Sononerds in the classroom

ARDMS Topic: Clinical Safety, Patient Care, and Quality Assurance

Unit 23: Sonographer Safety

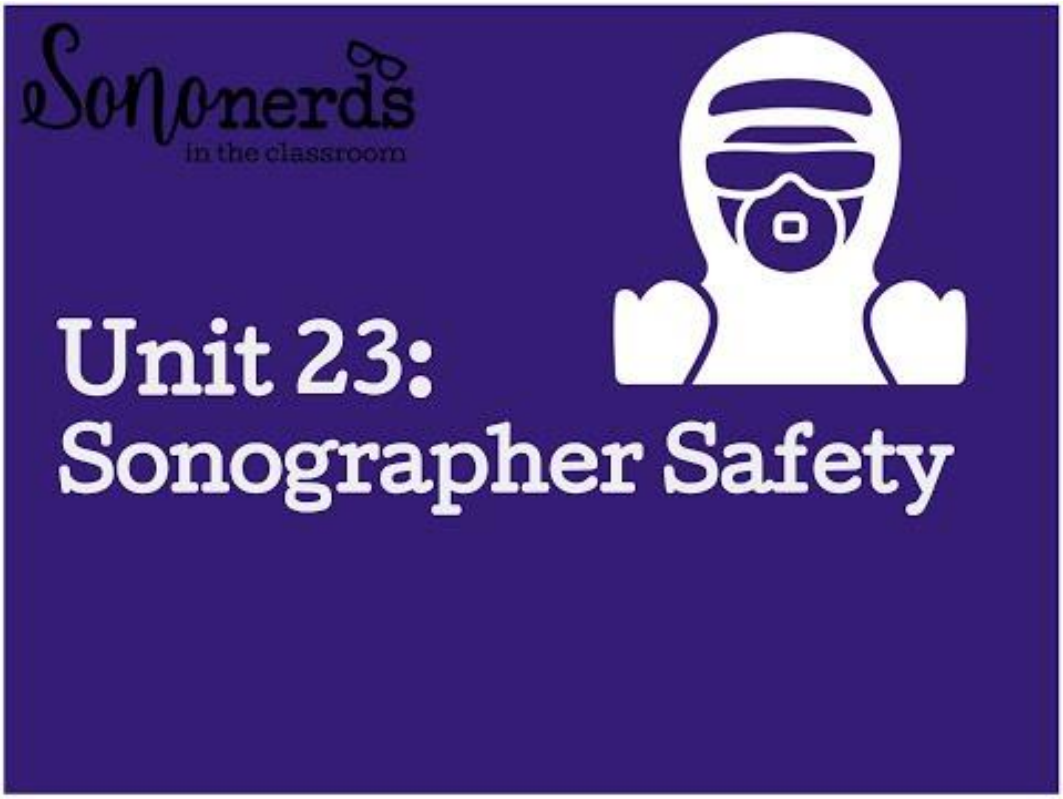
Sononerds Ultrasound Physics Workbook & Lectures

Unit 23: Sonographer Safety

Table of Contents:

Unit 23: Sonographer Safety

Entire Unit 23 Lecture:



Did you know you can time jump to each section by using the “chapters” in the YouTube video playbar OR timestamps in the video description?

Unit 23: Sonographer Safety

A small part of the physics test is dedicated to sonographer safety and what it means to be working in the clinical setting, taking care of patients, infection precautions and some legal considerations.

Sonographers need to be highly knowledgeable about their machine, anatomy, physiology, pathology and physics. But this career also includes knowing how to take care of patients, communicate with other healthcare workers and how to protect their own bodies from the side effects of working in healthcare, specifically sonography.

Let's take a brief look at these concepts, again to give you a basic overview of these topics, as they may show up your boards.

These are not covered in the video, but here is a list of helpful definitions in regards to sonographer's role as a healthcare worker:

Bioethics: is the study of the ethical issues emerging from advances in biology and medicine. It is also moral discernment as it relates to medical policy and practice.

Autonomy: Recognizes that the patient has the capacity to act intentionally with free will. The patient can make voluntary, knowledgeable decisions and is of sound mind. This is the basis for informed consent.

