



DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM



Student Policies and Procedures Handbook

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Overview of the Diagnostic Medical Sonography Program

The Sonography Program is a full-time, allied vocational health program located in the agricultural community of Merced, California. Here, from the Allied Health Parking lot at Merced College, is our nearest clinical affiliate, Dignity Health Mercy Hospital. Diagnostic Medical Sonography (DMS) is a multi-specialty occupation



comprised of abdominal-extended sonography, adult cardiac sonography, breast sonography, musculoskeletal sonography, obstetrics and gynecology sonography, pediatric cardiac sonography, vascular sonography, and other emerging clinical areas or concentrations. The trained sonographer is

an individual who is educationally prepared and clinically competent to apply comprehensive knowledge of ultrasound technology in daily patient care services to perform diagnostic and/or therapeutic exams and procedures. The diagnostic medical sonographer functions as a delegated agent of the physician by application of independent, professional, ethical judgement, and critical thinking to perform sonographic procedures safely.

The purpose of the program is to provide didactic education and practical experience in preparation for employment as a competent entry-level sonographer in a medical imaging facility.

The minimum expectations of the program:

1. To prepare competent entry-level sonographers in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains for the **Abdominal Sonography-Extended** concentration.
2. To prepare competent entry-level sonographers in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains for the **Obstetrics and Gynecology Sonography** concentration.
3. To prepare competent entry-level sonographers in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains for the **Vascular Sonography** concentration.

The program is divided into two components: (a) didactic with laboratory, and (b) supervised clinical education. Graduates are awarded a Certificate of Achievement in Diagnostic Medical Sonography, and are eligible to sit for the SPI, ABD, and OB-GYN American Registry for Diagnostic Medical Sonography board examinations. Due to increased clinical exposure to vascular sonography and requests by graduates and hospital leadership, we are submitting data to support adding the above listed third concentration in vascular sonography to our accreditation body. If approved, our students will also be eligible to sit for the RVT board examination at the completion of the program.

The didactic portion of the program facilitates learning in “General Sonography,” with a focus on the following areas: Abdomen, Superficial Structures (Small Parts) now known as *Abdominal Sonography-Extended*, and Obstetrics and Gynecology (OB-GYN) this is also known as gravid and non-gravid female pelvis, and we are

adding an advanced vascular course to our historical introduction to vascular technology course. The basic on-campus scanning procedures required are included within this handbook. Specific scanning procedures for each clinical site are beyond the scope of this document.

On campus scanning is obtained by student volunteers, occasional non-student volunteers, and a plethora of professionally created scanning phantoms with the advanced sonographic scanning systems and transducers housed in our scanning suite. Students are provided a subscription to the *SonoSim* training simulator.

Clinical education begins during the second semester, after becoming familiar with basic sonographic scanning techniques in our ultrasound laboratory and continues for three (3) semesters and one (1) summer term. Students are scheduled for 32 weekly clinical hours resulting in a minimum of 1710 clinical hours at the conclusion of the program. Specific monthly schedules have been created to allow for students to enjoy all college identified holidays, and to be eligible to sit for board examinations through the American Registry for Diagnostic Medical Sonography (ARDMS) during the final semester. All clinical hours must be completed to be eligible for graduation.



Whenever possible, each student will complete three (3) unique clinical experience rotations, to include at least one at a medical center/hospital. The original design provided for four (4) rotations. Following advice from the Sonographic Advisory Board, the summer and fall terms have been combined to generate a better learning opportunity, albeit the students receive independent grades for each of the terms. Students will earn organ-specific scanning competencies during these clinical rotations. Since adopting this change all clinical stakeholders have reported improved student clinical success and quality of clinical experience.

School Facilities include dedicated sonographic lecture room and laboratory. The classroom has tables and chairs, rather than traditional student desks. Audio/visual equipment includes a PC, mounted overhead projector, and sound system in both rooms. The scanning laboratory is equipped with three state-of-the-technology imaging systems. Each system is from an independent vendor which prepares students to apply physical principles knowledge and critical thinking skills in a variety of clinical facilities. Presently in our lab you will find: A Samsung unit with panoramic imaging. The system has a variety of transducers including a 3-D endovaginal

superficial structures, OB-GYN, vascular, and echocardiography examinations. Another modern GE system was installed in January of 2017, and in July 2018 a Mindray system completed the trio. Each scanning system has multiple transducers. When combined, advanced imaging technology includes elastography, 3-D, 4-D, panoramic, and Doppler applications. Each scanning station is equipped with



ergonomic scanning tables and chairs, patient positioning tools, thermographic printers, and gel warmers.

In 2020 the SonoSim Training System was added to our learning tools. It features 24/7 access to 65 courses with knowledge assessment, hands-on simulation, and performance tracking. Each sonography student has didactic access throughout the program. Mock transducer-hands-on simulation is available during the second semester. Students' use their personal computer, laptop, or smart phone to access the entire complement of sonographic scanning applications available from the SonoSim system. The program believes that actual real time scanning using breathing individuals is the best approach for initial scanning skill development. However, the class of 2020 found that the SonoSim Training System was exceedingly beneficial in strengthening skillsets when laboratory course time, and some clinical rotations were canceled due to the COVID Pandemic. Each student has an assigned individual simulation packet.



The sonography suite houses multiple sophisticated scanning phantoms for structures that cannot be readily scanned on a college campus. These include multiple second trimester OB phantoms, a breast phantom, three scrotal phantoms, and three endocavitary pelvic capable of transabdominal applications each with different female pathology including a mock ectopic pregnancy. Other phantoms include a full adult abdomen and thorax with a variety of pathologies, a full pediatric abdomen and thorax with pediatric specific abnormalities, a pediatric hip phantom, and two neonatal brain units. These phantoms may be scanned using the technologically advanced imaging systems, or the students may use one of the eight I-Pad/SonoStar wireless scanning systems. Each I-Pad is partnered with either a curvilinear or linear SonoStar probe. The ultrasound laboratory houses several sonographic textbooks and study aids, and a vast collection of SDMS and AIUM journals.



The allied health building provides a computer laboratory available for scheduled classes and open study. The campus library is found in the heart of the campus and maintains ultrasound books and reference materials including CD-DVD. Individual study rooms and personal computers are available.

To maintain continued programmatic eligibility: the student must successfully complete all didactic, laboratory and clinical experience courses sequentially to progress through the program.

Sonographic Courses: Ultrasound Physics & Instrumentation (SONO40, 40L, and 44A), Patient Care (SONO 40C/L), Abdominal and Superficial Structure

Applications (SONO 41, 41L, 42A, 42L, 44C, 44CL), OB-GYN (SONO43A, 43L), Introduction to Vascular (SONO45C, 45CL) and Advanced Vascular (SONO 47A), Integrative Applications (SONO 45A), and Clinical Experience (SONO 42B, 43B, 44B, 45B).

Diagnostic Medical Sonography Program Projected Class Schedule						
Semester	Course	Monday	Tuesday	Wednesday	Thursday	Friday
Fall 18 weeks	SONO 40 (lecture)		9-9:50 am			
	SONO 40L (lab)			2:00-3:15 pm		
	SONO 41 (lecture)		10-11:15 am			
	SONO 41L (lab)			10:30-11:45 am		
	SONO 45C (lecture)			9:00-10:15 am		
	SONO 45L (lab)			12:30-1:45 pm		
Spring 18 weeks	SONO 42A (Lecture)			8-10:50 am		
	SONO 42L (lab)			2:00-4:50 pm		
	SONO 40C (lecture)			11:30-12:20 pm		
	SONO 40L (lab)			12:30-1:50 pm		
	SONO 42B (clinic)	~32 hours/week 4 days/8 hours				
Summer 8 weeks	SONO 44A (lecture)		8-11:10 am			
	SONO 44C (lecture)		12-12:50 pm			
	SONO 44CL (lab)		1-4:15 pm			
	SONO 44B (clinic)	~32 hours/week 4 days/8 hours				
Fall 18 weeks	SONO 43A (lecture)			8-11:00 am		
	SONO 43AL (lab)			12-3:00 pm		
	SONO 43B (clinic)	~32 hours each week 4 days @ 8 hours				
Spring 18 weeks	SONO 45A (lecture)			8-9:50 am		
	SONO 47A (Lecture)			10-12:50 pm		
	SONO 47AL (lab)			1:30-4:20 pm		
	SONO 45B (clinic)	~32hours each week 4 days @ 8 hours			Total of 1710 clinical hours	

Disclaimer: The DMS program reserves the right to revise class schedules at any time. This schedule is to be used for general reference only. During COVID-19 lectures and some labs were delivered via: hybrid and distance delivery. Most courses remained synchronous, but when required, asynchronous delivery was implemented.

I. Introduction

A. Welcome

Welcome to the Diagnostic Medical Sonography Program! As the Director, it is my pleasure to congratulate you on your acceptance to the program, and to wish you success in your newly chosen health career.

As a student in the Diagnostic Medical Sonography Program, you represent Merced College and the Diagnostic Medical Sonography program. The highest ethical and professional standards of conduct will be always expected of you. You are responsible for learning the material (reading; studying; practicing in open lab; attending class, lab, and

clinic; and developing the skills and behaviors of a sonographer); time management, professional behavior, and enjoying every aspect of personal development in this exciting career.

The Program Director directs and facilitates the educational experience/program with the desired final outcomes: the privilege for you to write RDMS (Registered Diagnostic Medical Sonographer) after your name, and to become an erudite sonographer.

The Clinical Coordinator assists the program director in the creation of an excellent learning opportunity, by spending time in the ultrasound laboratory portion of each course, facilitating lectures, and coordinating/participating in the clinical experiences.

Clinical Supervisor(s) are adjunct faculty who may teach a course, assist in the laboratory component, and/or provide clinical site visitations/assessments.

The program consists of five terms---four as a full-time student. The Sonography Program is rigorous and fast-paced. The curriculum is comprised of lecture, collaboration, laboratory, library research, homework, individual and group projects, diagnostic-quality sonographic image generation, portfolio creation, and practical clinical experience. Professorially directed laboratory sections are held on campus in the Sonography Scanning Suite by means of hands-on live scanning, and simulation.



Clinical practicum consists of three or four rotations at our affiliated hospitals and clinics under the guidance and direction of credentialed sonographers, hospital/clinical managers, and board-certified Radiologists/Sonologists. Historically, four rotations were provided. During the last two cohorts we have combined the summer term and fall semester which has created a more comprehensive and empowering experience. The clinical component requires 100% clinical attendance. Success in the clinical arena requires excellent patient care and communication skills, your ability to function as a team member, sonographic performance, and professional interaction with our clinical personnel. Your total commitment to the program is the key factor to your successful completion of the program and becoming a knowledgeable and desirable sonographer. The secret to success in the clinical arena is to consider the clinical experience as a full-time interview.

Daily routine for a diagnostic medical sonographer is to perform the following:

- Obtain, review, and integrate pertinent patient history and supporting clinical data to facilitate optimum diagnostic results
- Perform appropriate procedures and record anatomic, pathologic, and/or physiologic data for physician interpretation
- Record, analyze, and process diagnostic data and other pertinent observations made during the scanning procedure for presentation to the interpreting physician
- Exercise discretion and judgment in the performance of sonographic and/or related diagnostic services
- Demonstrate appropriate communication skills with all stakeholders
- Act in a professional and ethical manner
- Maintain proper work-related/sonographic ergonomics
- Facilitates communication and education to elicit patient cooperation and understanding of expectation and responds to questions regarding the sonographic examination
- Utilize proper ALARA and HIPAA guidelines

- The sonographer must be sensitive to the cultural and emotional needs of all persons of interest in the medical facility
- To remain successful and develop personal growth the sonographer participates in life-long learning to maintain continuing education for continued licensure

B. Purpose of Handbook

This handbook is designed to serve as an informational guide to assist in the orientation of new students and to clarify policies and procedures governing your actions and practices while a student in the program. This handbook is designed to be utilized as a supplement to the Merced College Catalog, the Clinical Handbook, and the accompanying Clinical Experience Forms. It is expected that the students will be familiar with the following information. Students are expected to comply with the policies and procedures contained within this handbook throughout their educational experience.

Whenever possible, data from the Society of Diagnostic Medical Sonography (SDMS), the American Institute of Ultrasound in Medicine (AIUM), the American Registry for Diagnostic Medical Sonography (ARDMS), and the American Registry of Radiologic Technologists (ARRT) has been included. Document inclusion consists of data approved for reprinting or includes reference documentation. Students are encouraged to become student members in the SDMS, and/or AIUM.

The DMS student should read this document completely and carefully, and to place in an accessible location for future reference. A digital version will be found in the Canvas Shell for each clinical experience course. Each clinical site has a hardcopy version of this handbook, the program clinical handbook reference, and the clinical forms packet. The clinical facilities receive a digital version of the clinical handbook and related forms. This document will serve as your primary programmatic and clinical experience reference tool throughout your educational experience. Please contact the Program Director, or Clinical Coordinator for clarification or additional information.

C. Merced College Philosophy

A democratic society functions best when its members are educated and active participants. To encourage this participation, Merced College provides education opportunity for all who qualify and can benefit. This education involves having a respect for, and awareness of, all cultures, as well as the dignity and worth of all individuals. Merced College is dedicated to the pursuit of excellence. The leadership and educational services provided by the College reflect and enhance the cultural, economic, and social life of the community and respond to its changing needs and interests. Recognizing that learning is a life-long process, the College provides preparation for a complex and changing society while maintaining high academic standards. The College also fosters individual learning and critical thinking to enhance awareness of the inter-relationship and inter-dependence of all persons.

Mission Statement

Growing our community through education and workforce training:

- Lifelong learning
- Basic skills
- Career technical education
- Transfer
- Degree/certificate programs

Ensuring student success through equitable access, continuous quality improvement, institutional effectiveness, and student achievement.

Vision Statement

Merced College will provide transformative and empowering educational experiences to meet student and community needs.

Core Values

Student Success	Partnering
Supportive	Diversity
Environment	Self-Reflection
Proactive	

Students are our focus at Merced College. We set high standards to encourage students to reach their highest potential in a supportive environment. Diversity is a strength of our institution. Merced College is a leader in instruction and cultural activities. We value and respect all members of our community. We are known by the success of our students.

D. Sonography Program Philosophy

We believe that all people have the right to safe and competent medical care. We further believe that students have a right and a responsibility to learn and faculty have an obligation to ensure a curriculum that prepares students to practice in the professional discipline. To ensure this outcome, we provide an educational training program dedicated to the pursuit of excellence.

Mission

The mission of the Sonography Program is to provide relevant education in the cognitive, psychomotor, and affective learning domains to prepare competent, and responsible entry-level general sonographers, with a commitment to life-long learning.

Entrance Requirements/Requirements for application: Completion of a two-year Allied Health Program that is patient care related, such as Radiologic Technology, Registered Nursing, Physical Therapy, or Nuclear Medicine Technology. Persons possessing a bachelor's degree, ideally in a biology type program, are also eligible for application. Historically, BS degree applicants were required to complete 500 documented hospital-based patient-care skills hours in lieu of the clinical hours related to the above careers. A positive side-effect of the COVID pandemic, and changes in the accreditation standards is the addition of a Sonographic Patient Care course that eliminates those 500 clinical shadowing hours. The program continues to encourage prospective BA/BS degreed applicants, with no professionally licensed healthcare background, to complete a CNA program and sit for the certification as this will enlighten you to the reality of the clinical experience.

Course pre-requisites: BIOL-16 Anatomy, BIOL-18 Physiology, MATH-26 College Algebra, ALLH-67 Medical Terminology, and PHYS-10 or RADT-40 General Physics or Radiographic Physics.

Entrance Application and Forms

The sonography application is found at the sonography link to the allied health website. Prospective students are to fully complete the application and submit (electronically) with other requirements during the open enrollment time frame. This happens every two years. Complete applications will have an assigned submission time frame posted by the computer program used. The program anticipates changes in the method of submission for the cohort beginning in 2024. Students selected into the DMS program receive related

programmatic forms and information directing them to the locations for background screens and drug checks, and mandatory orientation session(s).

Goals

In support of this Mission, the Diagnostic Medical Sonography Program will:

- uphold standards for satisfactory educational preparation for entry-level work experience
- provide a curriculum which, supports and accesses the knowledge and skills required to intelligently perform entry-level tasks to practice the profession
- encourage students to develop
 - effective communication skills
 - critical thinking and problem-solving skills
 - commitment to life-long professional learning
- advocate and expect ethical and compassionate treatment of patients

SLOs (Student Learning Outcomes)

Upon completion of the Diagnostic Medical Sonography Program, students will be able to:

1. Describe the acoustic parameters of sound waves
2. Relate accurate medical terminology
3. Prioritize patient transfer, immobilization techniques, and safety precautions
4. Recommend methods to assure patient privacy
5. Recognize patient clinical history, which may impact the sonographic exam
6. Design individualized patient assessment plans
7. Calculate geometric measurements of anatomic structures
8. Evaluate sonographic images for optimal acoustic resolution
9. Select the appropriate sonographic instrumentation, while maintaining ALARA
10. Correlate clinical indications and laboratory values
11. Create diagnostic sonographic exams using recognized scanning parameters
12. Evaluate anatomic structures on sonographic images
13. Assess sonographic images for specific pathologies
14. Describe sonographic pathologies and sequelae relative to specific diseases
15. Differentiate normal and abnormal sonographic appearances
16. Select correct ergonomic devices and techniques
17. Compile effective data acquisition for submission to the interpreting physician
18. Describe the importance for sonographic quality assurance programs
19. Compare and contrast emerging sonographic techniques
20. Analyze academic strengths and weaknesses to determine corrective measures required to successfully pass a pre-registry written examination
21. Evaluate prospective employment opportunities

Aggregate Program Outcomes

The program's indicator to measure success is documented by the following:

1. Seventy percent of each cohort will complete the twenty-two month program
2. Sixty-six percent of first-time ARDMS test takers will possess ARDMS credentials within 12 months of graduation. (AB, OB-GYN) RVT when approved by accreditation.

3. Fifty percent of graduates will submit the graduate survey three months post grad,
4. The graduate survey will document a Likert score of greater than 3.0 in cognitive, psychomotor, and affective domains
5. The graduate survey will report satisfied or very satisfied with the quality of the sonography program and their preparation as an entry-level sonographer
6. Fifty percent of the returned employer survey will document >3.0 in cognitive, psychomotor, and affective domains.

E. Objectives

The Diagnostic Medical Sonography Program faculty believe that the philosophy of the program can be fulfilled through providing a curriculum that encompasses all the areas required to prepare students to practice in the professional discipline. Since sonography is a practice discipline, the objectives will reflect the scanning areas in which a graduate sonographer will be competent. The objectives reflect those areas included in the curriculum content as stated in the Standards and Guidelines for Diagnostic Medical Sonography from the Commission on Accreditation of Allied Health Education Programs (CAAHEP) in conjunction with the Joint Review Committee on Education in Diagnostic Medical Sonography (JRCDEMS). At the completion of the Program, the student will be prepared to practice in the professional discipline because, at a minimum, they are competent in the following areas:

1. Oral and written communication
2. Provide basic patient care and comfort
3. Demonstrate knowledge and understanding of human gross anatomy and sectional anatomy
4. Demonstrate knowledge and understanding of physiology, pathology, and pathophysiology
5. Demonstrate knowledge and understanding of acoustic physics, Doppler ultrasound principles, and ultrasound instrumentation
6. Demonstrate knowledge and understanding of the interaction between ultrasound and tissue and the probability of biological effects in clinical examinations including:
 - a. Biologic effects
 - b. Pertinent in-vitro and in-vivo studies
 - c. Exposure display indices
 - d. Generally accepted maximum safe exposure levels
 - e. ALARA principle
7. Employ professional judgment and discretion
8. Understand the fundamental elements for implementing a quality assurance and Improvement program, and the policies, procedures for the general function of the ultrasound laboratory, including
 - a. Administrative procedures
 - b. Quality control procedures
 - c. Elements of quality assurance program
 - d. Records maintenance
 - e. Personnel and fiscal management
 - f. Trends in health care systems
9. Recognize the importance of continuing education
 - a. Life-long learning and continuing education are achieved by various methods.

