examinations. The highest frequencies were seen in hospitals and imaging centers (Figure 6).

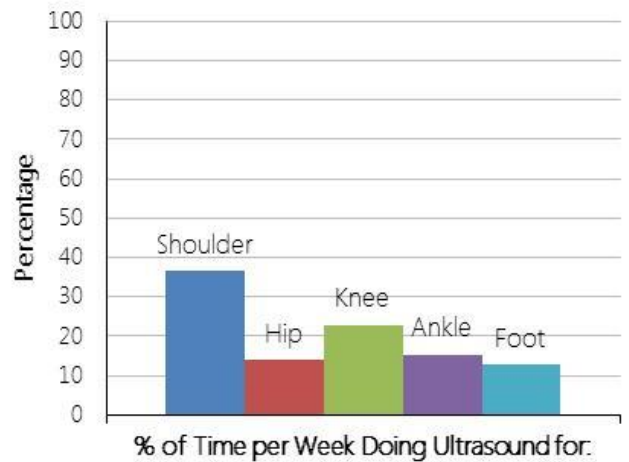
Figure 6. Facility MSK Exams Performed In



### Body Regions Scanned

The respondents were asked to indicate what percent of time per week on average they perform their MSK sonographic examinations of different body regions. Most examinations are performed on the shoulder (Figure 8).

Figure 8. % of Time per Week Doing Ultrasound for:



### Country of Practice

Of the respondents who reported the country in which they practice, 43% reported practicing in Canada and 35% in the United States (Figure 7).

## 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/MSKS\\_Content%20Outline.pdf](http://www.ardms.org/Content%20Outlines/MSKS_Content%20Outline.pdf)

**Table 3.** Task Summary within Domain

<b>General Anatomy and Physiology (43%)</b>
<i>Abdominal wall</i>
Perform general ultrasound of the muscles and fasciae of the abdominal wall
<i>Ankle and foot</i>
Perform general ultrasound of the bones, bursae, fat pads, and joints of the ankle and foot
Perform general ultrasound of the fasciae, ligaments, muscles, retinaculum and tendons of the ankle and foot
Perform general ultrasound of the neurovascular system of the ankle and foot
<i>Elbow</i>
Perform general ultrasound of the bones, bursae, fat pad, joints and ligaments of the elbow
Perform general ultrasound of the muscles and tendons of the elbow
Perform general ultrasound of the neurovascular system of the elbow
<i>Hand and wrist</i>
Perform general ultrasound of the bones, and joints of the hand and wrist
Perform general ultrasound of the fasciae, muscles, tendons, retinaculum, pulleys, and ligaments of the hand and wrist
Perform general ultrasound of the neurovascular system of the hand and wrist
<i>Hip, groin, and pelvis</i>
Perform general ultrasound of the bones, bursae, cartilage, tendons, and joints of the hip, groin and pelvis
Perform general ultrasound of the muscles of the hip, groin, and pelvis
Perform general ultrasound of the lymphatic and neurovascular system of the hip, groin, and pelvis
Perform general ultrasound of the infant hip
<i>Knee</i>
Perform general ultrasound of the bones, bursae, cartilage, and joints of the knee
Perform general ultrasound of the muscles, tendons, retinaculum, and ligaments of the knee
Perform general ultrasound of the neurovascular system of the knee
<i>Shoulder</i>
Perform general ultrasound of the bones, bursae, cartilage, joints, and ligaments of the shoulder
Perform general ultrasound of the muscles and tendons of the shoulder
Perform general ultrasound of the neurovascular system of the shoulder
<i>Soft tissue</i>
Evaluate soft tissue
<b>General Sonographic Pathology (24%)</b>
<i>Abnormal physiology</i>
Evaluate tendon pathology, calcifications, and tears
Evaluate masses
Evaluate fluid collections, e.g., abscess, hematoma

Evaluate cystic structures
Evaluate hernias
Evaluate soft tissue pathology
Evaluate muscle pathology and tears
Evaluate joint effusions
Evaluate ligament pathology and tears
Evaluate for foreign body
Evaluate subcutaneous abnormalities
Evaluate infections
Evaluate synovitis
Evaluate synovial proliferation
Evaluate neuromas
Evaluate nerve pathology and entrapment
Evaluate for gas within the soft tissue
Evaluate bone pathology and erosion
Evaluate fractures
Evaluate crystal deposits
Evaluate joint laxity/altered function
<b>Integration of Data (10%)</b>
<i>Incorporate outside data</i>
Correlate findings with clinical presentation
Correlate information with previous tests
Perform anatomic assessment during dynamic scanning
Assess postsurgical anatomy and hardware
Differentiate pediatric from adult anatomy
<i>Report results</i>
Report impression of the exam
<i>Serial studies</i>
Follow course of disease with serial ultrasound exams
Evaluate cartilage pathology
<b>Protocols (15%)</b>
<i>Clinical standards and guidelines</i>
Gather clinical history of the patient
Position patient and ultrasound machine
Document and confirm procedures
Recognize the limitations of the prescribed examination based on the findings
Follow ultrasound imaging protocols for musculoskeletal-related studies
Verify the appropriateness of the order
Set up the equipment and the examination room
Assess the physical condition of the patient, focusing on the area to be examined
Communicate with the patient
Communicate ultrasound findings
Generate an initial plan for the examination
<i>Measurement techniques</i>

Perform measurements
<i>Imaging instruments</i>
Manipulate probe positioning for optimal image acquisition, i.e., anisotropy
<b>Treatment (8%)</b>
<i>Interventional procedures</i>
Maintain aseptic techniques
Assist/support during guidance for interventional procedures
<i>Sonographer role in procedure</i>
Recognize ultrasound findings that require immediate action
Follow postprocedural protocols, i.e., pain assessment and specimen management
Create incident reports when required

**Table 4.** Content Outline Breakdown by Domain

Domain	Approved % of Examination
General Anatomy and Physiology	43%
General Sonographic Pathology	24%
Integration of Data	10%
Protocols	15%
Treatment	8%
<i>Total</i>	100%

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