Nonmaleficence: means non-harming or inflicting the least harm possible to reach a beneficial outcome. Harm and its effects are considerations and part of the ethical decision-making process.

Beneficence: an act of charity, mercy, and kindness with a strong connotation of doing good to others including moral obligation. All professionals have the foundational moral imperative of doing right.

Informed Consent: permission granted in the knowledge of the possible consequences, typically that which is given by a patient to a doctor for treatment with full knowledge of the possible risks and benefits

Translator: A person who can help translate spoken and written material into another language. Patients have the right to request a translator that is not a family member. Family members should only be used with the patient's consent and in non-emergency/routine situations. Best practice is to always use a medically trained translator.

Layperson Terms: Words to describe complex (medical) terms. For example, when asking a patient history, it would be better to ask if a person has high blood pressure or high cholesterol, rather than hypertension or hyperlipidemia.

Revocation of Consent: A patient has the right to stop any procedure at any time, that they may have given consent to previously. The performing provider should stop as soon as it is safe.

Patient Identification: Patients should be identified by TWO identifiers. Most facilities use full name and date of birth.

Scope of Practice: Describes the procedures, actions, and processes that a healthcare practitioner is permitted to undertake in keeping with the terms of their professional license. The scope of practice is limited to that which the law allows for specific education and experience, and specific demonstrated competency. For sonographers, this means not providing any clinical interpretation or discussing results with the patient.

Ergonomics: Ergonomics is the study of human factors affecting the worker, with a focus on observing how people interact with the environment they work in and adapting the workplace to the worker, their abilities and limitations. For ultrasound practitioners, this involves assessing the working practices and positions adopted during the scan and determining ways to reduce risk of injury for each operator and each type of examination

OSHA: Stands for Occupational Safety and Health Administration and they ensure safe and healthful working conditions for working men and women by setting and enforcing standards and by providing training, outreach, education and assistance.

Repetitive Stress Injury or WRMSD:: Gradual buildup of damage to muscles, tendons, and nerves from repetitive motions. RSIs are common and may be caused by many different types of activities. Sonographers are prone to RSIs due to the type of work and motions we do every day.

Standard Precautions: Set of guidelines to minimize the exposure and risk of healthcare workers when working with patients. Expands and clarifies universal precautions. They should be used whenever potential contact with body fluids, secretions excretions, mucous membranes, and airborne particles is possible

Universal Precautions: Originally developed in the 1980s to minimize risk of patients to HIV and HBV and other blood borne pathogens.

Personal Protective Equipment: includes the use of gloves, gowns, eyewear and face masks when appropriate.

Section 23.1 Sonographer Safety

Sonographers are exposed to a lot of diseases and pathology during their workday. It is important to know how diseases are transmitted from person to person so they can break the chain of infection. Sonographers are often involved in sterile procedures and should know how to set up and operate in a sterile field. Sonographers are also their own best advocate for promoting safe working conditions and proper ergonomics.