1. Pursuing advanced college degree(s): brick & mortar, or online degree completion programs
 2. Membership with SDMS, AIUM, SVT, ASRT, and other professional societies.
 3. Attending national meetings
 4. Participating in state, regional, or local meetings or workshops
 5. Completing directed learning activities via on-line or journal readings from above or other societies.
 6. Sitting on sonography advisory boards, or volunteering with ultrasound educational programs.
10. Recognize the importance of, and employ, ergonomically correct scanning techniques and patient manipulation
 11. Demonstrate the ability to perform sonographic examinations of the abdomen, superficial structures, thorax, interventional procedures (Abdomen-extended sonography); the gravid and non-gravid pelvis (Obstetrical and Gynecology sonography) according to protocol guidelines established by national professional organizations and the protocol of the employing institution utilizing real-time equipment with both transabdominal and endocavitary transducers, and Doppler display modes; and to perform sonographic examinations of the extracranial vasculature, abdominal vasculature, upper and lower extremity vasculature including application of all Doppler modes while adhering to MI and TI ALARA principles (vascular sonography).

II. Accreditation

A. Merced College

Merced College is approved by the Chancellor of the California Community Colleges and Accrediting Commission for Community and Junior Colleges, Western Association of Schools and Colleges (**ACCJC-WASCO**). It meets all standards of the California State Department of Education and is listed in the Education Directory, Higher Education, published by the United States Office of Education. The University of California and other colleges and universities of high rank give full credit for appropriate courses completed at Merced College.

B. Diagnostic Medical Sonography Program

The Diagnostic Medical Sonography Program, which leads to eligibility to write the SPI, AB, OB-GYN, and RVT (pending) sonography examinations by the American Registry for Diagnostic Medical Sonography (ARDMS). The Merced College DMS General Program is accredited by the Commission on Accreditation of Allied Health Education Programs (www.caahep.org) upon the recommendation of the Joint Review Committee on Education in Diagnostic Medical Sonography. Program is accredited by the Joint Review Committee on Education in Diagnostic Medical Sonography.

***JRC-DMS**: Joint Review Committee on Education in Diagnostic Medical Sonography, 6021 University Boulevard, Suite 500, Ellicott City, MD 21043;
www.jrcdms.org

****CAAHEP**: Commission on Accreditation of Allied Health Education Programs, 9355 113th Street N. #7709, Seminole, FL 33775;
www.caahep.org

B. Program Effectiveness Data

JRCDMS biannual review is posted at:

<https://www.mccd.edu/academics/alliedhealth/diag-med/downloads/Sonography-Outcomes-CAAHEP-Program-Effectiveness-Data.pfd>

III. Attendance

A. Enrollment

Students must be enrolled in all SONO classes by the first day of the semester/session to attend class or a clinic assignment. A student may not start a clinic assignment without being officially enrolled in that specific course as the student would not be covered by malpractice insurance. The student must have a valid CPR card prior to attending any clinical experience rotations. Any missed clinical time due to non-enrollment shall be made up according to the make-up policy. All clinical policies regarding vaccinations, backgrounds checks, etc. must be completed (approved) prior to attendance.

B. Attendance

Regular attendance and consistent study are the two factors which contribute most to success in college. Due to the rigor and accelerated aspect of the Diagnostic Medical Sonography Program, DMS students are expected to attend all course lectures, laboratories, and clinical hours.

On-campus didactic hours (lecture and laboratory): Generally, students will attend didactic sessions one day each week, except for the first semester when students meet on campus Tuesdays and Wednesdays. The remaining term/semesters will meet on Wednesdays.

Clinical hours are accrued weekly beginning on Monday of each week. During the semester's students complete ~32 hours each week at their assigned clinical facility, and during the summer 32 hours each week are completed. Students are to make-up missed hours due to illness; however, students are not to bank hours for personal or compensatory time off. Clinical experience attendance is coordinated with the Clinical Instructor/Preceptor, usually the Ultrasound Lead. Hours may begin at 6 am and may end at 9 pm any day of the week. Students must be always supervised during the clinical rotation by a credentialed sonographer. Students are excused from the clinical experience during recognized college holidays. For students who have coordinated fewer days with more hours...holidays are accrued at a maximum of 8 hours each depending on the term/semester.

The only excused absence is for illness of the student or death in the immediate family. A student may be dropped from the program for more than three days of un-excused absences. After 3 days of consecutive absences from class and/or clinic, either a doctor's excuse or proof of death of an immediate family member will be required to be submitted to the instructor(s) of record. If a student is dropped from lecture class, they will be dropped from the corresponding clinical practice and vice versa, and from the DMS program.

Absence in no way relieves the student's responsibility for material or hours missed in class and/or clinic. Arrangements must be made with the instructor of

record for any lecture/lab classes missed and/or the Clinical Preceptor for any clinical education missed for "make-up" time.

The student must notify their instructor of an absence **before** the scheduled class time by calling their instructor directly or call the Allied Health Office (209.384.6309) and ask the AH secretary to convey the students' absence to the appropriate instructor(s). The student must notify the College **AND** the Clinical Preceptor and/or Department Manager of an absence one-half hour before the scheduled clinical assignment. Document the name of the person you communicated your absence and the time if the message is not properly conveyed. Following the absence, the student will submit an email to the DMS program director identifying the date(s) of the absence, reason for the absence, and a statement addressing the mechanism by which the clinical hours will be made up. All missed hours must be completed during that rotation; students cannot accrue more than 40 hours of combined didactic and clinical experience in one week. This document will become part of your personal file. Bear in mind that the program director keeps track of your programmatic hours.

Prolonged illness (more than two days) or injury requiring absence from the clinic warrants a doctor's release to return to the clinic. The student is required to complete all clinical hours assigned to that clinical education course. This is necessary because a student's presence is critical for successful performance and application of knowledge, and a requirement for board examination.

After the first week of any lecture/lab course, students who arrive late or leave class early will be regarded as tardy. Students who are late or leave clinic early will deduct the time missed from the day's hourly total. Habitual tardiness will not be tolerated and can be cause for dismissal. Clinical sites view tardiness as poor employment readiness and it will be documented on their clinical professional evaluations.

Failure to attend a laboratory practical examination will result in an automatic zero for that examination. Students are permitted one "redo" practical examination per term. Both scores will be averaged for the final grade.

Students are advised to schedule medical, dental, and other appointments outside clinical and/or classroom hours to avoid a penalty. The program will make every possible allowance for scheduled surgeries.

Students with children are advised to have contingency arrangements made for child-care in case of illness or other unforeseen circumstances. Students are not allowed to bring their children, sick or otherwise, to class, or to the clinical sessions. For clarification: Students may not bring children to class.

C. Excessive Absences or Tardiness

Excessive absences in school or clinic will not be tolerated. Students are required to be punctual for both didactic and clinical training. A student will be issued a Remediation Plan if either the clinical personnel or faculty feel that actions should be taken to address this issue

1. Students who are late reporting to their clinical site will be warned once verbally. The second time they are tardy to the clinical site the student must call and leave a message with the program secretary. The third time the

student is put on probation, and this may lead to program dismissal. Some clinical sites have a zero tolerance for tardiness and absenteeism.

2. Students are expected to be in the classroom before the start of class. Students who are more than ten minutes late for class may be asked to leave. Homework assignments will be considered late after the start of a particular class session and will not be recognized.
3. Quizzes or exams are not lengthened for students who are tardy.

D. Holidays

All students will follow the approved Merced College Calendar concerning legal holidays and spring break for classroom and clinical education. As such, students are not required to attend clinic on legal holidays or breaks recognized by the College. However, all required clinical hours must be completed, and may use these days to make-up sick time.

E. Vacation

As an internship is not part of the DMS course of study, students will not be provided with clinical vacation days. Vacations should be scheduled only during times when classes, including clinical, are not in session. I.E.: Spring or winter breaks. Do not compare the DMS program with the Radiologic Technology, or other Merced College degree programs having internships.

F. Professional Development

With prior College approval by the Program Director or Clinical Coordinator, students may be granted time off from their clinical assignment to attend professionally related seminars or workshops. Attendance shall be officially documented and submitted to the program director upon return to class. These professional development hours will be applied to any missed clinical hours. All assigned clinical hours must be completed prior to the end of the semester.

G. Sick Leave

As this program does not have an internship, students do not accrue clinical sick days. All hours used for sick leave must be made up according to the policy on making up time.

H. Funeral Leave

Students will be granted excused funeral leave when appropriate. Requests should be submitted to the Program Director and Coordinator by phone or email and followed up with an absence form. Excused leave will be provided for spouse, parent, child, grandparent, and siblings. As a rule, two days are allowed. All clinical hours must be made up prior to the end of that term.

I. Jury Duty

Jury duty is a civic obligation, and it is an individual's responsibility to serve when summoned. However, students called to serve should work with officials to defer service until graduation, whenever possible. Absence from class or clinic due to jury duty requires written verification from the court.

- Students should report summons to the program director as soon as possible.
- Program faculty will inform the student of the academic material that needs to be covered and completed. All lab practicals must be successfully completed prior to the end of the semester.

- Clinical time missed must be coordinated with the Program Director and the Clinical Proctor, and made up prior to the end of the semester.

J. Makeup Time

Makeup time may be completed before (with written permission from the Sonography Program Leadership) or following a leave (sick, funeral), with all time being made up during the current semester. Special consideration for clinical hours may be required for situations such as jury duty. If all the clinical hours have not been made up by the end of the semester, an Incomplete Grade will be assigned (refer to the section on Incomplete Grades).

Makeup hours will be completed during non-scheduled times through PRIOR arrangement with the affiliate's Clinical Preceptor and the College's Clinical Coordinator to insure adequate supervision during makeup time.

When making up time, no student may work more than a combined forty-hour work week, to include clinic and class hours.

K. Completion of Clinical Hours

To ensure that all clinical responsibilities are completed in a timely manner, once the Clinical Preceptor is confident that the student has or will fulfill all their clinical hours the Clinical Preceptor must sign-off in the appropriate place in the students' Clinical Competency Handbook. Students are not to leave the clinical affiliation early. If this happens, those hours will not be included in that day's tally, and the hours must be made up prior to the end of that term. One thousand, seven hundred, ten (1710) clinical hours are required to complete the DMS program at Merced College.

Students are responsible for providing their own transportation to attend clinical rotations. Several clinical sites are located 30 – 100 miles from the Merced College campus. Fuel expenses should be considered then planning one's budget. Neither the school, nor the clinical affiliate shall be held responsible for accidents or injury while traveling to or from the clinical affiliation.

IV. Scholarship Criteria & Information

A. Grade Computation

A minimum of a "C" grade must be maintained in each Sonography course. The percentage value of the alphabetical grading in all Sonography courses are as follows:

A	93-100%	Excellent
B	84-92%	Good
C	75-83%	Satisfactory
D*	68-74%	Failing
F*	0-67%	Failing

*Transcripts will report grades of D and F. Continuation in the DMS program will cease when either of these grades are earned.

Each instructor will advise the student how she or he evaluates or weighs the graded components of her/his courses. This will be addressed in the course syllabus.

Laboratory Practical Examination

Each course with a laboratory component will include two or more lab practical Examinations. Laboratory Practical examinations must earn 80% or higher to pass. Students who fail one practical will be eligible to repeat that one scanning examination at the end of the term. As scanning skills are an essential function for Sonography student, students who fail two practical examinations will fail the course. When a repeat competency is necessary the repeat must earn 80% or higher, and both scores will be averaged for the earned grade.

Note: Clinical competency assessments are not laboratory practical examinations

Clinical Competencies

Clinical competencies are earned at the clinical affiliation. Students will earn initial competencies by successfully completing the appropriate grading form. The first is a multipage/5 category skills assessment that requires 80% passage, the second is a condensed assessment having 10 “yes or no” responses. This 10-point assessment requires 100% to pass the competency. The program recommends the 80% thorough assessment. Students are eligible for assessment after scanning at least three examinations at the clinical affiliation. Generally, all competencies are carried forward to the following clinical rotation; however, the new clinical preceptor has the right/obligation to determine the student’s competency at his/her affiliation and may require a second competency. The 10-point evaluation tool is no longer in the forms packet; however, the clinical preceptor may request the 10-point assessment.

Students may attempt a competency at one location no more than three times. On the third (failed) attempt the clinical preceptor will submit the assessment tool to the DMS Clinical Coordinator who will meet with the student to determine an intervention.

STUDENTS WHO ARE DROPPED or WITHDRAW DUE TO UNSAFE CLINICAL PRACTICE WILL NOT BE READMITTED.

Clinical Concentration Competencies

Abdominal-Extended

Liver	Biliary System	Pancreas
Spleen	Urinary Tract & Bladder	Thorax/Lung/Pleural Space
Thyroid	Scrotum	Neonatal Head
Interventional (Thoracentesis, or Paracentesis, or FNA, or Biopsy)	Abdomen Complete (III or IV clinical rotation)	

OB-GYN

OB AFI	OB Cervical Length	OB Maternal Adnexa
OB Placenta & Umbilical Cord	OB 1 st Trimester (anatomy, cardiac, maternal spaces)	OB Fetal Brain 2-3 Trimester (intracranial anatomy, measurements)
OB: Fetal Abdomen 2-3 Trimester (abdominal anatomy, measurements, anterior abd wall with UC)	OB: Fetal Skeleton / Extremities 2-3 Trimester (measurements)	OB: Fetal Heart & Cardiac Activity (position/size/ 4ch view, LVOT, RVOT, 3-vesel, trachea, M-Mode)
OB: Fetal Spine (C-T-L-)	OB: Fetal Face 2-3	OB: Biometrics 2-3

Sacral area)	Trimester	Trimester (all; age/weight)
OB: Optional per clinical site Complete 2-3 Trimester OB (Rotation III or IV)	GYN: Transabdominal Uterus, Adnexa, Cervix	GYN: Transabdominal Ovaries, Fallopian Tubes
GYN: Endovaginal Limited	GYN: Optional per clinical site Complete Transabdominal and Endovaginal (Rotation III or IV)	

Vascular

Aortoiliac duplex with IVC	LEA Duplex	LEV Duplex
Ankle and Brachial Pressures/ABI	LEV Insufficiency	Extracranial Cerebrovascular (carotid/vertebral)

Clinical Case Study Presentations

Students, during the completion of the DMS program, will be responsible for writing clinical case studies. Specifics will be addressed in the course syllabus. In some cases, presentation to the clinical staff will be required, some presentations will be given in the DMS course on campus to the student's peers and professor, and in some events both scenarios will take place.

Students are to schedule oral clinical presentations with their clinical preceptor at least two weeks in advance of the presentation, if applicable. The on-campus schedule will be coordinated by the instructor of record. Grading rubrics will be provided for both types of presentations. Students who miss either presentation will earn a score of zero. These presentations are not eligible for make-up.

Typically, a third option is required. The student prepares for a one-on-one discussion at the clinical site. The student will document a written case study, with one-on-one visual review with the Program Director/Clinical Coordinator, or Clinical Supervisor at the clinical affiliation. Forms are found the in clinical forms document. Two case studies will be presented for each clinical site visit during semesters, and four during the summer term.

C. Scholarship and Promotion

To remain enrolled and advance in the Sonography Program the student must maintain a grade of "C" or higher in all ultrasound courses and maintain an overall G.P.A. of "C" (2.35). It is the student's responsibility to be aware of his or her academic progress throughout each semester.

Each instructor has weekly scheduled office hours for the sole purpose of meeting with a student privately to discuss any issues or concerns. It is the student's responsibility to schedule an appointment to meet with the instructor.

D. Class Drops

Classes dropped in a regular semester within the first 3 weeks will not be shown on the student's permanent record. For classes dropped beginning with the 4th week and prior to the end of the 14th week of a regular semester, a "W" grade will be recorded on the student's permanent record.

Classes dropped after the 14th week of a regular semester will receive a letter grade (not a "W").

In courses other than semester-length, consult the instructor or Guidance Center regarding class drop date deadlines.

As the sequencing of the course material will be eliminated, students who drop a course are not eligible to continue in the program.

E. Incomplete Grades ("I")

~~An incomplete grade may be granted for an unforeseeable emergency or justifiable reason at the end of a term, and only when the student has maintained a satisfactory performance prior to the request for the "I."~~

Conditions for removal of the "I" and a grade to be assigned after one semester in the event the conditions for removal are not completed by the student will be submitted to the Program Director for final approval, following a joint faculty/student petition. The "I" must be satisfactorily completed prior to the conclusion of the next semester/session for continued enrollment in the DMS Program.

If the conditions are completed within the one semester allowed, a final grade will be assigned when the work is evaluated. An "I" may not be assigned as a withdrawal grade.

F. Unsatisfactory Progress - Probation

A conference will be held for failure(s) to transfer classroom knowledge to clinical training; failure(s) to adhere to clinical, college or program policy; or failure(s) to follow generally accepted rules of personal cleanliness, professional ethics and conduct, academic failure, and for failure to demonstrate knowledge, skill, and judgment at the expected level. The issuing instructor will confer with the student and discuss the reasons for, and means of, correcting the cause for the conference.

A remediation plan will be drawn up for discussing and documenting the cause of the DMS Departmental Probation, the terms of the probation and the length of time

identified for improvement and reevaluation. The student will receive a copy and the original will be placed in her/his personal file. The situation will be discussed between the instructor, student and with the DMS Program Director, as necessary. The final decision for student dismissal will be made by the DMS Program Director after consultation with the area Dean.

F. Suspension

A situation may arise that may require immediate and effective discipline, when an extremely serious infraction of rules has occurred. When this situation develops, the student will be suspended from the clinical setting pending a full investigation of the situation. An example of actions that may lead to immediate suspension and possible dismissal may include the following:

Under the influence of drugs or alcohol while on duty	Physical abuse to patient, visitor, or other persons	Breach of confidentiality (HIPAA)
Petty theft	Sexual misconduct	Unsafe clinical practice

Students dismissed for any of the above acts will not be eligible to reapply to the program.

G. Academic Dishonesty

If the instructor has reason to believe a student has committed an act of lying, cheating or plagiarism which can be documented, the student will be counseled, and an Allied Health Advisement form will be completed and permanently placed in the student's personal file.

If the incident involves cheating on an exam or paper, no credit will be given, neither may the assignment be repeated. For more information, please refer to Merced College "Academic Honesty Procedure" located at the Guidance Division, Student Activities Office.

Students who are dismissed from a clinical affiliation due to dishonesty may not be eligible for programmatic continuance.

A repeat act of academic dishonesty may be cause for immediate dismissal from the program. Students dismissed for academic dishonesty will not be eligible to reapply to the program.

H. Conduct

Students should always conduct themselves in a professional and ethical manner. No profanity in patient care areas or in the classroom is tolerated. Insubordination or dishonesty are grounds for immediate dismissal from the program.

Refer to "Appendix H" for additional conduct code violations.

I. Nonacademic Counseling

For nonacademic problems, the student will be referred to the appropriate services on or off campus for assistance.

J. Re-admission

Any student who withdraws or who is dropped from the Ultrasound Program due to academic weakness will NOT be allowed re-admission into the Ultrasound Program.

K. Pinning Ceremony & Receipt of Certificate of Achievement

A Certificate of Achievement will be awarded at the traditional Diagnostic Medical Sonography Certification and Pinning Ceremony to all students who have successfully completed the entire program. Students are encouraged and expected to attend the pinning ceremony. The program director is responsible for the content of the ceremony; however, the planning of the event is the responsibility of each individual class. This includes determining the number of guests each student may invite. Students may submit specific requests regarding speakers, music, food, etc. A staff member will be appointed to assist with the preparations. Participation in the annual commencement ceremonies is restricted to students who have completed all requirements and obligations for programmatic completion. As the Sonography students are not earning a degree, they are not eligible to participate in the campus-wide graduation ceremonies.

L. Job Placement

After graduation, please inform the DMS Program Director of your job status. This information is critical to accurately reflect program statistics. A guarantee of job placement is not applicable, but we are happy to refer graduates and potential employers to each other. Please assist future graduates by informing the DMS staff of openings within your department once you have entered the work force.

M. ARDMS Sanctions

Go to the following link if you have a prior criminal history.

http://www.ardms.org/apply/discipline_ada_appeal_process_information/pre-application_criminal

ARDMS Pre-Application: Criminal

ARDMS rules indicate that ARDMS may act against an applicant, candidate, or Registrant in the case of conviction, plea of guilty or plea of nolo contendere to any crime. If you are presently charged with or been convicted or found guilty of or plead nolo contendere to any crime (felony and/or misdemeanor), other than a speeding or parking violation, you may have questions concerning this rule and may wish to obtain clarification as to how it pertains to your circumstances.

