

# Occupational Profile: Diagnostic Medical Sonographer

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**D**iagnostic medical sonographers operate special imaging equipment to create images or conduct tests that help physicians assess and diagnose medical conditions. They specialize in creating images of the body's organs and tissues known as sonograms or ultrasounds. High frequency sound waves are used by a diagnostic sonographer to produce images of the inside of the body. An instrument called an ultrasound transducer is used on the parts of the patient's body that are being examined. Pulses of sound are emitted from the transducer that bounce back and cause echoes. Those echoes are then sent to the ultrasound machine, which processes them and displays them as images used by physicians for diagnosis.<sup>1</sup>

There are many different types of diagnostic medical sonographers. The following are some examples. Imaging the female reproductive system is the specialty of obstetric and gynecologic sonographers. Pregnant women are imaged to track the baby's growth and health and detect any congenital birth defects. Breast sonographers image a patient's breast tissues to confirm cysts and tumors. Musculoskeletal sonographers take images of joints, muscles, tendons and ligaments. They often assist

during surgical procedures with ultrasound guidance for injections. Taking images of the abdominal cavity and nearby organs (kidney, liver, gallbladder, pancreas or spleen) is the job of an abdominal sonographer. Cardiac sonographers, also known as echocardiographers, use ultrasound to image the patient's heart to help diagnose cardiac conditions. Vascular technologists or sonographers create images of blood vessels which helps physicians diagnose blood flow disorders.<sup>1</sup>

Diagnostic medical sonographers need either an associate's degree or postsecondary certificate. Professional certification is also a requirement of many employers. Colleges and universities offer associate's and bachelor's degree programs and many hospitals offer one year certificate programs. Diagnostic medical sonographers can earn certification by graduating from an accredited program and then passing an exam.<sup>1</sup>

Employment of diagnostic medical sonographers is expected to grow much faster than the average for all occupations. It is expected to grow 26 percent from 2014 to 2024.<sup>1</sup> In Connecticut, the average annual salary is \$76,179, and the nationwide average is \$68,390.<sup>2,3</sup> The

location quotient is the ratio of the area concentration of occupational employment to the national average concentration. The table below shows that Connecticut is among the top five states with the highest location quotient in the nation. Connecticut's location quotient is 1.45, meaning that Connecticut's population of diagnostic medical sonographers is 45% higher than the national average.<sup>3</sup>

Ultrasound procedures are often less expensive than other imaging procedures. Medical facilities will continue using ultrasound to replace more invasive and costly procedures. It is often used as a first line tool for diagnosis and less expensive than other imaging technologies. Insurance companies encourage the use of these noninvasive imaging techniques over invasive ones that are more costly. Diagnostic medical sonographers will continue to be needed to provide an alternative to radiation imaging procedures.<sup>1</sup> ■

<sup>1</sup> Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2016-17 Edition

<sup>2</sup> Connecticut Department of Labor, Occupational Employment & Wages, 1<sup>st</sup> Quarter 2015

<sup>3</sup> Bureau of Labor Statistics, Occupational Employment and Wages, May 2014

## States with Highest Concentration of Jobs and Location Quotients for Diagnostic Medical Sonographers

	Employment	Location Quotient	Hourly Mean Wage	Annual Mean Wage
Rhode Island	390	1.90	\$34.67	\$72,100
South Dakota	330	1.80	\$26.73	\$55,610
<b>Connecticut</b>	<b>1,050</b>	<b>1.45</b>	<b>\$36.12</b>	<b>\$75,130</b>
Tennessee	1,700	1.40	\$29.18	\$60,690
Idaho	390	1.40	\$29.90	\$62,190

Source: Bureau of Labor Statistics, Occupational Employment and Wages, May 2014