23.1.1 Communicable Diseases

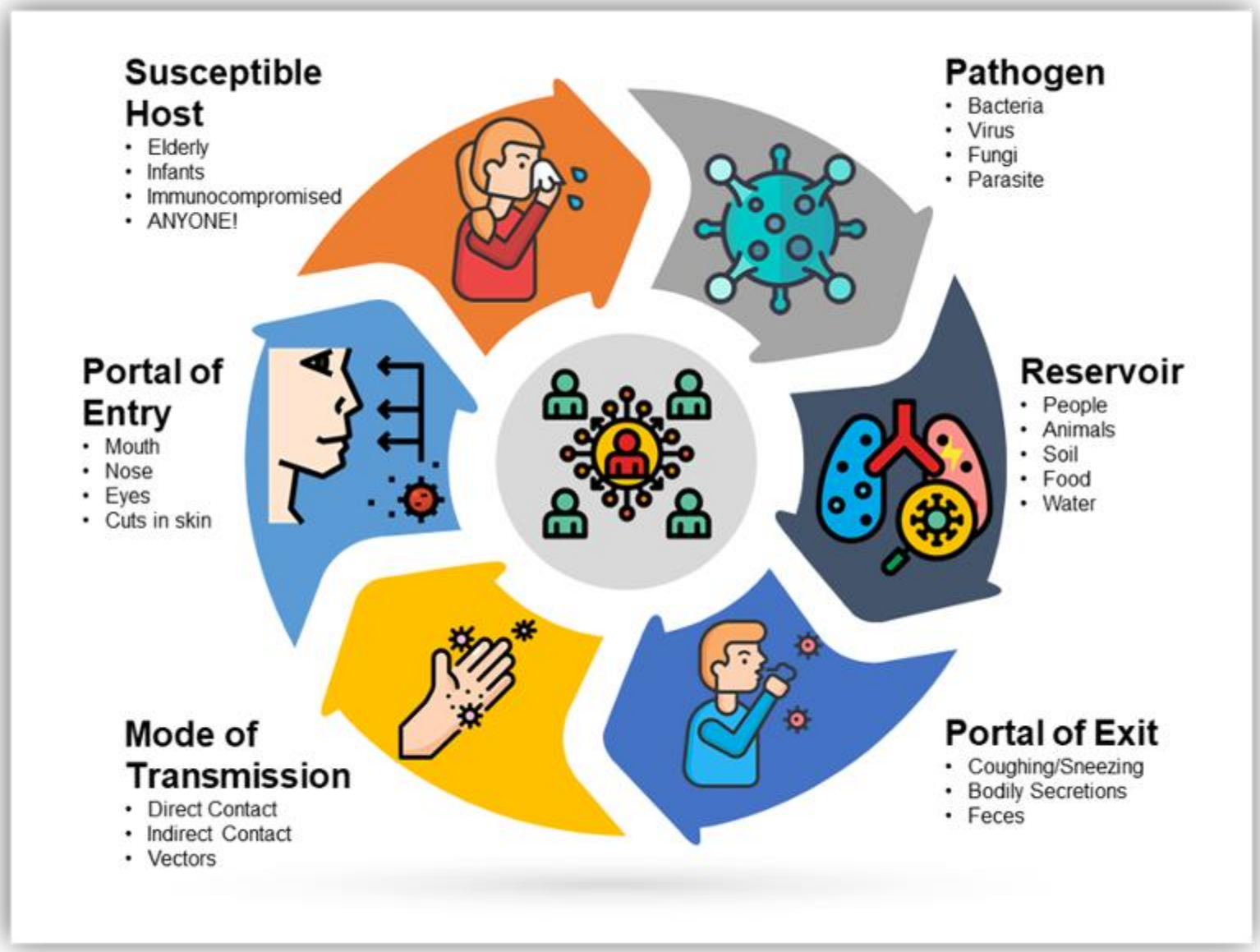
As a healthcare worker, you will want to protect yourself from contracting diseases that your patients may have.

Some of the most common diseases that are found in the clinical setting and pose concern for transmission include:

- **Hepatitis B & C**
  - Caused by viruses and drug use
  - Transmitted through infected bodily fluids
  - Hep B vaccination is usually required
- **Human immunodeficiency virus (HIV)**
  - Leads to AIDS
  - Spread through infected bodily fluids
  - May need antivirals following accidental exposure
- **Tuberculosis (TB)**
  - Airborne disease
  - Spread by coughing, sneezing, speaking, singing, etc.
  - Healthcare workers are tested for TB prior to working and yearly after.
- **Methicillin-resistant Staphylococcus aureus (MRSA)**
  - Staphylococcus bacteria that is resistant to antibiotics
  - Spread through close contact
- **Clostridioides difficile (C. Diff)**
  - Clostridioides difficile is a bacteria that can overtake the bowel after a patient has been on antibiotics and good bacteria are depleted.
  - Causes diarrhea and is easily transmitted through spores that can be picked up from close contact

23.1.2 Chain of Infection

When dealing with infectious diseases, like those discussed previously or more benign infections like the flu or common cold, there is a clear path or chain of events that causes infections.