ARDMS conducts a "pre-application review", for a \$125 non-refundable fee, for individuals who wish to determine the impact of a previous criminal matter on their eligibility to apply for ARDMS certification. The pre-application review process is recommended for individuals who have not yet applied for examination and are contemplating employment in the field of sonography and/or enrollment in a sonography program. Individuals who have already completed a program and are ready to apply to the ARDMS for examination should simply respond to the questions on the ARDMS examination application relating to criminal matters and provide the requested documentation regarding such matter(s).

For purposes of the ARDMS application process "crimes" may include, but are not limited to, rape, sexual abuse; violence or threat of violence; driving while intoxicated (e.g., alcohol and drug related driving offenses); the unlawful sale, use or distribution of controlled substances; and use or distribution of fraudulent medical records, prescription blanks or health insurance claims.

Please note that the pre-application review procedure is available only for criminal matters, not other issues of eligibility.

Be advised that the ARDMS data may change without programmatic notice. The DMS Program is not responsible for ARDMS changes.

N. National Examinations

Eligibility to write the national examination (ARDMS) requires completion of all program requirements. Each application is assessed individually by the ARDMS.

Students will be eligible to write the ARDMS SPI exam following successful completion of both Physics courses. Although each student is encouraged to apply for the SPI registry examination during week one of the final fall semester and to sit for the exam ASAP thereafter, this is not a mandatory portion of the DMS program. The ARDMS examinations incur costs, which are the responsibility of the student. The SPI exam must be passed along with at least one organ specific ARDMS examination to hold the title of Registered Diagnostic Medical Sonographer. Completion of the SPI exam will allow you to focus specifically on the abdomen and OB-GYN content at the completion of the program. Many hospitals/clinics will not hire sonographers unless they possess full ARDMS credentials. ARDMS credentials do not equate as a state license to practice Sonography. Some institutions require 2-3 ARDMS credentials for full-time employment.

Graduates who wish to work in New Hampshire, New Mexico, North Dakota, and Oregon are the only states with approved legislation mandating the licensure of sonographers. To work in these states, you must have recognized sonographic credentials to obtain those states' licensure. Montana is currently seeking licensure requirements; more states are expected to adopt this licensing requirement.

Go to www.ardms.org to review the requirements to sit for the board exams.

1. Advanced Item Type Questions

Go to:

www.ardms.org/prepare_for_an_examination/advanceditemtypequestions

Beginning December 2012 some examinations featured new types of questions called Advanced Item Types (AIT). These questions assess a candidate in formats similar to actual scanning practice and provide a better measure of practical skills. By reviewing the additional links at the above website, you will be better prepared to take the ARDMS SPI examination during your final semester on campus.

2. Prerequisites for ARDMS examinations:

http://www.ardms.org/files/downloads/Prerequisite_Chart.pdf

A. SPI

- Successful completion of sonographic physics course requirements with grade of C or better
- Currently enrolled in a course of DMS study
- Transcripts reflecting the course and grade
- Photocopy of a non-expired government issued photo ID with signature; the names must match identically

B. Organ Specific: Apply under prerequisite #2

- Graduate of a program accredited by CAAHEP
- Copy of diploma from the program or an official transcript with the date of conferred degree
- Original letter signed by the program director indicating date of successful completion

- CV is not required if application is submitted and received in the ARDMS office within one year of programmatic completion
 - Photocopy of non-expired government issued photo ID with signature...names must match identically
3. **New ARDMS Testing Center Update:**
- At the test center, you must present two current, valid signature IDs, one of which must be a non-expired government-issued photo ID with your signature; see the accepted list of IDs on the ARDMS website.
 - The name on this application must EXACTLY MATCH the name on both current, valid signature IDs.
 - Jane R. Doe and Jane Rachel Doe DO NOT EXACTLY MATCH.
 - Failure to present two acceptable IDs will prevent your admission to the test center. If this happens, you will be marked absent and you will forfeit the entire examination fee and seat.
 - If the names do not EXACTLY MATCH, update your ARDMS name of record.
 - A candidate is NOT ALLOWED to leave the testing center to obtain their ID's, and the candidate is NOT ALLOWED to have someone bring them their ID's while they wait at the testing center.
 - Again, the DMS Program is not responsible for changes with the ARDMS testing policies, sites, fee structure, or any other event.
 - Due to COVID-19, changes in the methods by which prospective candidates can sit for the API boards have been modified. Please go to www.ardms.org to review proctoring options.
<https://www.ardms.org/important-notice-regarding-covid-19/>

V. Student Rights and Grievances (Administrative Procedure 5530)

A. District Student Rights and Grievances Procedure

When a student feels subjected to unfair action or denied rights as stipulated in published College regulations, policies, or procedures, redress can be sought according to the grievance procedure.

This procedure is referenced in the college catalog, under the College Policies, Regulations and Procedure section. Copies of Merced College's current Student Rights and Grievances Procedure can be found in the classroom (AHC-148) or can be pick-up in the Administration Building - Student Personnel Services Office

B. General Statement Regarding Clinical Setting

Actions which are taken against students in the clinical setting may result in a request from affiliate representatives that a student be removed from the affiliate in accordance with our affiliation agreement with that facility. In such a case, the sonography program faculty (Program Director and/or Clinical Coordinator) request immediate notification; however, the situation may not present with a time delay. Should a student be removed from the clinical experience, the program is not required to find or provide a replacement clinical rotation. Generally, in these situations, the student is no longer eligible to continue in the DMS program.

There may be cases of other disciplinary actions or situations that do not involve student removal, as such the procedure for appeal is as follows:

1. Student presents the action being appealed to the Clinical Coordinator within ten (10) working days of action or situation.
2. The Clinical Coordinator reviews the appeal and contacts the Clinical Instructor of the student's assigned clinical facility for further information, clarification, and/or resolution of the incident. The Clinical Coordinator then provides the student and Program Director a written answer within ten (10) working days of the receipt of the appeal.
3. The student may request that the Clinical Coordinator refer the appeal to the Program Director. The Program Director reviews the appeal and may contact the Clinical Preceptor and/or Department Manager to discuss the manner further. The Program Director then provides the student a written answer within ten (10) working days of the receipt of the appeal.
4. If the student wishes to appeal the Program Director's decision, he or she may request a meeting with the Area Dean of Instruction for the Allied Health Division. The Area Dean of Instruction will provide the student with a written answer within ten (10) working days of the receipt of the appeal. The Area Dean of Instruction's decision is final.

C. General Statement Regarding Laboratory Scanning

An essential component of the sonography program involves hands-on scanning opportunity, in the DMS laboratory, which develops and allows mastery of theory and practicum of clinical scanning skills. Live sonographic scanning systems and simulation devices are provided for the DMS student to prepare for actual "real" patient scanning events in the clinical arena. Hand-eye coordination is developed by means of scanning phantoms, other cohort members/themselves, and when applicable non-student volunteers.

Students are allowed and encouraged to scan each other. Students who are uncomfortable with having another student use them as a simulated patient and perform practice scanning on them should contact the program director to generate scanning alternatives. **Students who desire not to participate as a "patient" will not be penalized, nor will their position be reflected in their course grade.** However, volunteering cohort members reserve the right to "opt out" with non-participants. Students who desire to participate in this learning activity are required to sign the DMS waiver.

VI. Records

A. Student Records

A master file will be started when the student applies for admission and will contain the application, standardized test scores, transcripts and other data required for evaluation for admission.

At the completion of the program all official information (copy of transcripts, records of clinical performance, radiation exposure record and record of program completion, etc.) will remain on file. Permanent transcripts will be maintained by the Office of Admissions. All other information will be destroyed.

If a student withdraws prior to graduation, a summary statement of the student's progress and reason for withdrawal will be placed on file.

Students may inspect their master file anytime under the direct supervision of a faculty member.

All student records are confidential and information from them will only be given to authorized persons. Data such as grades, Registry and State Board Examination scores, health records and performance evaluations may not be revealed without a student's written consent.

Only personnel authorized by the Program Director will have access to student records and this will be used only for student evaluation and progress within the program.

B. Patient Records

Patient records may be used only for providing patient care. They may not be removed from the department. Information acquired from patient records is confidential. For classroom purposes, discarded or copied radiographs, sonograms, CT scans, etc.; any reports must have all patient identification removed.

A student is NEVER to remove any sonographic image from the clinical environment with ANY personal identifying data as this is a breach of HIPAA compliance and subject to legal action. Check with your clinical proctor or department manager for policies. Most facilities can provide certain images for educational purposes by scrambling patient ID on a CD.

VII. Financial Expenditures

Legal residents of the State of California are required to pay nominal fees. In addition, students may expect other miscellaneous fees and expenses during the length of the program. Please review the following link for current fees and tuition amounts.

<https://www.mccd.edu/resources/fees/index.html>

Programmatic fees, Additional estimated Expenses, professional testing (ARDMS) fee information can be found at the following link:

<https://www.mccd.edu/academics/alliedhealth/diag-med/index.html>

Fees are subject to change at any time

Books

The DMS program recognizes that ultrasound textbooks are expensive, as such; the program does its best to minimize this cost. Books are selected, not just for the course in which they are required, but for other programmatic courses and for study during the first years of the student's ultrasound career. The campus bookstore carries all the required textbooks. Students are expected to purchase these books prior to the start of classes and to read all assignments. Whenever possible, students will be provided with ISBN numbers for advance purchase of textbooks.

Drop/Withdrawal Refunds: Refer to the following link:

<https://www.mccd.edu/resources/admissions-records/index.html>

Students withdrawing from courses within the first two weeks of class meetings may apply for a full refund of all fees except International Student Insurance, Audit,

Credit by Exam, ID Card, or other fees not listed on the typical registration form for classes in the credit mode.

Most of the textbooks purchased in the first semester will be utilized throughout the duration of the program. The remaining textbooks will be used as often as possible but will serve you well when preparing for your board examinations.

Students may not be permitted to attend classes and/or clinic until all registration fees are paid in full.

Nonresident students are required by state law to pay nonresident tuition. Consult the Merced College catalog for current fees.

VIII. General Policies

A. Changes in Personal Data

Notify the Allied Health Secretaries, Program Director and the Admission & Records Office if there is a change of your name, address, telephone number, family doctor, or change of person(s) to notify in case of an emergency. You will need to update your American Data Bank account, and My Clinical Exchange, as applicable.

B. CPR Requirement

Students must be CPR certified through the American Heart Association: BLS for Health Care Providers or its equivalent (must include a hands-on component). It is the student's responsibility to maintain current certification. NO on-line CPR courses only or American Red Cross courses are acceptable. Online CPR courses with a lab are acceptable. Do not anticipate, nor request that your clinical affiliation will pay or sponsor your CPR course. Notify the ALH Secretary with a copy of recertification documentation.

Students will NOT be eligible to participate in the clinical experience without an up-to-date CPR card.

C. Employment

Due to the concentrated and intensified nature of the Diagnostic Medical Sonography Program, full-time employment is not recommended. If a student must accept employment while enrolled in the program, this implies that the student will NOT:

1. Function under the job description of a Sonographer, or Ultrasound Technologist, unless previously employed in this area.
2. Use the abbreviation "RDMS" after their name for any purpose; neither refer to himself/herself as a Sonographer unless previously employed as a Sonographer prior to admission to the DMS program and hold valid ARDMS credentials.
3. Accept employment hours which conflict with class/clinical time.
4. Attempt to get any clinical competency signoffs during hours of employment at a hospital or clinic
5. Use their College I.D. badge during hours of employment

The student will avoid practices in which they are substituted for regular staff to perform any sonographic examination procedures. Students will not take the responsibility or place of qualified staff.

The key point is that regardless of what the job position is called, a person that is not working in the capacity as a sonographer or student sonographer may not perform a sonographic examination. On the other hand, an individual can be employed in a hospital/imaging center in positions other than ultrasound technologist/Sonographer, i.e.: patient transporter and as such will bring in the patient and may set them up for the exam.

The Program does not have any jurisdiction over what a student does outside of the program if they are not working outside the scope of what's legal. Students during off hours are not covered under the school's insurances.

D. Health

A student should be in satisfactory physical and mental condition to ensure the safe and effective care of patients. If a student's physical condition or mental condition is less than satisfactory, the Program Director, Clinical Coordinator, or person of authority at the clinical affiliate has the right and responsibility to remove the student from the patient care area. Before returning to the clinical area, the student may be requested to submit a doctor's written release before a student is allowed back into the clinical area.

If the student is subsequently dismissal due to academic weakness or unprofessional behavior, the student will not be allowed readmittance.

Student Health Services students are eligible for Student Health Services coordinated through the Student Health Services Office. Check the Merced College website: <http://www.mccd.edu/resources/health/index.html>

E. Immunizations

As a student in an allied health program, you have an increased risk of contracting Hepatitis A and/or B, which can lead to a profoundly serious illness. Prior to entering the clinical aspect of your training, you will be required to specify in writing your Hepatitis A/B vaccine status. It should be noted that a clinical facility has the right to refuse a student clinical assignment if the student has not been immunized—even if the student signs a waiver of liability.

A Hepatitis B vaccination which can decrease your chances of contracting Hepatitis B is available through the Merced County Health Department for a fee for the three-shot series. Once the three-shot series has been completed, to ensure that antibodies are being produced, a follow-up Hepatitis B surface antigen test is recommended. Check your county's Health Department for their vaccination schedule.

Routine immunizations (MMR, Tdap, Polio, Varicella) must be up to date for your protection as well as the protection of patients. After 10 years, a titer is required to ensure continued immunity.

Tdap is a booster to DTap Vaccine in people 11 - 64 years. Tdap can be normally given as early as 2 years after you received the Td vaccine. Tdap is not the same as DTap.

Current flu shot documentation is due by November 10th of each year or else the student must wear a facemask in clinic until documentation is provided or until the student graduates, whichever comes first. The CDC recommends the flu shot to

pregnant women because the flu is more likely to cause severe illness in pregnant women than in women who are not pregnant. Additionally, it helps protect the unborn from serious illness and complication of the flu too. It is advised to get the flu shot as soon as possible so one can be protected early in the flu season and not take the chance of catching it. Contact the Allied Health Secretary to update your immunization file. Due to the COVID-19 pandemic, these requirements may change without notice. Students are to following the guidelines and requirements as approved by their clinical affiliation location(s) and the requirements/guidelines set forth by the State of California and Merced College.

Students will comply with specific vaccination requirements for each clinical affiliation.

Students who do NOT have current vaccination records will NOT be permitted in the clinical experience.

F. TB Screening & General Updates

Annual TB paper screening is a mandatory condition of enrollment in the program. An annual negative PPD screening is also required, unless contraindicated.

If you cannot have a skin-test or if a previous PPD has been reactive/positive or if you have been vaccinated with BCG*, an initial negative chest x-ray taken within the last six months must be completed prior to the beginning of the program.

If you convert to a reactive/positive reaction on a PPD test, you will be required to supply an initial negative chest x-ray report. If your annual paper TB screening is questionable, you will be required to submit a negative chest x-ray report.

*BCG (*Bacille Calmette-Guerin*) is a vaccination given to persons in countries with a high incidence of TB. It is about 50% effective, may or may not produce skin-test reactivity, and can leave a scar

ALL IMMUNIZATIONS & CPR UPDATES MUST BE COMPLETED BEFORE A STUDENT CAN BEGIN A NEW CLINICAL ASSIGNMENT. Update all health and certification records with the Allied Health Secretary.

Some clinical affiliations require a TB test prior to the onset of that clinical rotation. Typically, most clinical affiliations accept the TB assessments as required for the onset of the sonography program; however, historically, there have been students who were required to obtain updated TB assessments multiple times throughout the clinical rotation process. Every clinical affiliation has the right to require completion of any/all entrance processes. Failure to comply results in lack of a clinical rotation.

G. Infectious Disease Control Policy

Persons involved in reporting and/or evaluating an individual with an infectious disease (e.g., hepatitis, measles, acquired immune deficiency syndrome (AIDS), aids related complex (ARC), rubella, tuberculosis, etc.) are required to respect the individual's right to privacy and must maintain appropriately strict confidentiality regarding the person's identity and the nature of his or her illness. The determination of whether under what conditions an individual who has been diagnosed with an infectious disease will be permitted to participate in campus activities will be made on a case-by-case basis by the Infectious Disease Control Team. For further information consult Board Policy 3981.

All students must wear protective devices, gloves, gowns, masks, etc., when performing examinations on patients with infectious disease. Students will follow institutionally required PPE guidelines relative to COVID-19 and any other health department policy.

Blood and body secretions such as semen, saliva, urine, tears, stool, emesis, sputum, wound drainage, bile, and pleural or peritoneal fluid may contain the HIV or hepatitis virus. All should be considered infectious. Any tissue, biopsy, or patient specimen should also be handled with care, including wearing gloves.

While exposure to a communicable disease in the clinic setting may need immediate attention, TB exposure can be base lined in the Student Health Services Office at the college.

H. Library References

Students are encouraged to utilize the books, professional journals, and pamphlets in the Learning Resource Center (LRC) as well as the Sonography Program's Library (AHC-157).

Check the Library's internet site for medical imaging books and magazines available in the Merced College LRC.

1. Merced College LRC - Students are encouraged to approach the library staff for aid in locating information and materials. Interlibrary loan service is available through the Reference Librarian.
2. Sonography Program's Library - Books, magazines, audiovisual materials, radiographs, and other items, in AHC-157, maybe checked-out for varying lengths of time (see instructor for times). Log all check out requests on your personal student check out card and have an instructor initial and date all checkout and returns. All material checked out during a particular semester must be returned by the last day of lecture class for that semester.

I. Right of Privacy

Be aware of your responsibility as well as the legal implications in respecting the rights of others, especially the right of privacy.

Do not discuss any patient, any member of the health team, or any disease or symptoms in a place where you might be overheard and possibly infringe on someone's right to privacy. You never know who's relative or neighbor is standing next to you, or around the corner.

Privacy is not restricted to patient information, but staffing and institutional information.

Recording in the Classroom

Recording by any electrical device is not allowed in the classroom or lab without instructor permission. Confidentiality must be maintained to protect client information as well as that shared by fellow students or instructors. Should taping or lectures be required due to a verified learning disability, arrangements are to be made in advance with the instructor.

J. Sexual Harassment Policy

Merced College is committed to a safe and productive learning environment. Merced Community College District and Title IX policy prohibit sexual misconduct which includes sexual assault, sexual harassment, domestic or dating violence, and stalking. For more information on community resources, prevention information and reporting options procedure to the MCCD website <http://www.mccd.edu/safety/save/index.html>

K. Transportation

Students are responsible for transportation to and from school and the clinical facilities. Students may park only in designated areas, both at the College and clinical sites. Refer to the Campus Parking Regulations, outlined in the College catalog and Clinical Parking Policies.

All students are responsible for fulfilling clinical assignment transportation challenges. The clinical affiliation is NOT responsible for student transportation costs. Students are encouraged to be proactive in making transportation accommodations. Remember: 100% of clinical hours are required for programmatic completion.

L. Use of Drugs

Students must abide by the following policies and guidelines.

1. Any drugs used should be with physician guidance. Prescription drug use must not alter the student's ability to perform safely in the field.
2. Drugs may not be taken from the clinical areas.
3. Proof of misuse of drugs are grounds for immediate dismissal from the program.
4. Clinical affiliates may request a drug screening prior to admission...even if you just completed one prior to the start of an earlier rotation
5. A clinical facility may request a random drug screening test. Positive drug screening test results can lead to dismissal from the facility and the program.
6. States having a legalized marijuana law: Students who fail a drug screen due to marijuana use will be eliminated from the clinical facilitation and may be expelled from the college program. Hospitals have strict drug use policies that students are required to follow.

M. Visitors

The student will not entertain visitors (personal and/or classmates not assigned to their imaging facility) in the Diagnostic Imaging Department/Sonography anytime without specific permission from the respective personnel.

Students are not allowed to bring guests into the classroom/laboratory without specific permission from the instructor of record. It is against school policy to bring children to class or to leave them unattended on school grounds while the student is in class.

