Introduction

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Clinical ultrasonography has been around for decades. In Europe, it also has been used for many years, but the way it is utilized differs from the system developed in North America.

In Europe, ultrasound scanning is introduced to medical students very early in their training. These skills are then supplemented in postgraduate training. In the United States, clinical examination skills are taught to all students, but very few are exposed to clinical ultrasonography. Traditionally, a clinician examines the patient, and if it is determined that an ultrasound study is necessary, a comprehensive scan is performed by a highly trained technician, a sonographer. The images are then interpreted by a highly trained physician, a radiologist, who then generates a detailed report back to the clinician. This paradigm has shifted slightly over the years, with cardiologists and obstetricians using ultrasound as a bedside tool to practice medicine, but this training is limited in scope and is only taught in residency or fellowship. Recently, the United States has adopted a hybrid of these two systems, referred to as “point-of-care” ultrasonography. Students and practicing clinicians are now being trained to use bedside ultrasound as an important tool to diagnose and treat patients (i.e., starting central lines in the ICU, FAST scans in the emergency department, dynamic scanning of shoulder joint). More and more medical schools and residency programs are integrating POCUS into their physical examination and clinical reasoning curriculum.

This model integrates the history and physical exam along with treatment decisions into one process by one clinician. It not only decreases the cost and time of the process, it allows the clinician to evaluate three-dimensional real-time anatomy

and physiology, which further adds to the accuracy of the diagnosis. These “point-of-care” musculoskeletal ultrasound exams (POC MSK/US) may not always include the “comprehensive” evaluation that traditional ultrasound examinations do. These scans are to supplement the clinical examination and should not be used as a stand-alone way to diagnose the patient’s condition. The use of the ultrasound machine can be compared to the use of a stethoscope in the clinical setting. The stethoscope, as we know it, was first used in France in the early 1800s by Dr. René Laennec, but it wasn’t widely used until the mid-1900s, when Rappaport and Sprague were able to mass-produce a lightweight, relatively affordable model. Ultrasound technology is currently following this trend. We predict that POC US will be the stethoscope of the twenty-first century. In fact, the year 2013 was heralded as “The Year of Sonography” by a number of health-care organizations. The use of POCUS has vastly changed the way musculoskeletal medicine is now being practiced. Most textbooks on this subject are written by radiologists with years of experience in the traditional paradigm described above. This book is written by busy clinicians with decades of experience using clinical ultrasound and could be used as a stand-alone curriculum for POC MSK/US.

This book is laid out in a way to become a bedside aid to assist in POC MSK/US scanning. Each chapter emphasizes one particular skill set. Introduction chapters demonstrate knobology, tissue scanning techniques, and the certification/accreditation process for MSK/US. Later chapters concentrate on particular regions of the body and explain detailed anatomy with “clinical scanning pearls.” This book was developed to be used at bedside, and the best advice we can give clinicians who want to incorporate these skills is to “PRACTICE! PRACTICE! PRACTICE!” If you wait until you have perfect recall of all the anatomy and flawless scanning technique to start doing POCUS examinations on patients, you will never be able to fully utilize this technology. These skills are integrative, not additive. In addition, POCUS allows us to touch our patients, which has been shown to increase both patient and provider satisfaction when it comes to providing health care.

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