When a person catches a disease while in the hospital is called a **nosocomial infection.** Our goal is to break the chain to protect ourselves and our patients. We are most effective at doing this by controlling the portal of exit, mode of transmission & portal of entry. Getting immunizations, hand hygiene, personal protective equipment and instrument cleaning is vital.

23.1.3 Precautions

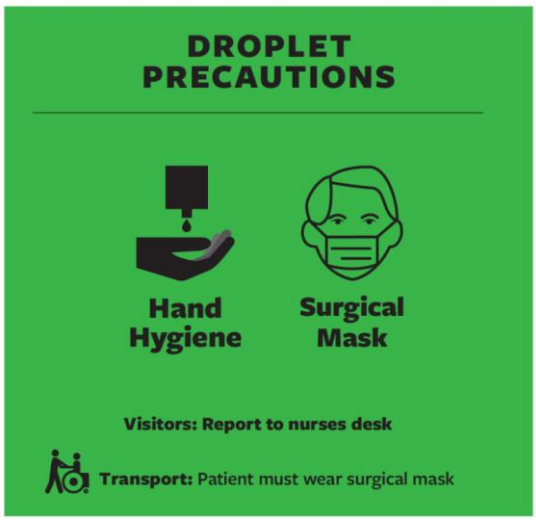
The easiest and best way to break the chain is to:

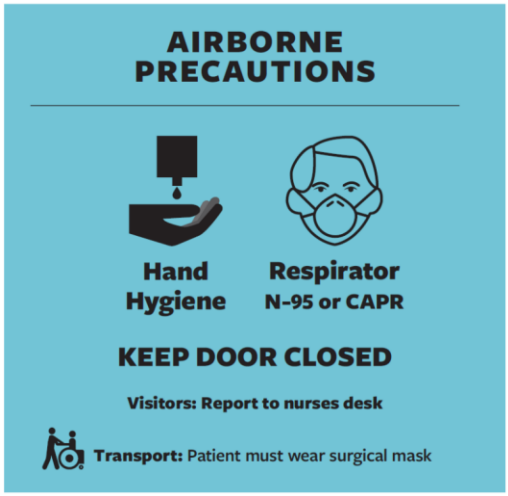
WASH YOUR HANDS

This can be done quickly by using the hand sanitizer before entering a room with a patient and after leaving a room with a patient. Washing hands with soap and water should always be done when hands are visibly soiled.

Other ways we take care to break the chain is by using **universal precautions.** This means there is a standard of care observed with every patient to avoid transmitted diseases. For sonographers this typically means wearing new gloves for every patient and cleaning the bed and transducer.

When a patient is known to have a communicable disease, their room is often designated with signage that tells practitioners how to protect themselves and the patient. These patients are in “isolation” and are classified as contact, droplet or airborne precautions.





	Contact Precautions	Droplet Precautions (e.g. Influenza, Rubella, Mumps, Pertussis)	Airborne Precautions (e.g. TB, Measles, Chickenpox)
Patient Placement	Single room Cohort with same infection	Single room Cohort with same infection No special air handling and ventilation required	Negative pressure isolation room (where available) Doors and windows must be kept closed and patient must remain in the room
Door/Bed signs	• Isolation notice should be displayed • Advise all staff of the necessary precautions	• Isolation notice should be displayed • Advise all staff of the necessary precautions	• Isolation notice should be displayed • Advise all staff of the necessary precautions
Masks	• Masks not normally indicated unless risk of splash	• Wear a fluid shield mask when working within 1 meter of the patient until no longer infectious	• FFP3 respirator mask must be worn for confirmed or suspected MDR or XDR-TB • Susceptible, non-immune persons should not enter the room of patients with measles or chicken pox
Visits to other departments	• Limit movement of patient from the room to essential purposes only • If transfer/ movement is necessary notify the receiving department/IPC Team in advance	• Limit movement of patient from the room to essential purposes only • If transfer/ movement is necessary, place a surgical fluid shield mask on the patient • If transfer/ movement is necessary notify the receiving department/IPC Team in advance	• Limit movement of patient from the room to essential purposes only • If transfer/ movement is necessary, place a surgical fluid shield mask on the patient • If transfer/ movement is necessary notify the receiving department/IPC Team in advance
Cutlery/Crockery	• Separate or disposable cutlery or crockery is not indicated • Wash in dishwasher in usual way	• Separate or disposable cutlery or crockery is not indicated • Wash in dishwasher in usual way	• Separate or disposable cutlery or crockery is not indicated • Wash in dishwasher in usual way

21.3.4 Sterile Field

As a sonographer, you will be involved in procedures that require a sterile field. This may be in a surgical suite or within the radiology department.