When scanning visitors/volunteers during open skills labs the following policies must be followed:

- No one under the age of 19
- No pregnant volunteers
- No volunteers with known disease processes
- No suggestion or hint of a questionable disease process will be addressed; this is out of your scope of practice

- No endocavitary applications
- No breast, scrotal, or penile sonographic scans will be generated on a human; simulations may be completed with phantoms or with simulation equipment
- Must have a signed waiver on file with the program

N. Positioning Disclaimer

In the course of learning about sonographic scanning and positioning (classes/labs/demonstrations and/or practice) students will be touched by faculty and fellow students and scanned with an external sonographic transducer by faculty or fellow students in areas that are routinely used as scanning landmarks and windows.

O. Background Clearance

A background clearance will be required upon acceptance into the program. This includes a criminal offense, criminal history, sex offender check and social security trace. A background clearance means that your background report is free from negative information. Negative information (charges & disposition & sentencing, including probation) can remain on your report for up to seven years.

Any clinical facility may require a current or updated background clearance. It will be the students' responsibility to pay for any additional screening required by the clinical facility for student placement.

P. Drug Screening

A drug screening will be required upon acceptance into the program. Failure to pass this screening may cancel admission to the program. Any clinical facility may require a current drug screen. This is the financial responsibility of the student.

Any clinical facility may require an updated drug screening clearance. It will be the student's responsibility to comply with the clinical site request, usually prior to the first day of the clinical experience, and any financial responsibility is that of the student.

Q. Graffiti

Absolutely no written notes, reminders, answers, questions, doodling, etc., are permitted on desks, tables, counters/etc. even if you plan on erasing them! Ask for a scratch sheet of paper if you need something to write on. If you see any writings where you are seated, please inform the instructor of record immediately so you will not be held accountable for the graffiti.

R. Earthquake Safety

Federal, State, and local emergency management experts agree the proper personal management application to follow during an earthquake is "Drop, Cover, and Hold On." See the flyer in the appendix portion of this handbook.

S. Social Media:

Respect confidentiality- any number of laws and policies (HIPAA and FERPA) may affect the confidentiality of information. Be aware of and conform to these laws as well as broader institutional policies regarding confidentiality of information and good ethical judgment when position to social media sites. You are legally responsible for what you post. Take care not to infringe on copyright, defame or libel others, or otherwise violate the law when posting.

Respect Privacy- Do not discuss situations involving named or identifiable individuals without their consent. Do not post images, audio, or video of individuals without their consent. Do not “friend” you patients or faculty on social media.

Think before Posting: Nothing posted on the internet is truly private. Anything put online can easily be shared and re-shared, and archiving systems preserve content that has been deleted. As a result, content posted privately now may appear in search results for many years to come. Post only content you are comfortable sharing with the general public, including your future employers.

T. Cell Phones

May not be used during class, lab, or clinical experience unless you have specific instructor permission. Cell phones or other photographic devices may not be used to take pictures of patients, patient records, faculty, or other students, exams. Keep your cell phone in your locker until you are on an official break.

Any student who commits a serious violation of either the social media or cell phone policy will immediately be suspended pending on investigation of the facts. As a result of the investigation, the student may either be placed on probation or dismissed from the program.

IX. Accidents and Incidents

A. Student Clinical Injury

Students are to follow the clinical affiliation’s policy for accidental needle sticks/ percutaneous injury / sharps injuries and related bloodborne pathogen policies. Student insurance coverage is provided for all students for personal accidents that occur on campus or at college related activities including clinical education. Motor vehicle accidents are not a component of this insurance. **All injuries** sustained by students in the clinical areas or on campus must be reported as per the **VIPJPA Injury Reporting Flow Chart**. Failure to report accidents and complete the required college documents within 10 days from the time of the injury may result in rejection of a claim by the student insurance. In this event, the student will be responsible for claim payment.

Basically, the role of the Clinical Preceptor (or whoever is supervising the student) is to call the “Company Nurse” (CN) at **1-877-854-6877** and report the injury before the student seeks treatment. CN will evaluate the student’s injury and give further instruction on how to proceed. When the Clinical Preceptor or supervising technologists call, make sure to identify the student as a Sonography student from Merced College. Make sure the student is present to speak with the CN over the phone to provide their personal information. If it is an emergency, the student should seek treatment first and call CN after treatment.

If possible, the student should report their injury to the Program Director immediately. If the student is unable to report their injury to the Program Director, the Clinical Preceptor or supervising technologist should report the injury to the Program Director.

The Clinical Preceptor’s or supervising technologist’s responsibility ends at this point.

B. Incidents

Incident reports will be completed and placed in the student's file when a safety violation or injury occurs in the clinical area. This will be done even if the health agency does not require that an official report be submitted. The student and Clinical Preceptor must sign the report. A copy of the incident report should be forwarded to the Program Director.

Should you observe any injury to a patient caused by someone else and are asked to sign an accident report, sign it as a "witness."

****Important: If you were not in any way responsible for the injury—sign the report if asked but designate yourself as a WITNESS.**

X. Clinical Assignments

- a. Students successfully progressing in the program will be assigned four clinical rotations.
 - i. Students, based on the application process, will accept assigned clinical rotations without complaint
 - ii. Students will complete at least one Hospital rotation, when possible
 - iii. Students will complete at least 1710 hours of non-paid clinical experience
 - iv. Stipends are not provided by the clinical affiliations as the clinical hours are required for programmatic completion and eligibility to sit for the ARDMS board exams (as per CAAHEP accreditation)
 - v. Students will complete all site entry requirements of the assigned clinical affiliation as per program and clinical site requirements prior to entrance at that location
 - vi. Students will comply with all policies as per each clinical affiliation rotation. These policies include, but are not limited to dress code requirements, completion of orientation, knowledge of fire drill policy, bomb threat policy, and other hospital/clinical codes (ie: code blue, pink, silver, etc.)

B Students are fiscally responsible for travel to and from the clinical affiliation site. Students are to possess a current driver's license, and automobile insurance. Neither the college, nor the clinical affiliation shall be held responsible for events related to travel to, at, or from the clinical affiliation.

C The clinical affiliate has the right to refuse or terminate the student rotation
Students will complete assigned PRE-CLINICAL EXPERIENCE training in the CANVAS Learning System

XI. Student Dress and Grooming for Clinical Education

Student dress and grooming will reflect the policies of the clinical affiliate, the technical requirements of the task, the positive image of the Sonography Program and the Profession as a whole.

A. Procedure

Students are responsible & accountable to observe the dress & grooming standards of their assigned clinical facility
Students are to cover any visible tattoo prior to entering the clinical affiliation premises
Students having long hair will have their hair pulled off their shoulders at the clinical experience
Students are to adjust their dress appropriately prior to an assigned clinical experience, i.e.: surgery, isolation, etc.
Inappropriate dress and/or grooming will be discussed with the student by the Clinical Preceptor and/or College Supervisor (Clinical Coordinator). A verbal warning will be given for the first infraction. Subsequent occurrences will result in exclusion from the clinical experience for the remainder of the day
Fingernails will be short, clean, & free from nail polish and/or artificial attachments
Students who are absent from an assigned clinical experience due to inappropriate dress/grooming are to make up these hours prior to the end of the semester
Failure to follow dress code will result in loss of points or loss of clinical rotation
Students will comply with the most rigorous dress code policy

B. Policy

The following dress and personal grooming standards will be expected of all students in the Sonography Program. Students shall appear professional in attire at all times. Clinical students are expected to serve as role models for the school and the profession.

1. Uniforms/Scrubs

- a. Must be clean, pressed and conservative in design. They should be free of odor and strong fragrances. Each clinical affiliation will identify their color preferences. Scrubs, unless otherwise identified by the clinical affiliation, will be solid, matching colors. Scrubs will not have stripes, prints or floral designs, unless approved in writing by the clinical affiliate. Ask for clarification during your DMS Program orientation to the department.
- b. Business attire, **if an option** at your facility, includes the following:
 - Full length white lab coat without embroidery
 - Women: Respectable length (about of just above the knee) dress/skirt
 - Women: Sleeved top, no spaghetti straps; opaque (cannot see through/or see-through tops); no "T" shirts

- Women: Dress slacks; ankle length; no jeans, or denim; no shorts, stirrup pants, no fleece, nor spandex
 - Women's hose: Transparent skin-tone colors, no prints, no fishnets
 - Men: Dress shirt with tie, "T" shirts, if worn, will be under the dress shirt
 - Men: Dress pants (no jeans, no denim, no western-styled, no fleece, no shorts)
 - Shoes: Appropriate dress shoes; quiet soles, heels 2-inches or less
- c. Scrubs used in the Operating Room (OR) are only to be worn while working on OR cases in the surgical suite and are not to be removed from the facility unless authorization is received from the supervisor. If you must step out of the OR suite, you must either change from your OR scrubs or wear an approved surgical gown over the OR scrubs. Removal of any hospital property from the premises is considered theft.
- c. Hospital scrubs/lab coats are not to be removed from the clinical setting without prior approval from the supervising technologist.
- d. Clothing with stenciled names of another clinical facility shall not be worn during clinical assignments.
- e. Shoes must be clean and/or polished. Shoes generally should be white leather. Shoes should be comfortable and appropriate for use in a clinical facility. Shoes must be closed-toed, closed-heeled. Shoes should not have excessive heels, i.e., dress shoes/stilettos, or boots. Heels should be 2-inches or less. Sandals are not to be worn. Shoes that make noise are not acceptable.
- g. A name badge must be worn and must state the student's first name and last initial. The badge must identify the wearer as a student in the Diagnostic Medical Sonography Program. The student is responsible for purchasing the standard college I.D. badge. The student will wear the clinical affiliate's required identification. Many clinical affiliates require the student to obtain a Student ID Badge from Merced College. Prior to attending your first clinical experience it is your responsibility to obtain this ID badge from the Lesher Building.
- h. Dosimetry badges, **IF required**, must be worn at all time while in the clinical area. If a lead apron is being used, the dosimetry badge must be worn at collar level outside the lead apron. Most Sonography departments do not require dosimetry badges. Dosimetry badges will not be a component of the Sonography Program.

2. Grooming

- Students must maintain high personal hygiene standards. Strong fragrances and/or odors (body or smoke) cannot be tolerated. Students are to refrain from using cologne, perfume, aftershave, and fragranced body wash always in the

clinical arena. Some of the DMS affiliates have employees who are highly allergic to these fragrances. Most ill patients cannot tolerate heavy smells or fragrances.

- Hair must be clean, neatly groomed and controlled.
- Hair, moustaches, beards, and sideburns must comply with the regulations of the clinical affiliate and be neatly trimmed. Clean shaven is the accepted practice.
- If hair is longer than shoulder length, it must be clasped back at the nape or always worn on top of the head during clinical training.
- As a condition of continued enrollment in the Diagnostic Medical Sonography Program, fingernails must be kept moderately short and clean. Artificial nail enhancements are not to be worn. Anything applied to natural nails other than clear polish is an enhancement. This includes, but is not limited to artificial nails, tips, wraps, appliqués, acrylics, gels and any additional items applied to the nail surface. Chipped nails should be filed.
- Makeup should be conservative.
- No chewing gum in the ultrasound department or imaging areas.
 - Gum chewing will be limited to recognized eating areas.
- No food or beverages are permitted in the patient scanning areas
- Smoking/tobacco products is/are not permitted in class and is only permitted in designated areas on the Merced College campus. Smoking is prohibited in all medical facilities; use the designated outside areas at the clinical facility and follow the distance requirements from any opening into the building.
 - Compliance with all smoking rules is expected. Some clinical facilities prohibit smoking 100% of the time while at work.
 - Failure to comply in clinical sites may result in being dismissed from the site.
 - Students also need to be mindful of the odors associated with smoking, and the impact this may have on patients. Some patients will refuse to permit students to scan them when the student smells of tobacco products

3. Jewelry

- Rings may be worn but students may be required to remove them in the specialty areas or certain procedures. Rings with stones are a risk to patients and may tear the required scanning glove.
- "Dangling" or hoop earrings are not being permitted in the clinical setting. Earrings are limited to a single post/small stud per ear. Earrings shall not be larger than a dime in diameter.
- To prevent patient injury, it is advised that jewelry not be worn on the external surface of the uniform.

4. Body Art

- Visible forms of body piercing, including but not limited to nose studs or screws, chin or cheek labret, barbells, ear grommets and tongue door knocker, etc., are not permitted in any size. In general, modifications that alter the original integrity of your body would be open for review (i.e., loops as a results of grommet holes, neck stretching, etc.).
 - If you have a tattoo, it must be properly covered while on duty. Students are not to use hospital supplies to cover tattoos.
5. Miscellaneous
- Merced College and Clinical Affiliates are not responsible for loss of valuables.
 - Points will be deducted from your clinical evaluation grade for not meeting the dress code and grooming guidelines.

XII. Student Orientation to Clinical Facility

A. Policy

Students must be oriented to all new clinical affiliates. It is the responsibility of the Clinical Preceptor to provide this orientation either personally or by delegation with other staff members.

DMS Program Orientation forms, for each rotation, are in the clinical forms packet on CANVAS and/or Trajecsys. Your signature on this form indicates you have reviewed, completed, and understood each statement. **Return to the program via CANVAS as per the course syllabus.** All clinically relevant forms will be placed in the Clinical Competency Handbook binder.

XIII. Clinical Experience

A. Duties of a Student Sonographer

While assigned to clinical training the sonography student will be expected to participate not only in sonographic imaging exams and procedures but also in image filing, image processing, stocking of room supplies, cleaning the ultrasound systems, patient transport and other office procedures and other sonographer work tasks if their clinical education is not being compromised. Sonography students, who are also licensed radiographers, will NOT perform any radiographic examination during their sonography clinical hours.

B. Clinical Placement

The Clinical Coordinator is responsible for arranging the diagnostic clinical education rotations. Student placement is subject to clinical approval. Clinical experience can not begin if the student has deficient vaccinations, CPR, background checks, and/or other clinically specific requirements.

Vacations are to be scheduled only during times when classes, to include clinic, are not in session.

C. Scheduling

- Clinical Scheduling - Monthly clinical schedules will be completed by either the Clinical Preceptor and/or Department Manager/Chief

Technologist of respective assigned hospital. Individual copies of each student's schedule are to be posted in the clinic facility for review and signature by the College's Clinical Supervisors to document valid and appropriate clinical schedules.

- It is the student's responsibility to submit to the College past signed copies of their clinical schedules. Submitted past schedules are to be filed alphabetically in the Clinic Schedule Notebook located in the classroom. The student's schedule file must be up-to-date and complete by the given dates.
 - It is the student's responsibility to check updated posted schedules to see if there are any errors/omissions/changes/etc. that need to be brought to the C.P.'s attention. Do not wait until the last moment to notify the C.P. of an error or change. If your C.P. has not heard from you within five (5) scheduled working days, then the posted schedule will take precedence and you will be held responsible for adhering to it.
 - Routine assignment hours are from 0600 - 2100 hours. Anything other than that is considered as nontraditional, (i.e., "off-hour"). Students may be scheduled during weekend hours.
 - Weekend assignments should reflect no more than **TWO** weekends per month to ensure assignments are educationally valid and not abusive of students. It is acceptable for a clinical site to schedule a student for weekly Saturday or Sunday rotations.
 - Students are not required to attend clinic on legal holidays recognized by the College.
 - **Students will not work graveyard (third) shifts or on-call.** Clinic scheduling will not include "double-back" shifts either by design or trading of clinical days. There should be a minimum of twelve (12) hours between scheduled shifts.
 - Supervision remains constant no matter what hour or day scheduled. Direct supervision is required prior to documentation of student competency, with transition into indirect supervision following competency documentation of competency. This is true for all areas using sonography: operating room, delivery room, mobile examinations, and the emergency department.
 - Students who are at a facility with more than one sonography student, shall work with a sonographer solely on a one-to-one relationship.
 - Class - Students will attend class at the College as per the catalog schedule. When available, students are encouraged to practice in faculty observed open scanning sessions. During clinical rotation terms, didactic course work is typically scheduled on Wednesdays.

D. Clinical Hours

- Clinical hours are required for each semester beginning with the second semester. These are cumulative hours and if a student does not complete these hours during the allotted time she or he may be put on probation with the possibility of dismissal from the Program. Individual consideration will be given to the student with a valid excuse after consultation with the Clinical Coordinator and Program Director.

- Students will complete 1710 clinical hours. On campus laboratory hours are not counted as clinical hours. Clinical hours must be completed in a legally operated place of business with emphasis on patient care, i.e.: hospital, clinic, imaging center with the leadership of a Sonologist.
- Students are required to keep a monthly record of clinical hours they have accrued. This monthly record is validated (signed) by the Clinical Preceptor and College staff. Once Trajecsys is fully implemented the time will be entered in there.

E. Clinical Exams

Students are required to keep records of sonographic examinations they have observed, assisted, and/ or performed. All repeat examinations are to be completed under direct supervision and are to be logged as such in the Daily Clinical Exam form. These records are to be compiled daily, utilizing the Daily Record of Examinations Form, verified by the Clinical Preceptor or their designee and submitted to the instructor of record.

1. Preparation

- Follow guidelines as addressed in the facility's policy and procedure manual for each examination ordered at your clinical site
- Be able to share these with your patients
- When asking a patient about their examination preparation use open-ended questions, such as "When did you last eat?" "What did you have for breakfast this morning?" Avoid closed-ended questions, such as: "Is your bladder full?" "Did you drink all of the required water?"

2. HIPAA: Health Insurance Portability and Accountability Act

- Always protect each patient's privacy
- Identifiable data includes name, address, birth date, or anything that can be used to identify said person.
- Resources: www.cms.hhs.gov/hipaa/
www.hhs.gov/ocr/hipaa/
www.hipaadvisory.com

3. Equipment

- Review and follow documented policies and procedures for safe, effective, and optimal performance
- Review and follow department's policy for QA/QC and maintenance; calibration based on manufacturer's specifications
- Thoroughly clean transducer after every patient
- Follow departmental/manufacturer's specifications regarding sterilization of cavitary probes, and 3-D/4-D probes
- Follow departmental policy regarding workplace cleanliness
- Apply proper ergonomic techniques when setting up the workstation and performing the examination.

4. Instrumentation

- Follow ALARA (As Low As Reasonably Achievable) guidelines throughout the sonographic examination
- Transmit power: lowest setting to provide adequate penetration for required depth
- Depth set at minimum, but includes region of interest
- Gain: High as possible without background noise

- Dynamic range: set to provide good tissue contrast
- Focal zones: set to optimize resolution throughout image; set using appropriate TI/MI guidelines
- Doppler: Velocity scale and baseline set without exceeding maximum velocity
- Sample Doppler Volume Size: set to provide best signal-to-noise ratio
- Doppler Filters: set as low as possible to display low velocities without wall noise

F. Student Evaluation of Clinical Experience

At the end of each clinical course the student will complete a program-approved evaluation of their respective clinical facility. This is an opportunity for the student to provide an evaluation of her/his clinical experience. Through candid evaluations, the faculty can identify the strengths and weaknesses of a particular clinical affiliate and utilize this information for continued program review. Another area where this information is useful is in matching student's clinical weaknesses with affiliates that rate high in providing clinical experiences that address a student's weaknesses.

G. Breaks & Lunch Periods

Generally, there will be morning, lunch and afternoon breaks. Observe the departmental policy regarding breaks, and do not take excess advantage of the coffee room/lounge. Lunch breaks are 30 minutes regardless of the Staff/Departmental policy and are included in the total hours recorded per day. For clarification: Students completing an 8-hour shift will have the 30-minute lunch included in those 8 hours. If the sonographers are scheduled for a one-hour lunch, the student will be required to complete 8.5 hours if they take the 60 minute lunch.

H. Personal Phone Calls

No personal phone calls should be received while in the clinical area except emergencies. Departmental telephones may not be used for personal calls.

- Leave cell phones in your locker and only check them during break or lunch. If there is an extenuating circumstance, advise you C.I. or supervising technologist at the beginning of your shift.
- While on campus, cellular phones and pagers are to be turned off during class.
- Do not use the camera function on your cell phone to take pictures of any sonographic image or hospital document. This is a HIPAA violation.

Don't compare SONO hours with Rad Tech Program hours. SONO has ROTATIONS and not an Internship

I. Early Release

No early releases are granted. Students must attend all classes, including clinical education classes until the completion of their final semester to be eligible for graduation. All hours will be counted.

J. Orientation to a New Facility

Students are not required to make-up time for mandatory hospital orientation to a new facility for a current or upcoming rotation. Scheduled orientations are considered a requirement of the clinical affiliation and hours are counted as clinical experience.

K. Removal of Cervical Collars

In trauma situations, have the E.D. staff remove the cervical collar once patient's x-rays have been cleared. Although, this is generally not an issue in the sonography department, since most ultrasound labs are components of the Radiology or Medical Imaging Department, this is included "just in case."

L. Cutting Away of Patient Clothing and/or Jewelry

- In trauma situations, request permission from supervising staff before cutting away pieces of clothing or jewelry. Unless your services are mandated, allow a licensed professional to participate in emergency trauma situations.
- Should jewelry be a hindrance to the sonographic examination, provide the patient with a baggie or other container for them to store their items. Ideally, you will notice that a necklace, for example, should be removed before scanning the patient's neck. Ask them to remove it while they are undressing for the exam and store it in their purse or pocket...or give to a person who has accompanied them to the facility.

M. Student Availability during Site Visitations

When a Clinical Supervisor/Clinical Coordinator or other program official is scheduled to make a site visitation, please ensure you are available to be observed. This is especially true when it comes to OR or extended mobile cases. Don't assume just because one Clinical Supervisor (CS) has seen you recently, (even if it was yesterday), you don't have to be available. Work with your Clinical Preceptor (CP) so that when a CS/CC is scheduled to visit, you're there. This is a graded activity.

This may mean coordinating with your CP to come in earlier or later or switch days so you are present when the CS makes his/her site visitation. This is especially true if you have not been visited for a mid-term evaluation. If you have not been evaluated due to an absence on your part, it will be particularly important that you plan to ensure you are available for the next CS visitation. Keep in mind that a one-to-one student-technologist ratio must be always maintained.

Unless unforeseen circumstances are generated, the CC/program visitor will always schedule the meeting in advance with you and your preceptor.

N. Hand washing

Students are required to wash or sanitized hands prior to donning gloves and to rewash hands after removing gloves. Students are required to wear gloves with every patient. You should wash your hands prior to starting any exam and follow up by washing your hands at the conclusion. Be sure to dispose of the gloves in the appropriate receptacle. Just like the on-campus lab, you never dispose of gloves in the laundry.

O. Personal Protective Equipment-PPE (gloves, face masks, booties, gowns, hair covers, nets, etc.)

All PPEs should be removed and disposed of properly once an exam is completed and before the student moves out of the patient's room to prevent the spread of infection.

Students will follow guidelines as per the clinical affiliation.

P. Miscellaneous

- When not busy: do NOT loiter. Use idle time for studying and pathology case review. Ask questions about specific examinations or procedures you are unsure or curious about. Restock supplies and clean the room.
- It is the student's responsibility to seek out sonographic learning experiences. Students should have equitable and open communication with their clinical instructor/coordinator/preceptor.
- Students who appear to lack interest in the clinical learning environment may be asked to leave by the sonographer or may fail to be included in more desirable forms of learning.
- Seek first to understand by sharing your clinical needs with your preceptor.
- Be prepared to answer to your program director: "What did you learn at clinic, yesterday?"

XIV. Clinical Radiation Protection Rules

Although the Sonography Department generally is exempt from radiation tracking, as students working in a medical imaging department you may be required to participate in procedures that use both ionizing and non-ionizing energies. As such the procedure is as follows:

Procedure

The following safety rules have been established for the protection of the patient, other personnel, and you from ionizing radiation during your hospital observation and clinical education. These rules are a combination of state and federal regulations and/or laws and additional guidelines condensed from man's 110+ years experience with ionizing radiation. These rules are mandatory, and any exception must be reported to the Department Manager and Program Director as soon as possible.

Policy

1. Regarding dosimetry badges:
 - A dosimetry badge, properly placed, must be always worn during both the observation and clinical education phases.
 - When protective aprons are used, the dosimetry badge must be placed above the apron, at collar level.
 - Dosimetry badges must be turned into the Allied Health Secretary by the 10th of each quarter.
 - Clinical Preceptor or Department Manager will notify you if you are to wear one.
2. When an X-ray exposure is about to be made, you MUST:
 - Leave the room, or
 - Get behind the lead shield, or
 - Be otherwise suitably protected for surgery, portable and fluoroscopy

3. You must not hold or support a patient during X-ray exposure, nor hold or support a cassette during exposure.
4. You may not observe the patient during exposure from an adjacent room or hall unless through a lead-glass protective window. You must NOT "peak" around a door nor through a crack between door and wall.
5. When sitting to rest in the hall do not sit in direct line with the tube or radiographic table even if it is not being used.
6. During an exposure or procedure do not place yourself in direct line with the central ray, even though you are wearing a lead apron. A lead apron only protects you from the front of your body.
7. Under no circumstances will you permit yourself or any other human being to serve as "patients" for test X-ray exposures or radiographic experimentation.
8. If, during fluoroscopic procedures, you remain in the radiographic room the following will prevail:
 - A lead apron must be worn/or you must remain behind an adequate lead protective screen and not in visible line with either tube or patient.
 - The dosimetry badge must be worn above lead apron at collar level.
9. Do not make radiographic exposures on patients. You are not permitted by law to activate the radiographic controls.
 - <http://www.epa.gov/rodweb00/laws/regs.html>
 - <http://www.cdph.ca.gov/programs/Pages/RadiologicHealthBranch>
 - <http://www.nrc.gov/reading-rm/doc-collections/cfr/part020/>

XV. Pregnancy Policy and Procedures

A. Policy Regarding Declared Pregnant Students

It is your responsibility to notify the program director or clinical coordinator of the pregnancy.

- The student must receive written permission from her physician to continue in the program
 - Should the student be completing a clinical rotation, the data must be shared with the clinical affiliation as well.
- Pregnant students need to be aware that there is a high probability that completion of the program will be delayed/extended/terminated as required courses are offered sequentially and only once in five term/semester program
- Students requiring a leave of absence for pregnancy/pregnancy related problems, deliver, or other medical conditions will be allowed to reenter the program when they are physically able, and if academically eligible. Reinstatement will be with the next cohort unless a leave of absence coincides with the multiweek winter break.
- Pregnant students will not personally scan their unborn embryo/fetus neither volunteer to be scanned during their clinical experience (either on or off campus)
- Any rotations in a radiographic application will not be scheduled during the term of pregnancy
- The pregnant student needs to be aware that the biggest risk to the unborn occurs during the first trimester. As all clinical affiliation rotations occur within a Diagnostic Imaging Department (Radiology),

students need to be tested for pregnancy as soon as she feels there is a reason to do so. This will allow for appropriate adjustments to be made, if possible.

- **Pregnancies will NOT be scanned on the Merced College campus.** Pregnant students, who learn of their pregnancy in the DMS laboratory, will cease that scanning session immediately and notify their Instructor and the Program Director. Students who are scanning a volunteer in the open skills lab who find an incidental pregnancy will cease that scanning session.
- The student will notify her clinical preceptor (if scheduled in the clinical experience) of a declared pregnancy. The clinical affiliation will enact their policy for pregnant students. The program clinical coordinator will communicate with the clinical affiliate for additional guidance.

XVI. Student Supervision

A. Policy on Supervision of Sonography Students

1. Students must have adequate and proper supervision during all clinical assignments, which would include direct supervision until a student is signed off for competency on the respective sonographic exam &/or procedure.
Direct Supervision - The following conditions constitute direct supervision:
 - A qualified sonographer reviews the request for the sonographic examination (a) to determine the capability of the student to perform the examination with reasonable success; or (b) to determine if the condition of the patient contraindicates performance of the examination by the student.
 - If either of the above determinations is questionable or negative, a qualified sonographer should be present in the ultrasound room.
 - The qualified sonographer reviews and approves the sonographic images prior to the dismissal of the patient. Medical judgment may supersede this provision.
2. Once a student has demonstrated competency in a particular sonographic exam, or procedure, the student may be indirectly supervised by a qualified sonographer.
Indirect Supervision is defined as supervision provided by a qualified sonographer immediately available to assist students regardless of the level of student achievement. Immediately available is interpreted as the presence of a qualified sonographer adjacent to the room or location where an ultrasound examination or procedure is being performed.
3. The student will be under direct supervision when making a repeat sonographic examination during 100% of clinical training.
4. The student will be under direct supervision when working in the Operating Room, Emergency Room (ED), and labor and delivery during 100% of clinical training unless (1) the student has been signed-off on that particular examination or procedure **AND** (2) prior approval has been granted by the Department's Imaging Manager.

XVII. Personnel Descriptions

Faculty

1. **Medical Advisor - Stephen K. Hansen, M.D.**
The Medical Advisor is a board-certified physician who is responsible for the general supervision of staff who work in an imaging department. Our Medical Advisor, Dr. Hansen, is a Radiologist who is certified by the American Board of Radiology. He who works with the Program Director in developing the goals and objectives of the Program and in implementing the standards of achievement. DMS Programs may have one or more medical advisors.
2. **Program Director/Instructor/Clinical Supervisor - Cheryl Zelinsky**
Under general direction is responsible for the total coordination of the program with direct responsibility to the Division Chairperson working closely with the Medical Advisor and the Advisory Board. Directs formal classroom instruction and demonstration and is responsible for coordination of class schedules.
3. **Clinical Coordinator/Instructor/Vascular Concentration Coordinator -Laurie Campoy**
Under the direct supervision of the Radiography Program Director is responsible for formal classroom instruction and demonstration and is responsible for coordination of student clinical assignment. The CC/CS is employed by Merced College in a full or part-time capacity. The CC/CS maintains a schedule of regular visits to the clinical education centers to observe, evaluate and assure clinical education effectiveness, and record student clinical performance.
4. **Adjunct/ Clinical Supervisor/Part-time Instructor -Glenda Brinsfield-Small**
Direct formal classroom instruction and demonstration; observes, evaluates, and records student performance in the clinical areas.
5. **Instructor:** Direct formal classroom instruction and demonstration.

b. Clinical Personnel

- **Radiologist/Sonologist:** Unique to each facility
 - board-certified Physician responsible for the interpretation of the sonographic examination. The Radiologists/Sonologist is at the upper level of the chain of command. For all intents and purposes, the R/S is your boss.
- **Imaging/Department Manager/Chief Technologist:**
 - Personnel employed by a hospital to oversee the entire operation of a Diagnostic Medical Imaging (Radiology) Department.
- **Medical Imaging Director**
 - The Imaging Director/Manager may be a Radiographer, Sonographer, or another credentialed member of the

Allied Health Field. This position is responsible for the daily operations of the Imaging Department. Your clinical preceptor will report to the supervisory staff who reports to the Imaging Director.

- **Clinical Preceptor (C.P.)**
 - Registered Diagnostic Medical Sonographer appointed in each clinical affiliate department who is directly responsible for the students assigned to their department; makes assignments of students so the student may benefit from as many new experiences as possible; completes evaluation reports on each sonography student and communicates directly to the Program Director regarding problems or suggestions.
- **Staff Technologist/Sonographer**
 - Ultrasound Technologist or Sonographer employed by the clinical affiliate department. The makeup of the sonography staff is generally composed of sonographers with variable years of experience, areas of expertise, registry status, and areas of interest. The sonography staff will act as a cohesive unit to perform ultrasound procedures of exceptional quality and will promote ethical and culturally competent care of their patient.
- **Imaging Department Staff**
 - The make-up of the imaging department includes: Radiographers, CT Technologists, MRI Technologists, NMT Technologists, Registered Nurses, clerical, and transportation staff. No matter the position, all members are treated equally and with respect.
- **Students**
 - Persons actively enrolled in the Diagnostic Medical Sonography program who are eligible to participate in the clinical sonographic experience. Duration begins at the onset of term two and concludes after the 5th semester hours, competencies, and other program requirements have been successfully completed.

XVIII. Professionalism, Professional Job Description

B. Description of the Profession

The Diagnostic Medical Sonographer/Vascular Technologist utilizes high frequency sound waves and other diagnostic techniques for medical diagnosis. The professional level of this health care service requires highly skilled and competent individuals who function as integral members of the health care team. The Diagnostic Medical Sonographer/Vascular Technologist must be able to produce and evaluate ultrasound images and related data that are used by physicians to render a medical diagnosis. They must acquire and maintain specialized technical skills and medical knowledge to render quality patient care. Sonographers are highly trained individuals.

C. Sonographic Scope of Practice:

A summary is provided here, to fully appreciate this content please go to the following link:

<https://www.sdms.org/about/who-we-are/scope-of-practice>

Overview

The Diagnostic Medical Sonographer/Vascular Technologist is a highly skilled individual qualified by academic and clinical experience to provide diagnostic patient services using ultrasound and related diagnostic techniques. The Diagnostic Medical Sonographer/Vascular Technologist is responsible for producing the best diagnostic information possible with the available resources. They acquire and evaluate data, while exercising discretion and judgment in performance of the clinical examination. The Diagnostic Medical Sonographer/Vascular Technologist is able to:

Obtain, review, and integrate pertinent

- Patient history, physical examination, and supporting clinical data to facilitate optimum diagnostic results.

Perform diagnostic procedures by

- Producing, accessing, and evaluating ultrasound images and related data that are used by physicians to render a medical diagnosis.

Provide interpreting physicians with an

- Oral or written summary of technical findings.

Provide patient and public education and

- Promote principles of good health.

Definition of the Profession

The Diagnostic Ultrasound Profession is a multi-specialty field comprised of Diagnostic Medical Sonography (with subspecialties in abdominal, neurologic, obstetrical/gynecologic, and ophthalmic ultrasound), Diagnostic Cardiac Sonography (with subspecialties in adult and pediatric echocardiography), Vascular Technology, and other emerging fields. These diverse specialties are distinguished by their use of diagnostic medical ultrasound as a primary technology in their daily work. Certification¹ is considered the standard of practice in ultrasound. Individuals who are not yet certified should reference the Scope as a professional model and strive to become certified.

The Diagnostic Ultrasound Professional is an individual qualified by professional credentialing² and academic and clinical experience to provide diagnostic patient care services using ultrasound and related diagnostic procedures. The scope of practice of the Diagnostic Ultrasound Professional includes those procedures, acts and processes permitted by law, for which the individual has received education and clinical experience, and in which he/she has demonstrated competency.

Diagnostic Ultrasound Professionals:

- Perform patient assessments
- Acquire and analyze data obtained using ultrasound and related diagnostic technologies
- Provide a summary of findings to the physician to aid in patient diagnosis and management
- Use independent judgment and systematic problem-solving methods to produce high quality diagnostic information and optimize patient care.

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Code of Ethics for the Profession of Diagnostic Medical Sonography

<https://www.sdms.org/about/who-we-are/code-of-ethics>

As the content on the SDMS website is considered "living documents" the reader is being referred to the above links to ensure the most up-to-date information. Plus, it takes up a lot of pages in this handbook.

E. Diagnostic Ultrasound Clinical Practice Standards

Standards are designed to reflect behavior and performance levels expected in clinical practice for the Diagnostic Ultrasound Professional. These Clinical Practice Standards set forth the standards (principles) that are common to all the specialties within the larger category of the diagnostic ultrasound profession. Individual specialties or subspecialties may adopt standards that extend or refine these general Standards and that better reflect the day-to-day practice of these specialties. Certification is considered the standard of practice in ultrasound. Individuals not yet certified may reference these Clinical Practice Standards to optimize patient care. Please refer to the following link and PowerPoint Presentation from the SDMS. Below this link you will find a very basic summary.

<https://www.sdms.org/docs/default-source/Resources/scope-of-practice-and-clinical-standards.pdf?sfvrsn=14>

STANDARD – Patient Information Assessment & Evaluation:

- 1.1 Information regarding the patient's past and present health status is essential in providing appropriate diagnostic ultrasound information. Therefore, pertinent data regarding the patient's medical history, including familial history as it relates to the diagnostic ultrasound procedure, should be collected whenever possible and evaluated to determine its relevance to the ultrasound examination.

Review above document for steps required by the sonography professional: parts 1-4

STANDARD – Patient Education and Communication:

- 1.2 Effective communication and education are necessary to establish a positive relationship with the patient and/or the patient's representative, and to elicit patient cooperation and understanding of expectations *Review above document for steps required by the sonography professional: parts 1-3*

STANDARD – Analysis & Determination of Procedure Plan for Conducting the Examination

- 1.3 The most appropriate procedure plan¹ seeks to optimize patient safety and comfort, diagnostic ultrasound quality and efficient use of resources, while achieving the diagnostic objective of the examination. *Review the above document for steps required by the sonography professional for subsections 1-8*

STANDARD – Implementation of the Procedure Plan

- 1.4 Quality patient care is provided through the safe and accurate implementation of a deliberate procedure plan. *Review the above document for steps required by the sonography professional for subsections 1-14*

STANDARD – Evaluation of the Diagnostic Examination Results

- 1.5 Careful evaluation of examination results⁷ in the context of the procedure plan

is important to determine whether the procedure plan goals have been met.
*Review above document for steps required by the sonography professional:
parts 1-8*

STANDARD - Documentation

- 1.6 Clear and precise documentation is necessary for continuity of care, accuracy of care and quality assurance.
*Review above document for steps required by the sonography professional:
parts 1-5*

STANDARD - Implementation of Quality Assurance

- 2.1 Implementation of a quality assurance action plan is imperative for quality diagnostic procedures and patient care.
*Review above document for steps required by the sonography professional:
parts 1-2*

STANDARD - Assessment of Equipment, Procedures and the Work Environment

- 2.2 The planning and provision of safe and effective medical service relies on the collection of pertinent information about equipment, procedures, and the work environment.
*Review above for steps required by the sonography professional for
subsections 1-3*

STANDARD - Analysis and Determination of a Quality Assurance Plan

- 2.3 The Diagnostic Ultrasound Professional uses quality assurance and continuous quality improvement methods to assess and evaluate all aspects of ultrasound practice.
*Review above document for steps required by the sonography professional:
parts 1-3*

STANDARD - Outcomes Measurement

- 2.4 Outcomes assessment¹¹ is an integral part of the ongoing quality assurance plan to enhance diagnostic services.
*Review above document for steps required by the sonography professional:
parts 1-5*

STANDARD - Documentation

- 2.5 Documentation provides evidence of quality assurance activities designed to enhance the safety of patients, the public, and health care providers, during diagnostic ultrasound procedures.
*Review above document for steps required by the sonography professional:
parts 1-3*

STANDARD - Quality of Care

- 3.1 All patients expect and deserve excellent care during the ultrasound examination.
*Review above document for steps required by the sonography professional:
parts 1-7*

STANDARD - Self-Assessment

- 3.2** Self-assessment is an essential component in professional growth and development. Self-assessment involves evaluation of personal performance, knowledge and skills.
Review above document for steps required by the sonography professional: parts 1-3

STANDARD - Education

- 3.3** Advancements in medical science and technology occur very rapidly, requiring an on-going commitment to professional education.
Review above document for steps required by the sonography professional: parts 1-2

STANDARD - Collaboration

- 3.4** Quality patient care is provided when all members of the health care team communicate and collaborate efficiently.
Review above document for steps required by the sonography professional: parts 1-3

STANDARD - Ethics

- 3.5** All decisions made and actions taken on behalf of the patient adhere to the *Code of Ethics*¹⁷ upon which the accepted professional standards are based.
Review above document for steps required by the sonography professional: parts 1-7

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D. MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

Society of Diagnostic Medical Sonography
2745 Dallas Pkwy, Ste. 350
Plano, TX 75093-8730

Society membership (SDMS) is strongly encouraged. Attendance at local meetings, when sponsored by sonographic organizations, is strongly encouraged. Faculty may require attendance if the subject matter is part of a course being taught. Students with faculty permission may also attend other meetings in the field of ultrasound.

<https://www.sdms.org/membership>

DMS Students are encouraged to hold student membership in the national ultrasound society. Membership is not required as there is an annual membership fee. Students who are interested should complete the application and the proof of program attendance provided by the DMS program director during the first semester of the program.

Other professional membership options:

AIUM: American Institute of Ultrasound in Medicine

ASRT: American Society for Radiologic Technology

CSRT: California Society for Radiologic Technologists
 SVT: Society for Vascular Technology
 ASE: American Society for Echocardiography

XIX. Patient Safety and Risk Management

A. Age Appropriate Care: JCAHO Standards for AGE APPROPRIATE CARE

Age-Appropriate Care through the Life Span

The Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) requires that healthcare providers who have patient contact be competent in age-appropriate characteristics and needs. JCAHO requires that all individuals with patient contact receive education and training related to the characteristics and needs of the age groups with which they come into contact. Although the following information may include age groups with for which you do not provide care, it is important to understand an overview of the needs across the life span.