Ultrasound probes cannot be sterilized due to the chemical or high heat needed. However, they should always be cleaned with a high disinfection agent. Sterile probe covers are usually used for procedure when possible.

You should also make sure your ultrasound machine is clean prior to a sterile procedure to reduce the pathogen load. This means wiping down all surfaces.

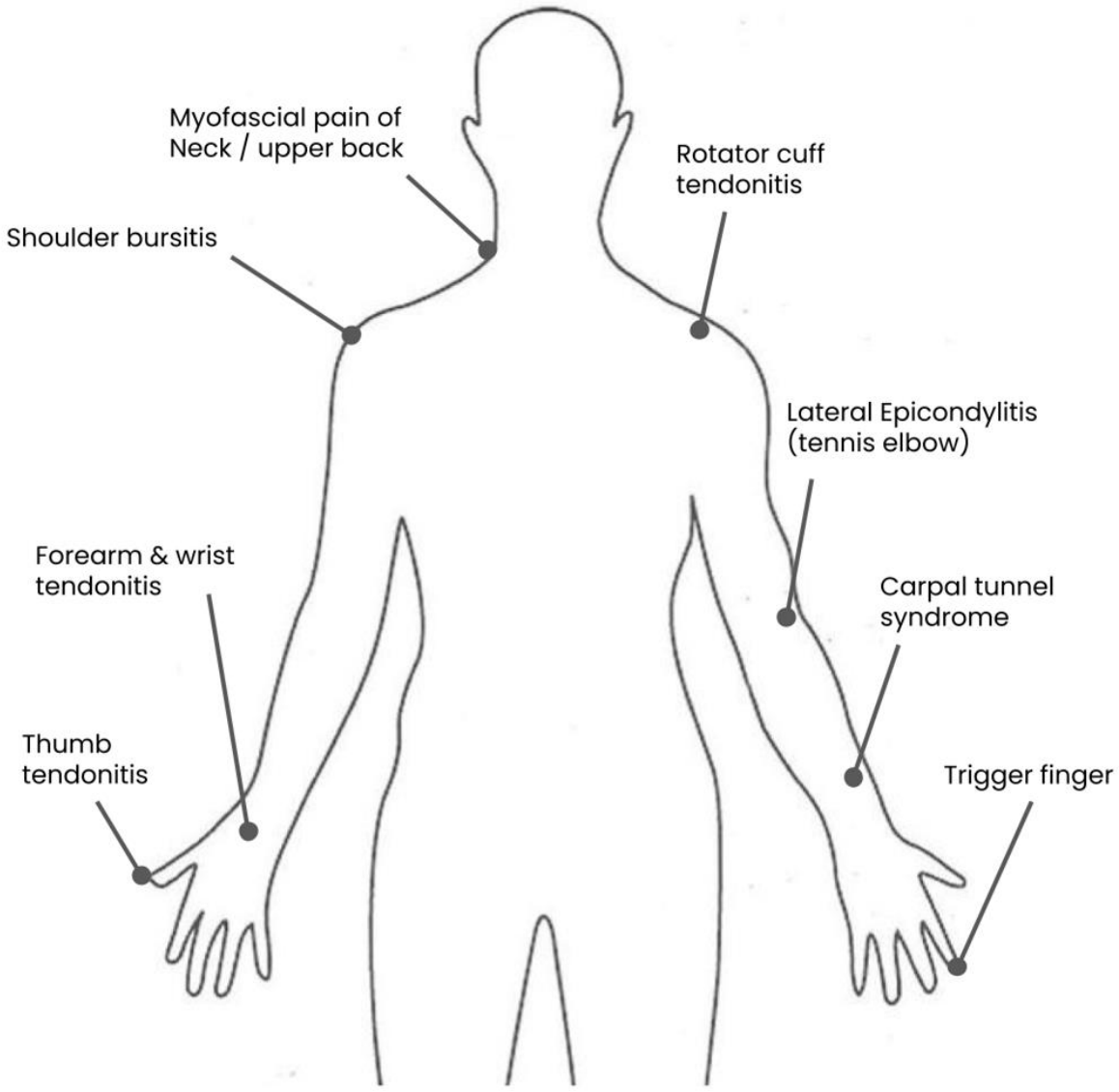
Here are some good rules to follow when near a sterile field:

- Always be aware of what is sterile
- If an object's sterility is questionable, one must assume that the object is not sterile
- Never reach or lean across a sterile field
- To be considered sterile, a person must wear a sterile gown and gloves
- The cuffs of the gown are not considered sterile
- The edges of a wrapper are not sterile
- Never leave a sterile tray unattended
- If something becomes contaminated, it cannot go back to the sterile field.

23.1.5 Ergonomics

Practicing good ergonomics is going to be the cornerstone to a long lasting career in sonography. **Ergonomics** is an applied science concerned with designing and arranging things people use so that the people and things interact most efficiently and safely.

For sonographers that means arranging the patient, bed, machine and your body in a way that does not cause harm from extraneous use or repetitive use. When you work in a field like sonography you are more susceptible to injuring yourself. These are called **work-related musculoskeletal disorders (WRMSDs).** WRMSDs in sonographers typically manifest as pain, swelling, numbness, burning, "pins and needles" and other muscles and joint related issues. Official diagnoses tend to be tendonitis, bursitis, pinched nerves and more.



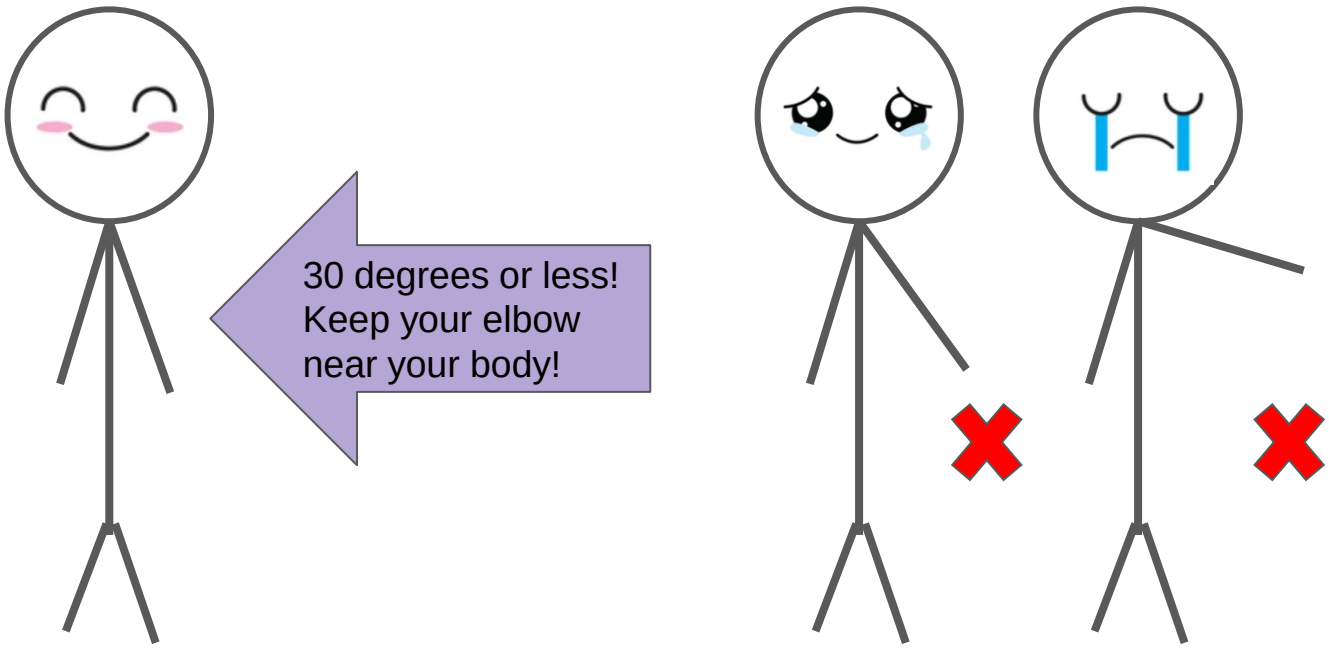
WRMSDs can be apparent in the hands, wrists, elbows, neck, spine and hips, but most commonly, sonographers will experience pain in their shoulders.