AGE GROUPS: A DEFINITION

The following is a generalized definition of the age groups.

Infant	Birth to one year
Toddler	One to three years
Preschool	Three to five years
School Age	Five to twelve years
Adolescent	Twelve to eighteen years
Young Adult	Eighteen to forty-four years
Middle Age Adult	Forty-five to sixty-five years
Old Adult	Over sixty-five

Although all characteristics of an age group do not apply to all individuals, they are meant to be guidelines that should be considered when providing care to patients of differing ages.

DEVELOPMENTAL NEEDS

The developmental psychologist Erik Erikson probably most notably writes about developmental needs across the life span. He has identified eight stages with corresponding tasks that must be met and resolved for individuals to progress through the life span in a fulfilling manner. Health care providers must consider the developmental challenges facing their patients and adjust their care accordingly.

ERIKSON'S STAGES

Age Group	Task	Lack of Resolution
Infant	Development of trust	Mistrust: failure to thrive
Toddler	Autonomy Self-control & will power	Shame and doubt Low frustration tolerance
Preschool	Initiative; confidence Has purpose and direction	Guilt Fear of punishment
School age	Industry; self-confidence Competency	Inferiority Fears about meeting expectations
Adolescent	Identify formation Devotion and fidelity Sense of self	Role confusion Poor self-concept
Young Adult	Intimacy Affiliation and love	Isolation Avoidance of relationships
Middle age	Concern about others	Stagnation; self-absorption Lack of concern about others
Old age	Ego integrity; wisdom	Despair

	Views life with satisfaction	Life is meaningless
--	------------------------------	---------------------

COGNITIVE DEVELOPMENT THROUGH THE LIFE SPAN

Developmental psychologist Jean Piaget is the primary source on how humans develop cognitively from birth through age twelve. He developed his theories after hundreds of hours of direct observation of children of all ages. Piaget defined three major stages of cognitive development: pre-operations, concrete operations, and formal operations. He theorizes that cognitive development is nearly complete by age fifteen when the child is capable of abstract thought.

AGE	STAGE	FEATURES
Up to 2 years	Sensorimotor thought	Physical manipulation of objects
2 to 7 years	Preoperational symbolic functioning	Language development
7 to 11 years	Concrete operations	Logical reasoning Can solve concrete problems
11 to 15 years	Formal operations	Fully developed Complex, logical abstract thought Manipulation of abstract concepts

SAFETY THROUGH THE LIFE SPAN

Safety is a basic human need that is of paramount importance to healthcare providers for all age groups of patients. During all phases of childhood and the later years safety needs are the greatest. Some childhood characteristics that make safety a primary concern is lack of impulse control, lack of good judgment, intense curiosity, and the need to develop autonomy. Older adults may suffer from cognitive impairment, sensory loss and the degenerative changes of aging. These make safety a primary concern for healthcare providers caring for an aging population.

PHARMACOLOGY THROUGH THE LIFE SPAN

Pharmacology dosage and route considerations vary according to the characteristics of virtually all age groups. For pre-adolescent children dosage is determined according to the weight of the child in kilograms. By the time a child reaches adolescence most adult dosages are usually acceptable. As with all medications, the nurse should be knowledgeable about any medication he/she is administering and should question or clarify any medication orders that are unclear or seem inappropriate.

For children, the oral route of administration is preferred. Liquid forms should be used when appropriate. Pharmacological implications for noticeably young children involve close monitoring of the effects of medication. In these age groups absorption and metabolic rates may be unpredictable.

The aging adult population has special pharmacological considerations based on distinguishing characteristics of this group. Diminished blood flow, decreased peristalsis, and slowing of the basal metabolic rate lead to changes in physical functioning. As with young children, older adults may require close monitoring based on the unpredictability of absorption. A general rule with the elderly is to “start low and go slow.”

If a swallowing disorder is a concern, medications may need to be crushed or given in liquid form. Always consult a pharmacist to see if either a possibility is since some medications may be time release, enteric-coated, sublingual, effervescent, or foul tasting.

NUTRITION AND HYDRATION THROUGH THE LIFE SPAN

Nutritional needs and considerations vary somewhat across the life span. Caloric requirements are greatest during infancy, adolescence, pregnancy, and lactation. Infants require iron supplements and fat from whole milk. They should be introduced to solids beginning with cereal at four to six months of age. New foods should be introduced slowly so that intolerances can be determined.

Toddlers like finger foods and should be introduced to utensils and cups instead of bottle-feeding and caregiver feeding. Preschoolers will begin to develop food preferences and the manual dexterity to use utensils. School age children prefer fast food and dining with friends.

Adolescents, despite their increased nutritional needs, demonstrate irregular eating patterns and a preference for fast food and snacks. It is also during adolescence that eating disorders such as anorexia, bulimia and trendy diets may emerge.

In the absence of pregnancy and lactation, the nutritional needs of the young and middle adult remain constant. For the aging adult, fewer calories are required as appetite and digestive processes decrease. Other factors affecting nutritional status to be considered are dentition, financial resources, physical limitations, and the ability to get to and from the store. "Meals on Wheels" may be a resource for the homebound elderly.

AGE RELATED IMPLICATIONS FOR THE HEALTH CARE PROVIDER

There are many other aspects of health care delivery that must be considered based on age characteristics. These include patient and family education, discharge planning, motivational techniques, ability to participate in care, communication techniques, and the impact of illness or hospitalization on the patient.

The families of infants and the cognitively impaired must be the focus of teaching. Toddlers and school age children, however, must be given explanations according to their developmental stages. Very often dolls and puppets may be effective props for teaching these age groups.

Discharge planning may also be affected by the age of the patient. Age-appropriate community resources must be considered. Reporting mechanisms and agencies for age related abuse also vary.

A patient's level of involvement in care is also affected by age. While a minor may have an opinion regarding healthcare, decision-making is usually placed on the parent or legal guardian. At the other end of the life span, the older adult may be physically or cognitively impaired and unable to participate in certain decisions or aspects of his/her care.

The meaning of illness and hospitalization varies widely across the life span. For an infant, it means separation from the primary caregiver. For a school age child, it means missing school. For an adolescent it means separation from the peer group. For the young adult illness may mean loss of a job. For the older adult, illness may bring up issues of physical decline or mortality.

REFERENCE: <http://www.thenurseagency.com>

B. Process of Reporting Complications

The policy for reporting complications is to report any occurrences to the ultrasound supervisor as soon as the incident occurs. This includes complications or incidents involving complaints or injuries to the patient and complaints or injuries of the employee. An incident report will be filled out the same day and given to the ultrasound supervisor. If the ultrasound supervisor is not available, the incident should be reported to the office manager and/or medical director. All employees should be made aware of the location of incident forms.

C. Infectious Diseases

The policy for preventing the spread of infectious disease and hand washing policies follow the guidelines developed by the U.S. Department of Labor Occupational Safety and Health Administration (OSHA). See attached. Reference: www.osha.gov

D. Communicable Diseases

Students may need to be restricted from clinical work settings during the incubation period of a communicable disease and/or during a known period of communicability.

1. Students with a suspected diagnosis of the following diseases must report the infection to the program director. Confirmation and treatment if desired or recommendation will be required:

Chicken pox (required)	scabies/lice
Hepatitis-acute	tuberculosis
Measles (rubella)	

2. During a known period of communicability, students may not work in the clinical setting unless authorized to do so.
3. Students assigned to clinical settings may require restrictions if diagnosed or suspected of having the following communicable diseases:

Conjunctivitis	herpes zoster (shingles)
Hepatitis	herpes simplex (cold sores)
Influenza	skin infections
Herpes Whitlow (finger)	

4. Non-immune students who have been accepted into the program should notify the program director following exposure to any of the following communicable diseases:

Chicken pox	rubella
Mumps	herpes zoster
Hepatitis (acute)	measles

5. Any time missed due to illness or any nature is considered absence and will be handled according to attendance policies established by the program.

E. Transducer Cleaning

The policy for cleaning and preparing endocavitary ultrasound transducers between patients follows the recommended guidelines produced by the AIUM Ultrasound Practice Committee as found in the AIUM Reporter 11:7, 1995.

Complete CANVAS In-Service Training options prior to clinical experience

Most facilities only use Trophon High Level Disinfection Systems

1. **Cleaning:** After removal of the probe cover, use running water to remove any residual gel or debris from the probe. Use a damp gauze pad other soft cloth and a small amount of nonabrasive liquid soap to thoroughly cleanse the transducer. Consider the use of a small brush especially for the crevices and areas of angulation depending on the design of your transducer. Rinse the transducer thoroughly with running water, and then dry the transducer with a soft cloth or paper towel.
2. **Disinfection**
 - a. If a sterile processing department is available, take the transducer to sterile processing for further disinfection. Upon completion of the sterile processing, return transducer to carrying case until the next usage.

- b. Cleaning with a detergent/water solution as described above is clearly the cornerstone of disinfection. However, additional use of liquid chemical germicides may help to ensure further statistical reduction in microbial load. Because of the variance of the cleaning process and the potential disruption of the barrier sheath, addition disinfection with chemical agents may be desirable. Examples of such chemical agents include but are not limited to
- 2.4-3.2% glutaraldehyde products (a variety of available proprietary products including "Cidex", "Metricide," or "Procide."
 - Common household bleach (5.25% sodium hypochlorite) diluted to yield 500 parts per million chlorine (10cc in one liter of tap water)
 - Iodophor disinfectant/detergents (hard surface disinfectants diluted for use per manufacturer's instruction [e.g., "Westcodyne"]). Antiseptic-type iodophors (e.g., "Betadine") are not acceptable for use as disinfectants.

Practitioners should consult the labels of proprietary products for specific instructions. They should also consult instrument manufacturers regarding compatibility of those agents with probes. Note that such agents are potentially toxic and many require adequate precautions such as proper ventilation, personal protective devices (gloves, face/eye protection, etc.) and thorough rinsing before reuse of the probe.

3. **Probe Covers**

The transducer should be covered with a barrier, usually a latex condom. These should be non-lubricated and non-medicated. Practitioners should be aware that condoms have a six-fold enhanced AQL (acceptable quality level) when compared to standard examination gloves. They have an AQL equal to that of surgical gloves. Occasionally, patients may be latex-sensitive, and alternative barriers (vinyl) should then be used.

4. **Aseptic Technique**

Obviously, for the protection of the patient and the sonographer, all endocavitary examinations should be performed with the operator properly gloved throughout the procedure. Gloves should be used to remove the condom or other barrier from the transducer and to wash the transducer as outlined above. As the barrier (condom) is removed, care should be taken not to contaminate the probe with secretions from the patient. At the completion of the procedure, hand should be washed with soap and water. Note" Obvious disruption in condom integrity does NOT require modification of this protocol. These guidelines take into account possible probe contamination due to a disruption in the barrier sheath.

**Follow the guidelines and requirements of your facility.
Complete all CANVAS In-services prior to clinical rotations**

F. **Universal Precautions**

The policy regarding universal precautions follows the guidelines developed by the U.S. Department of Labor Occupational Safety and Health Administration (OSHA). See attached. Reference: www.osha.gov

Blood Borne Pathogens

Bloodborne pathogens are infectious microorganisms in human blood that can cause disease in humans. These pathogens include, but are not limited to, hepatitis B (HBV), hepatitis C (HCV) and human immunodeficiency virus (HIV). Needlesticks and other sharps-related injuries may expose workers to bloodborne pathogens. Workers in many occupations, including first aid team members, housekeeping personnel in some industries, nurses and other healthcare personnel may be at risk of exposure to bloodborne pathogens.

How to control exposure to bloodborne pathogens?

To reduce or eliminate the hazards of occupational exposure to bloodborne pathogens, an employer must implement an exposure control plan for the worksite with details on employee protection measures. The plan must also describe how an employer will use a combination of engineering and work practice controls, ensure the use of personal protective clothing and equipment, provide training, medical surveillance, hepatitis B vaccinations, and signs and labels, among other provisions. Engineering controls are the primary means of eliminating or minimizing employee exposure and include the use of safer medical devices, such as needleless devices, shielded needle devices, and plastic capillary tubes.

How can OSHA Help?

OSHA has developed this webpage to provide workers and employers useful, up-to-date information on bloodborne pathogens. For other valuable worker protection information, such as Workers' Rights, Employer Responsibilities and other services OSHA offers, read OSHA's Workers page.

If you are stuck by a needle or other sharp or get blood or other potentially infectious materials in your eyes, nose, mouth, or on broken skin, immediately flood the exposed area with water and clean any wound with soap and water or a skin disinfectant if available. Report this immediately to your employer and seek immediate medical attention.

<http://www.cdc.gov/niosh/topics/bbp/universal.html>

G. Emergency Procedures

For hospital employees, refer to hospital wide emergency preparedness plan. For outpatient services employ the following standard provided by the U.S Department of Health and Human Services- Center of Disease Control. Visit the website for up-to-date emergency preparedness information at <http://www.bt.cdc.gov/planning>.

Examples of readily available information:

Preparedness for Specific Types of Emergencies

- Bioterrorism Emergencies Anthrax, smallpox...more
- Chemical Emergencies
- Mass Casualties
- Natural Disasters
- Radiation Emergencies

Preparedness for Healthcare Facilities

- Adapting Standards of Care under Extreme Conditions: Guidance for Professionals During Disasters, Pandemics, and Other Extreme Emergencies
- Bioterrorism Readiness Plan: A Template for Healthcare Facilities
- Hospital Preparedness for Mass Casualties
- OSHA Best Practices for Hospital-Based First Receivers of Victims

XX. *Equipment Safety And Maintenance*

Safety Checks

Safety checks for electrical and transducer cord integrity should be performed daily. Any potential electrical faults should be reported immediately, and the equipment should be taken out of commission until it is repaired and inspected by an authorized service representative.

Calibration

Calibration of the ultrasound machine will be performed by the service representative on an annual basis as part of the preventative maintenance process. If the machine is not functioning properly, an interim calibration may be necessary. The calibration should include phantom images to meet the AIUM and/or ACR accreditation criteria for quality assurance.

Maintenance Procedures

Maintenance contracts will remain current between the vendors and administration. Preventative maintenance will be performed on each machine on an annual basis with interim service calls as needed to ensure the proper functioning of all equipment.

XXI. *Technical Protocols*

A. DMS Program On-Campus: Scanning Protocol

- Data from the AIUM is provided for clinical reference
 - Refer to the web links in the following pages for clarification
 - Entire documents are not included in this protocol; numbering will appear to be incorrect in some areas
- You will complete the assigned images from this document while on campus
- All scans on campus begin with long/trans and short/long survey scans
- You will create scanning protocol for some exams based on AIUM and affiliate guidelines
- You will follow data similar to the AIUM guidelines at each clinical facility
- Each facility will utilize a variation of these protocol

B. CAMPUS SCANNING POLICIES

- **Right hand**
 - “contaminated,” hold gel bottle, transducer, scanning hand
- **Left hand**
 - “clean,” manipulate instrumentation, keyboard, monitor/screen, printer, non-patient/gel covered areas; **stays free of gel** and transducer
- Begin by typing information (prior to touching transducer)
- Place thermographic paper into printer prior to touching gel bottle
- Hold transducer properly & manipulate correctly

- Use proper scanning ergonomics
- Find the proper scanning depth (ie: liver/kidney interface) and do not change this depth
 - **This applies ONLY to the campus laboratory**
- Use RES/expand/enlarge when appropriate
 - DO NOT eliminate necessary surrounding tissue on any image
 - DO NOT RES/EXPAND all images
- Use appropriate transducer (footprint, frequency, shape) for anatomy in question
 - Switch transducers throughout exam as needed for anatomy & anomalies
- Adjust technical factors throughout the examination to improve image quality
 - On campus: "Perfection" is the goal
 - At clinic: Diagnostic quality is the outcome
- Adjust focal zone locations for proper image resolution and detail
 - These will vary throughout the exam
- Maintain 90-degree relationship with anatomical interface and the sound beam
- Sonography is "organ specific." Align scan plane to longitudinal axis or short axis especially with required measurements
 - Long and short axes are not necessarily sagittal and transverse
- Label based on primary scan plane (long/sag, transverse, coronal, tangential, axial)
 - MSK: Long Axis and Short Axis
 - Breast: Long, Trans, Radial, Antiradial; quadrant may be used
- Label organ; body side; scanning plane; patient position (supine is usually implied)
- Measure (ON CAMPUS) length in sagittal/ long axis plane; width and depth (AP) in short axis/transverse plane
 - AIUM guidelines may state differently
 - There is a purpose for this policy on campus
- Doppler implies Pulsed Wave (PW) unless otherwise identified
- When color Doppler is required: take the image with color Doppler and print.
 - The image will show the "color" in shades of white on the thermographic print
- When printing (thermographic paper):
 - Take/print required images in the order requested
 - I will review the date and time of the image
 - Use a single system
 - Do NOT separate images (keep in a single strand)
 - Additional images will result in points being deducted from your score— unless a position change is required, i.e.: erect for pancreas, or water-filled stomach for pancreas
 - Should additional images be essential, document rationale
 - Do not eliminate required images from the required submitted list. This will place your images out of order and lower your score.
 - If you cannot get the image required: take what you can and move on. Something is better than nothing.
- Use proper breathing &/or bladder preparation techniques and modify as required
 - When preparing to be an abdominal "patient" in the US lab, avoid fatty foods, and other foods that contract the GB. Students should NEVER come to class NPO.
- Align the table, scanning system, scanning chair, and patient to YOUR body habitus
- Use adequate amount of scanning gel
 - Too little will diminish image quality
 - Too much is wasteful, inappropriate, unprofessional, and really makes a mess

- Additional gel, if needed, may be added throughout the exam
- Use adequate amount of scanning pressure (transducer compression)
 - Most abdominal exams require about 40 pounds of pressure
 - When possible, use less force (generating a hematoma on the patient is NOT the goal)
 - When additional pressure is essential...consider standing
- When exam is complete: Wipe gel off patient and clean equipment; return system, table, and chair to routine position
- Use YOUR towels to clean YOUR skin; use the school's towels to clean the machine; use your "patient's" towels to clean your "patient"
- Never rest the transducer on the "patient's" skin. Return the probe to the holder when not in use...after removing gel/wiping clean
- Use proper medical/sonography terminology and language while in the lab
- Always maintain a professional attitude and demeanor
- Complete required worksheets using proper medical terms and avoid personal conclusions or negative observations
- Wear uniforms in the laboratory as required
- No food or drink in the lab
 - Exception: For courses that require a filled urinary bladder, or filled stomach technique, you may bring a bottle of water (with re-sealable cap)
 - No gum, candy, or other products designed for oral consumption
- Rotate as required during lab courses: All students will assume both sonographer and "patient" roles in lab.
- During "after-class" scanning, when and if an option: document your time on your scanning hours form, and in the lab sign-in logbook; a faculty member must be present
- During open lab you may scan anyone who is over the age of 18, does not have a known pathologic condition, and is not and does not suspect being pregnant.
 - patients will sign a release prior to your scanning session
 - neither a diagnosis nor finding will be shared with a "patient"
 - should you determine, on a pelvic exam, that your patient may be or is pregnant: STOP

Data from the AIUM (American Institute of Ultrasound in Medicine)

Complete Policy for Practice Guidelines: (www.aium.org)

- ✓ Practice Guidelines may be downloaded for free on the website by members and nonmembers.
- ✓ Individuals may make as many photocopies as needed of the guidelines.

<http://aium.org/resources/guidelines/documentation.pdf>

C. AIUM Guideline for Documentation of an Ultrasound Examination

Introduction

Adequate documentation by all members of the diagnostic ultrasound health care team is essential for high-quality patient care. There should be a permanent record of the ultrasound examination and its interpretation. Images of all relevant areas, both normal and abnormal, should be recorded in a retrievable format. Retention of the ultrasound images and report should be consistent both with clinical needs and with relevant legal and local health care facility requirements. The reader is urged to refer also to the individual guidelines for each ultrasound examination since they may contain additional documentation requirements.

Documentation Included for the Ultrasound Examination

Official documentation for the ultrasound images should include but is not limited to the following:

- Patient's name and other identifying information.
- Facility identifying information.
- Date of ultrasound examination.
- Image orientation when appropriate.