To prevent WRMSDs:

- ➔ Keep the monitor at eye level
- ➔ Keep the body aligned and avoid leaning or standing more on one foot
- ➔ Take breaks to stretch
- ➔ **Move the patient as close to you as possible**
- ➔ **Make sure your scanning arm is <u>NO MORE THAN 30° abducted</u>**

Read more about WRMSDs and the sonographer from the SDMS:

https://www.sdms.org/resources/careers/work-related-musculoskeletal-disorders



Section 23.2 Patient Communication

Communicating clearly with patients is both patient and sonographer safety. There are rules that we need to follow professionally, ethically and legally to protect ourselves, the institution that we represent and the patient.

23.2.1 Identifying the Patient

An ultrasound can only be performed with an order from a qualified provider, usually a doctor, physician assistant, nurse practitioner, or certified midwife. They will choose what type of ultrasound is appropriate for their patient and a **written or electronic order** is submitted.

Prior to starting an exam you need to identify your patient. At the very least, you need **two patient identifiers - name and date of birth**. Confirming the ordering provider's name and the intended ultrasound is also appropropriate and good practice. In the outpatient setting this is normally confirmed verbally with the patient.

In an inpatient setting, verbal identifiers are appropropriate, but the sonographer should also verify information found on the patient's wristband, including name, date of birth, medical record number and doctor.

23.2.2 Obtaining History

As a sonographer, you should be able to communicate to the patient about the ultrasound equipment and relate basic information about ultrasound in medicine to a patient.

Remember:

- Communication happens in both verbal and non-verbal ways.
- Not everyone speaks “medical”; use lay terms when possible.
- **Use an interpreter when necessary. Best practice is to always use a medical interpreter. They will accurately interpret for the patient. Family members may censor or not understand what you want to communicate.**

Medical history is pertinent to the sonographer and the final read of the exam. Know what questions are relevant to the exam you are performing and what information from the health record you will need.

Here are some good questions for a symptomatic patient:

- Where is the problem or area of pain?
- When did the pain start?
- How severe is the pain?
- What relieves the pain or causes it to worsen?
- What else happens when the pain begins?

Here are some good questions for the asymptomatic patient:

- Are you a diabetic?
- Do you have high blood pressure or cholesterol?
- Do you smoke?
- Do you take any medications?
- Have you had any surgeries (related to the examination area)?

Before any invasive procedure, make sure to always get:

INFORMED CONSENT

This usually includes the patient being told the benefits and risks to the procedure and giving them the option to continue. They can revoke their consent at any point.

23.2.3 HIPAA

Protecting the patient also means protecting their **protected health information (PHI).** A law passed by congress in the United States aimed to do this. The Health Insurance Portability & Accountability Act (HIPAA not HIPPA) has 4 goals:

- Standardized record release
- Protect health records
- Apply penalties for violations
- Provide more patient education

Make sure to turn monitors off, turn screens away from patient's view, dispose of paperwork in shred bins, NEVER discuss patients in public and NEVER access a medical record you have NO business being in.

Section 23.3 Sonographer Ethics

This last section reminds us that we are professional healthcare providers. Your ethics and professionalism will forever shape your career. I urge you now to choose who you want to be as a sonographer. Why are you choosing this career? Are you ready to put in the hard work and long hours so you can serve others?