If a worksheet is utilized and retained, documentation should include:

- Patient's name and other identifying information.
- Date of ultrasound examination.
- Relevant clinical information and/or ICD 9 code.
- Specific ultrasound examination requested.
- Name of patient's health care provider and contact information as appropriate.

Final Report Provided by the Interpreting Physician

A final report of the ultrasound findings is included in the patient's medical record. The official final report should include but is not limited to the following:

- Patient's name and other identifying information.
- Name of patient's health care provider.
- Location of ultrasound facility and contact information.
- Relevant clinical information, including indication for the examination and/or ICD # code.
- Date of ultrasound examination.
- Specific ultrasound examination performed.
- If endocavitary techniques are used, the method should be specified.
- The report should include comment on the components of the examination as outlined in the relevant practice guideline(s).
- Appropriate anatomic and sonographic terminology should be used; variations from normal size should be accompanied by measurements when appropriate (eg, organomegaly, masses); and limitations of the examination should be noted.
- Pertinent, commonly utilized anatomic measurements should be listed (eg, fetal biometry).
- Comparison with prior relevant imaging studies if available; recommendations, including appropriate follow-up studies; an impression or conclusion; and a specific diagnosis or differential diagnosis should all be included.
- The final report should be generated, signed, and dated by the interpreting physician in accordance with state and federal requirements. (Electronic signature, transmission, and storage of the report is acceptable if patient privacy is ensured and legal requirements are met.) Verified final reports must be available within 24 hours of completion of the exam or, for nonemergency cases, by the next business day; exceptions to this time frame must be clarified.
- Reports should be completed and transmitted to the patient's health care provider in a timely fashion and in accordance with state and federal requirements.

Non-routine Results Reporting

Preliminary Report Policy

In an outpatient setting, sonographers are not permitted to give preliminary results to the referring physicians. The only exception would be if it were an emergent case in which the patient's condition will greatly suffer from even a slight delay. Examples include testicular

or ovarian torsion, aortic dissection, and cardiac tamponade. In such cases, if a Radiologist is not immediately available, a preliminary verbal impression can be made to the referring physician followed by a written note documenting the conversation and confirming the information as "preliminary" with the formal Radiologist report to follow.

In "inpatient" or hospital settings where the referring physician may shadow the sonographer and ask for a verbal impression, it is acceptable to give a verbal preliminary report with an absolute declaration that this is merely a "preliminary sonographer impression" and that the Radiologist will read the films shortly and follow with the official results. Every effort should be made to not offer preliminary findings and wait for the Radiologist's report.

The Radiologists can give preliminary reports verbally, by phone, by fax, or through the standard dictation procedure. The standard policy is a one-hour turn around on emergency cases, and 24-48-hour turn-around of reports from dictation to mailing for non-emergent cases.

Reconciliation between differences of preliminary and final reports will be reported immediately to the referring physician and a record will be kept in a permanent Q.A. file.

In certain instances, the results of the ultrasound study may need to be directly conveyed to the patient's referring health care provider prior to the final report. Documentation of this communication in the final report, including date, time, and to whom the findings were reported, is necessary. Any variation from the preliminary report should be communicated with the patient's physician and highlighted in the final report.

If results of the ultrasound exam are considered by the interpreting physician to be important and unexpected, or require urgent intervention to ensure appropriate patient care, communication should occur directly between the interpreting physician and the patient's health care provider. Communication by phone or in person is preferred to allow verification of receipt and discussion and should occur in a timely manner in accordance with the patient's clinical state and the ultrasound findings, typically immediately following the exam. The final report should include all of the elements noted in section III, as well as the date, time, and method that the report was conveyed to the patient's health care provider.

Specifications for Individual Examinations

Spectral, color, and power Doppler imaging may be useful to differentiate vascular from nonvascular structures in any location. Measurements should be considered for any abnormal area.

D. AIUM Practice Guideline for Abdomen and/or Retroperitoneum

<http://www.aium.org/resources/guidelines/abdominal.pdf>

ALARA Principle

The potential benefits and risks of each examination should be considered. The ALARA (as low as reasonably achievable) principle should be observed when adjusting controls that affect the acoustic output and by considering transducer dwell times. Further details on ALARA may be found in the AIUM publication *Medical Ultrasound Safety*, Second Edition.

The following section will provide students with preliminary scanning protocols for a limited number of abdominal, superficial structures and some Gynecology. Specific protocols will be provided in the classroom and in the clinical experience.

E. Abdominal & Superficial Examinations: Merced College Protocols

LIVER

Patient in supine position, unless otherwise indicated

Use an Anterior-Posterior scan alignment, unless otherwise indicated

SAGITTAL-LONGITUDINAL

1. Left lobe
2. Lateral to aorta; show lig venosum and caudate lobe
3. Level of aorta
4. level of IVC
5. Right/lateral to IVC
6. Right main lobar fissure (include GB)
7. Right lobe (no kidney)
8. Right lobe with renal interface
9. Right lobe with renal interface using a coronal (through the ribs) approach
10. Right with dome of the liver (may require steep cephalic transducer angle)

TRANSVERSE

1. Dome of liver (with steep cephalic transducer angle)
2. Left lobe with lig teres/lig venosum/caudate lobe
3. Left portal vein demonstrate lateral and medial branches
 - a. Left lateral PV with Doppler (when required)
 - b. Left medial PV with Doppler
4. Right portal vein with anterior and posterior branches
 - a. R anterior PV with Doppler
 - b. R posterior PV with Doppler
5. Main portal vein
 - a. Main portal vein with Doppler
6. Hepatic veins joining the IVC
 - a. Left hepatic vein with Doppler
 - b. Middle hepatic vein with Doppler
 - c. Right hepatic vein with Doppler
7. Right lobe of liver
8. Right lobe of liver using a coronal (through the ribs) approach
9. Right lobe with body of GB
10. Right lobe with body of GB using a coronal approach
11. Right lobe to include middle pole of right kidney
12. Right lobe to include middle pole of kidney using coronal approach
13. Right lobe of liver with inferior renal pole

Gallbladder

Patient in supine position, unless otherwise indicated

Use an Anterior-Posterior scan alignment, unless otherwise indicated

SAGITTAL/LONGITUDINAL

1. Medial wall (long axis)
2. Midline of GB (longest axis); middle portion with neck, body and fundus.

- a. Include MLF and PV
3. Measurement of middle portion/long axis of GB
4. Measure the anterior GB wall
5. Lateral wall (long axis)
6. Coronal scan in long axis demonstrating the longest longitudinal image

TRANSVERSE

1. Neck of GB
2. Body (short axis) use proper transducer angle (dependent upon the anatomy)
3. Body with measurements
4. Fundus
5. Coronal image of GB body and measure

DECUBITUS

1. Long axis include MLF, PV, Middle portion of GB
2. Demonstrate the CBD with PV; show duct length and include GB (long axis)
3. Measure CBD in above position (inner to inner)
4. Coronal plane demonstrate the long axis of the GB
5. Coronal plane measure the CBD

PRONE

1. Demonstrate long axis/middle portion

ERECT

1. Long axis of GB

Pancreas

~~Patient in supine position, unless otherwise indicated~~

Use an Anterior-Posterior scan alignment, unless otherwise indicated

Transverse (long axis)

- Entire length of pancreas with head, body, tail and pancreatic duct (use fluid-filled stomach as window if necessary)
- Pancreatic head with GDA, CBD, and uncinate process
- Pancreatic neck and body with pancreatic duct
- Pancreatic body with splenic vein (more caudal) and portal confluence
- Doppler of splenic vein
- Pancreatic body with splenic artery (more cephalic)
- Doppler of splenic artery
- Pancreatic tail

Longitudinal (short axis)

- Pancreatic head with GDA and CBD
- Pancreatic body measure depth

Aorta & IVC

~~Patient in supine position, unless otherwise indicated~~

Use an Anterior-Posterior scan alignment, unless otherwise indicated

Use color Doppler as required

AORTA

Sagittal/Longitudinal

Proximal AO with diaphragm and celiac axis

- Doppler of proximal AO above celiac axis
- Doppler of celiac axis

Aorta with celiac axis and SMA

- Doppler of AO between these vessels
- Doppler SMA

- Aorta with SMA and IMA branches
- Doppler of mid/distal aorta
 - Distal aorta with iliac branching

Longitudinal right Iliac artery

- Doppler R iliac

Longitudinal left iliac artery

- Doppler L iliac

Transverse

Proximal aorta above celiac trunk

- at celiac trunk
- below celiac trunk

Measure

- at SMA
- at renal arteries

Doppler right renal artery

- Doppler left renal artery

Color of renal arteries

Aortic measurement inferior to renal arteries

- Distal Aorta
- Distal with measurements
- Distal with bifurcation
- Distal below bifurcation to demonstrate R and L iliacs (one image)

IVC

Longitudinal	Transverse
Distal IVC (show diaphragm and liver tissue)	Distal
Mid IVC	Middle
Proximal show bifurcation	Proximal
R iliac vein	Proximal with bifurcation (one image)
L iliac vein	

Kidneys

Patient in supine position, unless otherwise indicated

Use an Anterior-Posterior scan alignment, unless otherwise indicated

All longitudinal images must show kidney horizontally while maintaining AP relationship

Longitudinal	Transverse	Decubitus	Prone
Medial	Superior/upper pole	Left Lateral Decub (Right Kidney)	*place bolster/pillow under belly to arch back
Middle	Middle	Right Lateral Decub (Left Kidney)	Long axis kidney *middle pole
Middle: measure length	Middle measure width and depth(AP)	Coronal demonstrate Middle portion of kidney (long axis)	Short axis: *middle pole
Lateral	Middle show hilum & renal	Coronal approach demonstrate renal	

	artery	hilum in short axis	
	Middle with Doppler		
	Inferior or lower pole		
	Doppler arcuate artery		

Urinary Bladder

Preparation: Filled urinary bladder

Long axis
Midline
Midline with length and depth measurements
Right
Lateral right
Transverse axis
Lower portion
Middle portion
Middle with measurements
Middle with ureteral jets and Color Doppler
Post Void
Long axis Midline with long measurement
Transverse with depth and width measurement (need VOLUME)

Spleen

Patient in supine position, unless otherwise indicated
 Use an Anterior-Posterior scan alignment, unless otherwise indicated

Longitudinal/Coronal	Transverse/Coronal
Superior border and splenic hilum	Middle portion with splenic hilum
Inferior border with splenic hilum	Doppler splenic artery
Measure Longest axis	Doppler splenic vein
	Measure widest axis and include depth

Appendix

Patient in supine position, unless otherwise indicated
 Use an Anterior-Posterior scan alignment, unless otherwise indicated
 Thoroughly survey the pelvic region beginning at the hepatic flexure and trace the bowel to the cecum. Survey the entire pelvis in all females looking for ovarian or uterine pathology. Review the RUQ renal and biliary systems. Check for free fluid.

Longitudinal

- Long Medial axis of the appendix
- Long Middle axis of the appendix
- Measure length
- Long Lateral axis of the appendix

Color Doppler as indicated

Transverse

- Superior portion of the appendix with and without compression
- Middle portion of the appendix with and without compression
- Lower portion of the appendix with and without compression
- Measure the width and depth from outer to outer walls with and without compression
- Color Doppler as indicated

Abdominal Wall

- Patient in supine position, unless otherwise indicated
- Use an Anterior-Posterior scan alignment, unless otherwise indicated
- When possible use panoramic imaging or dual image and match tissues.
- Use Color and PW Doppler as indicated
- Use Val Salva Maneuver as indicated
- Look for peristalsis, protrusions, fluid collections
- Demonstrate and label:

Linea Alba	External oblique muscle
Skin	Internal oblique muscle
Subcutaneous fat	Transabdominus muscle
Rectus abdominus muscle	Peritoneum
Rectus sheath	

Transverse Plane

- Begin at the xiphoid and scan and image in 1-2 cm increments to the pubic symphysis.

Longitudinal Plane

- Beginning at midline scan at 1-2 cm increments including the distal xiphoid process to the pubic symphysis.
- Align scan to the midsagittal plane unless specific mass is seen or indicated
- Demonstrate the above tissues in both right and left regions.

Scrotum

Long & short axes of the right and left testes will be examined independently

Longitudinal/Long axis

- Lateral testicle
- Medial testicle
- Middle testicle
- Epididymal head in proximity with the superior testis
- Epididymal body and tail demonstrated throughout the testis
- Spermatic cord (from inguinal canal to scrotum—use Doppler and Val Salva technique)

Short axis: Begin at the superior border

- Spermatic cord (from inguinal canal to scrotum- Use Val Salva Technique)
- Epididymal head
- Superior portion of testis
- Middle portion of testis
- Inferior portion of testis
- Single image with both testicles

Prostate

On-campus protocol will be provided as needed

Thyroid

Patient in supine position, unless otherwise indicated

Use an Anterior-Posterior scan alignment, unless otherwise indicated

Survey: Place pillow under patient's shoulders (you may have to fold the pillow to get enough neck extension). Place a rolled towel or sponge under the neck for support.

Have the patient turn his/her head to the left slightly and begin the survey on the right in transverse beginning at the inferior pole. Scan through (and beyond) the entire right lobe inferiorly to superiorly and return back to the inferior border. Complete longitudinal survey from the trachea to the carotid/jugular regions and return to trachea. Use Color Doppler. Complete the same protocol on the left side. Remember, this is a SURVEY and you will NOT print any images. Set depth based upon the deepest AP dimension of either lobe. Use RES when one side is smaller.

Take in the following order:

1. Long trachea Right
2. Long medial Right
3. Long middle Right
4. Long middle Right with LENGTH measurement
5. Long middle Right with Color Doppler
6. Long lateral Right
7. Long carotid Right
8. Trans inferior pole Right
9. Trans middle pole Right
10. Trans middle pole Right with AP and Width measurements
11. Trans middle pole Right with Color Doppler
12. Trans superior pole Right
13. Long RES Isthmus Midline
14. REPEAT for the LEFT SIDE (1-12)

Create required color Doppler images

Breast (Simulation)

Quadrant Survey: Entire breast using a standard abdominal transducer approach (notch to patient's head and to patient's right). Patient is placed in a supine position with slight contra-lateral obliquity. Survey each quadrant long and trans beginning with the RUOQ. Move to the RUIQ, RLIQ, and RLOQ (clockwise approach). Survey of the left breast follows the clockwise approach, too beginning with the LUIQ, LUOQ, LLOQ and LLIQ.

Images

RUOQ Longitudinal at 12:00 ML +0

move about 1 cm to the right and take RUOQ +1

continue until the entire RUOQ has been imaged at 1 cm increments.

Scan axilla and label AX

RUOQ Transverse at lower portion (about 9:00) RUOQ +0

Move transducer at 1 cm increments throughout the entire quadrant +1, +2, Etc.

Scan axilla and label AX

Complete the above for each quadrant in Long and Trans sections as listed above.

Do the same for the left breast.

Clock Method Survey: Entire breast using standard patient positioning as in Quadrant Survey, but transducer notch directed towards nipple on all images.

Begin with the transducer in an “upside-down” approach, longitudinal at 12:00. Keeping the notch directed toward the nipple rotate the transducer in a clockwise fashion around the breast stopping “on the hour.”

Images “Longitudinal” /Radial at 12:00, 1:00, etc. to 11:00. You will create 12 images per breast.

If masses are found using the clock method additional “transverse” / Anti-radial images are taken by rotating the transducer 90 degree from the radial image. This will place the long and short axis along the ductal planes of the breast.

Make certain you have the breast labeled Right or Left.

Complete the above for the Left breast

Variations will be disseminated as required.

F. OB-GYN Applications

Pelvic Protocol

Follow the same scanning guidelines as abdominal. Gynecologic exams will utilize a filled urinary bladder technique. Male pelvic protocols are not provided in this section.

When scanning female gynecologic anatomy it is important to follow the contour of the anatomy. It may be necessary to utilize a steep caudal transducer angle to properly visualize the vaginal canal and walls and a steep cephalic transducer angle to demonstrate the uterus and endometrial stripe.

Adequate scanning pressure is required even though you are pressing on a filled urinary bladder.

An over-filled bladder will compromise the exam.

Gynecologic Exam: Uterus & Ovaries

LONGITUDINAL	Vagina Cervix with measurement Uterus midline with length measurement Right uterine segment Right adnexal region Measure Length & Depth of R Ovary Apply Doppler as required Midline with endometrium & measurement	Left uterine segment Left adnexal region Measure Length & Depth of L Ovary Apply Doppler as required Midline with endometrium & measurement
TRANSVERSE	Cervix Image and measure width R and L Ovaries Lower uterine segment/isthmus Uterine body	Measure body AP and Width Fundus Superior to uterine fundus

Obstetrics (Simulation)

Students will apply creative thinking and logic to generate scanning protocol for:

- First Trimester
- Second-Third Trimester
- Anatomical Survey
- Multigestational
- Biophysical Profile
- Others

Specific protocols will be provided for EACH of the anatomical parts scanned

Neonatal Head (Simulation)

- Use warm gel and keep the baby warm
- Use VERY gentle scanning pressure...do not push!
- Coronal scan plane survey
- Sagittal scan plane survey

Coronal at Anterior Fontanelle

- Frontal lobes and orbital roof
- Anterior horns
- Third ventricle and mid lateral ventricles
- Trigone/Atria of the lateral ventricles
- Occipital region/lobe
- Additional images may be required for specific pathology

Sagittal at Anterior Fontanelle

- Right Midline
- Right Parasagittal Caudothalamic Groove
- Right Tangential Parasagittal with Sylvian Fissure
- Left Midline
- Left Parasagittal Caudothalamic Groove
- Left Tangential Parasagittal with Sylvian Fissure
- Additional images may be required for specific pathology

Additional guidelines will be provided in the lab.

XXII. Ergonomics

Work Related Musculoskeletal Disorders In Sonography

<https://www.sdms.org/docs/default-source/Resources/work-related-musculoskeletal-disorders-in-sonography-white-paper.pdf?status=Temp&sfvrsn=0.6360950879497884>

Industry Standards for the Prevention of Work-Related Musculoskeletal Disorders in Sonography

Work-related musculoskeletal disorders (WRMSDs) affect a large number of sonographers and sonologists, particularly those with heavy workloads and those who have been in the profession for a long time. Good ergonomic design must be an integral part of equipment design, and significantly influence purchasing decisions. The employer, manufacturer, user, and educational programs have the responsibility to prevent health and safety problems that cause WRMSDs.

Ergonomics will be a component of every laboratory course and will be assessed with all on-campus and clinical competencies.

EQUIPMENT CONTROL MEASURES

A. ULTRASOUND SYSTEM

State-of-the-art equipment allows for optimal visualization which increases diagnostic accuracy and reduces sonographer/sonologist fatigue. These industry standards are specific to floor-standing models. Therefore, some recommendations may not apply to non-floor-standing models.

- Fully adjustable equipment that suits the anthropometrics of the 5th to 95th percentile of the population and is specific to the demographic area of the users.
- Easily accessible controls for achieving two-wheel, four-wheel, and braked positions. Central locking is preferable.
- Recording devices positioned to minimize the user's reach to external devices; external devices should not interfere with adjustability of the system.
- Footrest on the equipment designed to encourage neutral position of the ankle.
- Transducer holder incorporates ease of access (unobstructed); should not be detrimental to the distance required to access controls; low force, minimal effort required for single-handed use.
- Cables should not interfere with access to equipment or system interaction.
- Port Connector permits ease of use, single-handed use, minimizing the user's reach, force, and necessity of a pinch grip; does not interfere with access to equipment or system interaction.
- System design such that transporting the equipment does not exceed 50 pounds of force for pushing or pulling by a single user on usual flooring surfaces. Otherwise, it is required that additional personnel are available to assist in moving the equipment.
- Height-adjustable handles suitable for transporting the equipment.

B. CONTROL PANEL

- Height-adjustable, separate from the monitor with appropriate degree of tilt to allow for standing or seated user to achieve neutral posture of wrist and forearm. Independent movement of control panel allows users to work while maintaining their elbow at their side.
- Optimized control layout to allow use by both right and left-handed users.
- Size, shape, and spacing of controls designed according to occupational ergonomic guidelines. Font size and control layout are visually discernable, according to occupational ergonomic guidelines. The range of illumination permits clear identification of control functions at applicable user positions.
- Entire system designed to be used in seated position without obstruction of legs/knees.