As a sonographer you will be an important part of the healthcare field. At school, during internship and for the rest of your career you will be expected to act ethically and be a professional. You will need to use independent judgment and systematic problem-solving methods to produce high quality diagnostic information and optimize patient care. You will promote excellence in patient care by fostering responsibility and accountability among diagnostic medical sonographers. You are responsible for preserving the integrity of our profession.

The Society of Diagnostic Medical Sonographers is a national membership group that organizes and advocates for sonographers. The next page summarizes our profession's code of ethics. Please read through them and think about how you will work within this code as a sonographer.

https://youtu.be/4K6tf27z6wU

Principle I: In order to promote patient well-being, the diagnostic medical sonographer shall:

- Provide information to the patient about the purpose of the sonography procedure and respond to the patient's questions and concerns.
- Respect the patient's autonomy and the right to refuse the procedure.
- Recognize the patient's individuality and provide care in a non-judgmental and non-discriminatory manner.
- Promote the privacy, dignity and comfort of the patient by thoroughly explaining the examination, patient positioning and implementing proper draping techniques.
- Maintain confidentiality of acquired patient information and follow national patient privacy regulations as required by the "Health Insurance Portability and Accountability Act of 1996 (HIPAA)."
- Promote patient safety during the provision of sonography procedures and while the patient is in the care of the diagnostic medical sonographer.

Principle II: To promote the highest level of competent practice, diagnostic medical sonographers shall:

- Obtain appropriate diagnostic medical sonography education and clinical skills to ensure competence.
- Achieve and maintain specialty specific sonography credentials. Sonography credentials must be awarded by a national sonography credentialing body that is accredited by a national organization which accredits credentialing bodies, i.e., the National Commission for Certifying Agencies (NCCA) or the International Organization for Standardization (ISO).
- Uphold professional standards by adhering to defined technical protocols and diagnostic criteria established by peer review.
- Acknowledge personal and legal limits, practice within the defined scope of practice, and assume responsibility for his/her actions.
- Maintain continued competence through lifelong learning, which includes continuing education, acquisition of specialty specific credentials and recredentialing.
- Perform medically indicated ultrasound studies, ordered by a licensed physician or their designated health care provider.
- Protect patients and/or study subjects by adhering to oversight and approval of investigational procedures, including documented informed consent.
- Refrain from the use of any substances that may alter judgment or skill and thereby compromise patient care.
- Be accountable and participate in regular assessment and review of equipment, procedures, protocols, and results. This can be accomplished through facility accreditation.

Principle III: To promote professional integrity and public trust, the diagnostic medical sonographer shall:

- Be truthful and promote appropriate communications with patients and colleagues.
- Respect the rights of patients, colleagues and yourself.
- Avoid conflicts of interest and situations that exploit others or misrepresent information.
- Accurately represent his/her experience, education and credentialing.
- Promote equitable access to care.
- Collaborate with professional colleagues to create an environment that promotes communication and respect.
- Communicate and collaborate with others to promote ethical practice.
- Engage in ethical billing practices.
- Engage only in legal arrangements in the medical industry.
- Report deviations from the Code of Ethics to institutional leadership for internal sanctions, local intervention and/or criminal prosecution. The Code of Ethics can serve as a valuable tool to develop local policies and procedures.

Section 23.4 Nerd Check!

1. What are bioethics?
2. What does patient autonomy mean?
3. What are the definitions nonmaleficence & beneficence?
4. What is a scope of practice?
5. What is OSHA?
6. What are the 6 common diseases that can be caught in the hospital?
7. What is the chain of infection?
8. What is it called when a person catches a disease while in the hospital?
9. How can we break the chain of infection?
10. What is the number one, most effective way to break the chain?
11. When should you wash your hands?
12. What type of precautions are needed for patients on contact isolation, droplet isolation and airborne isolation?
13. What does it mean to have a sterile field?
14. What are some good things to remember about the sterile field?
15. What are ergonomics?
16. What is it called when you hurt yourself from performing normal job duties?
17. Where do most sonographer's experience pain?
18. What can you do to prevent WRMSDs?
19. What degree should the arm be kept at while scanning?
20. What are two good patient identifiers?
21. What else can we use to identify a patient?
22. When should we use an interpreter?
23. What is informed consent?
24. What is HIPAA?