C. MONITORS

- Incorporate features to minimize eye strain, such as:
 - a. Reduced flicker
 - b. Appropriate brightness and contrast levels
 - c. Resolution
 - d. Visual contrast

- Height-adjustable, separate from the control panel with appropriate degree of tilt to enable standing or seated users to achieve neutral posture of their necks.
- Single-handed movement of the monitor allows users to work while maintaining their neck in a forward, neutral position at a range of 18 – 30 inches.
- System must support the ability to use an external monitor.

D. TRANSDUCERS

- Lightweight and balanced to minimize torque on the wrist, facilitate a palmar grip without an expanded stretch of the hand, and encourage a neutral wrist position.
- Sized to support appropriate anthropometric data for the majority of users, encourage a palmar grip, and slip resistant.
- Cables and cable management systems must be suitable in length to permit unrestricted use; and be of suitable length for intended applications.

E. TABLE

Industry standards #1-5 are considered essential when new or replacement tables are being purchased.

- Height-adjustable, capable of being adjusted low enough to allow patients to get on and off easily unassisted, and to allow user to scan in a sitting or standing position while maintaining arm abduction of less than 30 degrees.³
- Maneuverable, full wheel mobility, and wheel locks that are easily operated.
- Open access from all sides to allow the users to place their knees and feet underneath, if needed. Table support structure and/or table mechanisms should not extend beyond the table top such that it prevents the user from minimizing reach and arm abduction.
- For endovaginal scanning, suitable patient access and support such as adjustable footboard and stirrups.
- For cardiac imaging, an easily operated, drop away or cut out section to allow unhindered access to the apical region while allowing the user's wrist to remain supported and in a neutral position.
- Ideally, electronic controls that are accessible and easy to use.
- The following options may assist in reducing scan time by
- improved patient positioning depending on the procedure:
 - a. Trendelenburg and reverse Trendelenburg
 - b. Fowler back (upright table back)
 - c. Arm extension
 - d. Central locks
 - e. Patient restraints

F. CHAIR

- Height-adjustable with sufficient range to suit the majority of the users. Range of height adjustability optimizes positioning of less than 30 degrees abduction of the scanning arm and allows the forearm of the non-scanning arm to be approximately parallel to the floor.
- Adjustable lumbar support, adjustable seat for thigh support, and an adjustable footrest. Seat design must encourage an upright posture.
- Swivels to allow the user to rotate from the patient to the ultrasound system while maintaining an aligned posture.
- Casters suitable to the type of flooring.

G. ACCESSORIES

- Gel bottles should have large openings to reduce the strength needed to squeeze the bottle and of suitable diameter to avoid extended grip position.
- Support devices available to all users for arm support in abduction.
- When required, the patient chair (and/or table converted to sitting position) used for seated procedures (eg, shoulder ultrasound) should be fully adjustable, easy to rotate, lockable and armless, or with removable arms to achieve unobstructed access for proper ergonomics.
- A transducer cable support device to allow users to reduce their grip by reducing the amount of torque on the wrist/forearm.
- Properly fitting, textured exam gloves to reduce the force required to grip the transducer.

II. ADMINISTRATIVE CONTROL MEASURES

A. EMPLOYER

1. Provide annual education to all users on the risk and prevention of musculoskeletal disorders.
2. Perform risk assessments in consultation with the users on a regular basis to identify musculoskeletal disorders and formulate and implement controls for the prevention and/or reduction of these disorders.
3. Provide a system to report and document acute or chronic musculoskeletal disorders per applicable regulations.
4. Conduct risk assessments prior to the purchase of equipment.
5. Maintain all equipment in good working order.

B. WORKLOAD AND SCHEDULING

1. Solicit user input on establishing protocols on examination scheduling.
2. Provide adequate rest breaks between examinations particularly for procedures comprised of similar postural and muscular force attributes.
3. Encourage task rotation in the workplace as much as possible.
4. Establish maximum transducer time per hour. (Research to determine maximum safe transducer time is encouraged.)
5. Minimize portable/bedside examinations.

C. EXAMINATION AREA

1. Dedicated examination area provides adequate space for the maneuverability of equipment around the exam table and allows easy access from all sides.
2. Examination room doorway allows easy access for all wheelchairs, beds, and ultrasound equipment.
3. Suitable flooring to allow easy movement of equipment.
4. Adequate ventilation and temperature control to ensure the comfort of user and patient while enabling the equipment to operate at a functional temperature.
5. Adjustable room lighting with easily accessible dimmer controls; shaded windows to eliminate light.
6. Accessories that improve posture and reduce muscular force should be available and easily accessible to the user.
7. All imaging supplies stored in the examination area and easily accessible.

III. PROFESSIONAL CONTROL MEASURES

A. BEST PRACTICES

It is recommended that sonographers, sonologists, and students follow current best practices to reduce the risk of developing musculoskeletal disorders. These best practices include:

- Minimize sustained bending, twisting, reaching, lifting, pressure, and awkward postures; alternate sitting and standing and vary scanning techniques and transducer grips.
- Adjust all equipment to suit user's size and have accessories on hand before beginning to scan.
- Use measures to reduce arm abduction and forward and backward reach to include: instructing the patient to move as close to the user as possible; adjust the table and chair; and use arm supports.
- Relax muscles periodically throughout the day:
- Stretch hand, wrist, shoulder muscles, and spine
- Take mini breaks during the procedure
- Take meal breaks separate from work-related tasks
- Re-focus eyes onto distant objects
- Vary procedures, tasks, and skills as much as reasonably possible
- Use correct body mechanics when moving patients, wheelchairs, beds, stretchers, and ultrasound equipment.
- Correct body mechanic guidelines are available from employers or regulatory bodies.
- Report and document any persistent pain to employer and seek competent medical advice.
- Maintain a good level of physical fitness in order to perform the demanding work tasks required.

- Collaborate with employers on staffing solutions that allow sufficient time away from work.

B. EDUCATION AND TRAINING

Participate in education and training to reduce the risk of developing musculoskeletal disorders:

- Attend employer sponsored in-services
- Attend seminars, lectures, workshops, or conferences offered by professional organizations or manufacturers
- Access journals, textbooks, online resources, etc.
- Attend a formal sonography program that includes WRMSD prevention in the curriculum

ERGONOMIC GLOSSARY

Anthropometrics: measured data of body dimensions for various populations.

Demographic area: the characteristics of human populations and population segments, especially when used to identify consumer markets.

Equipment: the ultrasound system without accessories.

Mini breaks: breaks lasting a minute or two taken throughout the examination study to relax muscles that are put into spasm while scanning. These muscles include, but are not limited, to the neck, shoulder, wrist, and fingers.

Pressure: force applied uniformly over a surface, measured as force per unit of area. The application of continuous force by one body on another that it is touching; compression.

Sonographer: a professional who uses an ultrasound system to create images of structures inside the human body that are used by physicians to make a medical diagnosis.

Sonologist: a physician who makes a medical diagnosis using ultrasound and who may also perform ultrasound procedures.

Suitable Flooring: tile, linoleum or other hard surface (not carpeting).

System: all the components of an ultrasound unit with accessories such as a printing device or VCR, or the entire workstation.

Unit: a component of an ultrasound system.

User: a professional who uses ultrasound to make diagnostic images in a medical setting.

XXIII. Appendices

- Academic Honesty Procedure
- Conduct Code Violations
- COVID-19
- PPE

APPENDIX A: Academic Honesty Procedure

Academic dishonesty is a violation of the Student Code of Conduct and is handled by the Vice-President of Student Personnel.

Merced College has the responsibility to ensure that grades assigned are indicative of the knowledge and skill level of each student. Acts of academic dishonesty make it impossible to fulfill this responsibility, and they weaken our society. Faculty, students, administrators, and classified staff share responsibility for ensuring academic honesty in our college community and will make a concerted effort to fulfill the following responsibilities.

Faculty Responsibilities

Faculty have a responsibility to encourage academic honesty in their classrooms. In the absence of academic honesty, it is impossible to assign accurate grades and to ensure that honest

students are not at a competitive disadvantage. Faculty members are encouraged to do the following:

1. Explain the meaning of academic honesty to their students.
2. Include information about academic honesty in their course syllabi.
3. Conduct their classes in a way that discourages cheating, plagiarism and other dishonest conduct.
4. Confront students suspected of academic dishonesty and take appropriate disciplinary action in a timely manner (see "Procedures for Dealing with Violations of Academic Honesty" which follow.)

Student Responsibilities

Students share the responsibility for maintaining academic honesty. Students are expected to do the following:

1. Refrain from acts of academic dishonesty.
2. Refuse to aid or abet any form of academic dishonesty.

Administrative Responsibilities

1. Disseminate the academic honesty policy and the philosophical principles upon which it is based to faculty, students, and staff.
2. Provide facilities, class enrollments, and/or support personnel which make it practical for faculty and students to make cheating, plagiarism and other dishonest conduct nearly impossible.
3. Support faculty and students in their efforts to maintain academic honesty.

Classified Staff Responsibilities

1. Support faculty, students, and administration in their efforts to make cheating, plagiarism and other dishonest conduct nearly impossible.
2. Notify instructors and/or appropriate administrators about observed incidents of academic dishonesty.

Examples of Violations of Academic Honesty

Academic dishonesty includes cheating, plagiarism, collusion, misuse of college computers and software, and other dishonest conduct as outlined below. It is not limited to the following examples:

Cheating

1. Obtaining information from another student during an examination.
2. Communicating information to another student during an examination.
3. Knowingly allowing another student to copy one's work.
4. Offering another person's work as one's own.
5. Taking an examination for another student or having someone take an examination for oneself.
6. Sharing answers for a take-home examination unless specifically authorized by the instructor.
7. Using unauthorized materials (such as notes or "cheat sheets") or unauthorized equipment (such as dictionaries or calculators) during an examination.
8. Altering a graded examination or assignment and returning it for additional credit.
9. Having another person or a company do the research and/or writing of an assigned paper or report.
10. Misreporting or altering the data in laboratory or research projects.

Plagiarism

1. Purposefully presenting as one's own the ideas, words, or creative product of another.

2. Carelessly or through lack of knowledge presenting as one's own the ideas, words, or creative product of another.
3. Purposely failing to credit the source for direct quotations, paraphrases, ideas, and facts which are common knowledge.
4. Failing to credit the source for direct quotations, paraphrases, ideas, and facts which are common knowledge through carelessness or lack of knowledge.
5. Changing only slightly the wording of another.
6. Using another person's catchy word or phrase.
7. Paraphrasing without using proper citations.
8. Copying word-for-word.
9. Cut and paste from the internet.

Collusion

1. Knowingly or intentionally helping another student perform an act of academic dishonesty.

Misuse of College Computers and Software

1. Unauthorized use of computer accounts.
2. Unauthorized copying of programs or data belonging to others.
3. Making, acquiring, or using unauthorized software on college equipment.
4. Using college computers to play computer games when other users need the resources.
5. Attempting to crash the system.
6. Removing licensed software from offices, classrooms, labs, and the library.
7. Using the computers or telecommunications systems in a way that interferes with the use of those systems by others.
8. Using the computers or telecommunications systems for personal or for-profit ventures.

Other Dishonest Conduct

1. Stealing or attempting to steal an examination or answer key.
2. Stealing or attempting to change official academic records.
3. Forging or altering grade change cards.
4. Intentionally impairing the performance of other students laboratory samples or reagents, by altering musical or athletic equipment, or by creating a distraction meant to impair performance.
5. Forging or altering attendance records.
6. Supplying the college with false information.

Action by the Instructor

1. An instructor who has evidence that an act of academic dishonesty has occurred shall notify the student of such evidence by speaking with the student or notifying the student in writing.
2. AFTER notifying the student and giving him or her the chance to respond, the instructor may take one or more of the following disciplinary actions:
 - A. Issue and oral reprimand (for example, in cases where there is reasonable doubt that the student knew that the action violated the standards of academic honesty). No report form is necessary.
 - B. Give the student an "F" grade, zero points, or a reduced number of points on all or part of a particular paper, project, or examination. A written memo of this action (Use "Academic Dishonesty Report" Form) is to be sent to the Vice-President of Student Personnel and a copy to the Vice- President of Instruction.
 - C. Assign an "F" to the student for the course in cases where the dishonesty is more serious, premeditated, or a repeat offense. A written memo (Use "Academic Dishonesty Report" Form) must be completed by the instructor and sent to the Vice-President of Student Personnel and a copy to the Vice President of Instruction.*

*NOTE: A grade of "F" assigned to a student for academic dishonesty will not be final if the student chooses to drop the course before the 14th week of the semester. In that case, the student would receive a "W" grade on his transcript.

Action by the Administration

1. Upon receipt of the first Academic Dishonesty Report Form concerning a student the Vice-President of Student Personnel shall send a letter of reprimand to the student which will inform the student that
 - Academic dishonesty is grounds for academic disciplinary probation for the remainder of his or her career at Merced College.
 - Another incident of academic dishonesty reported by any instructor shall result in a hearing by the Student Discipline Committee and may result in a one-year suspension from the college.
 - The student may make an appointment with the Vice-President of Student Personnel to discuss the incident and its ramifications.
2. Upon receipt of a second Academic Dishonesty Report Form concerning a student, the Vice-President of Student Personnel shall immediately refer the student to the Student Discipline Committee. If the Committee finds the charges to be valid, the Committee will suspend the student for one calendar year (two full semesters and one summer session)
3. For more serious incidents of academic dishonesty, the Vice-President of Student Personnel will meet with the student and immediately take appropriate disciplinary action or refer the student to the Student Discipline Committee. Offenses warranting suspension on the first offense include, but are not limited to, the following:
 - Taking an examination for another student or having someone take an examination for oneself.
 - Altering a graded examination or assignment and returning it for additional credit.
 - Having another student or a company do the research and/or writing of an assigned paper or report.
 - Stealing or attempting to steal an examination or answer key.
 - Stealing or attempting to change official academic records.
 - Forging or altering grades.
4. If, after a student returns from a suspension for Academic Dishonesty, the Vice-President of Student Personnel receives yet another Academic Dishonesty Report Form, the Vice-President of Student Personnel shall recommend to the Merced College Superintendent/President that the student be expelled from the District.

NOTE: Disciplinary actions which are taken by the Vice-President of Student Personnel or the Student Discipline Committee and which are based on alleged cheating may be appealed as specified in the Student Grievance Policy. (This Academic Honesty Policy has been adapted from the Academic Honesty Policy of Golden West College with permission.)

APPENDIX B:

Conduct Code Violations

Diagnostic Medical Sonography students are expected to behave in a professional and respectful manner while on the college campus, and during all phases of the clinical experience training. Clinical affiliates reserve the right to refuse admission to any student who is involved in unprofessional behaviors. The following is a list of behaviors unsuitable for medical imaging professionals. Students who engage in these behaviors are subject to disciplinary action, which may include programmatic dismissal.

Possession, distribution, or use of alcohol or illicit drugs	Refusal to submit to drug screen or background check
Smoking in areas prohibited while on Clinical Assignment	Unsatisfactory drug or background check
Dishonesty, theft, or destruction of property	Violence or threats of violence towards others
Violation of clinical policies	Violation of dress code
Non-compliance with classroom instruction	Habitual or excessive tardiness and/or absenteeism
Cheating	Non-payment of tuition /fees
Possession of firearms or weapons	Issuing unauthorized or false information about the school
Discourtesy to faculty, staff, patients, or visitors	Behavior that may injure or harm others
Failure to complete any part of the program	Hazing on or off the school property
Behavior that interferes with the learning process, instructor presentations, or that brings unfavorable criticism upon cohort members	Circulation of petitions, or rumors that defame or subvert the mission, reputation, or authority of the school, or its faculty or staff.
Use of cell phones in unpermitted areas	Sleeping while at clinical assignment rotation
Leaving clinical experience, or the assigned area without notification	Using the clinical affiliation telephone or computer for personal use
Leaving patients unattended	Eating in areas not specifically designed for that purpose
Accepting any type of gratuity or "tip" from a patient or other stakeholder	Not adhering to published school or clinical guidelines related to grievances
Plagiarism	Others

Appendix C:

COVID-19

Modifications of Policies and Procedures will continue to be a dynamic issue. Students will be apprised of changes as they are made by the CDC, the Campus and the State of California.



Merced College official data has been and will continue to be released via pertinent e-mails.

Campus Requirements will be updated, as necessary. Students and staff will continue to maintain social distancing as approved, wear necessary PPE, use hand sanitization, clean working spaces routinely, and enter the building after temperature screening. Notify your instructor, prior to driving to campus, if you have a fever, or you have been exposed to a friend or family member who has been diagnosed with COVID.



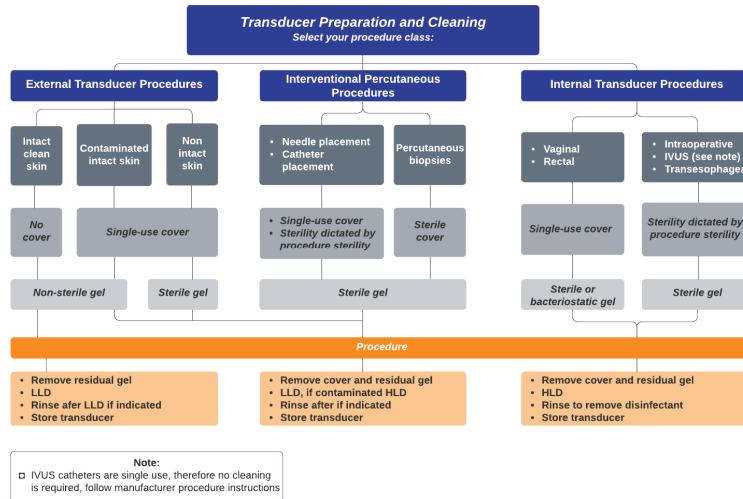
The following links comprise a vast data site for Sonographic Issues and information regarding COVID-19 from the SDMS Society for Diagnostic Medical Sonography
[https://www.sdms.org/news/2020/03/11/sdms-update-coronavirus-disease-2019-\(covid-19\)](https://www.sdms.org/news/2020/03/11/sdms-update-coronavirus-disease-2019-(covid-19))

U.S. CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC)

- Information Center
- What You Should Know
- Information for Healthcare Professionals
- Resources for Healthcare Facilities
- Sequence for Putting On Personal Protective Equipment (PPE) [added 03/25/20]
- FAQs about Personal Protective Equipment
- Interim Guidance for Risk Assessment of Healthcare Personnel with Potential Exposure in Healthcare Setting
- FAQs COVID-19 and Pregnancy
- Signup for Weekly COVID-19 Updates
- Handouts & Posters
- Videos
- Preventing Spread in Communities
- State and Territorial Health Websites [added 05/28/20]
- Get Your Household Ready for Pandemic Flu (*most of the information about preparation for the flu also applies to COVID-19*)
- Revised Definition of COVID-19 "Close Contact" [added 10/22/20]
- CDC Advisory Committee on Immunization Practices: Phased Allocation of COVID-19 Vaccines [added 12/1/20]

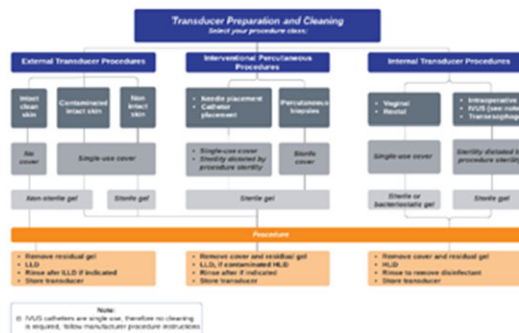
aium | Official Statements

1. <https://www.aium.org/officialStatements/57> Guidelines for Cleaning and Preparing External & Internal Use US Transducers and Equipment between Patients; Safe Handling and Use of Ultrasound Coupling Gel



1. https://aium.s3.amazonaws.com/covid19/Covid19_Quick_Guide_UTEG.pdf Quick Guide on COVID-19 Protections---Ultrasound Transducers, Equipment, and Gel

Transducer Cleaning Procedures Flowchart*



2. https://aium.s3.amazonaws.com/covid19/Covid19_Quick_Guide_PUPP.pdf Quick Guide on COVID-19 Protections---Patient and Ultrasound Provider Protection

D: Personal Protective Equipment

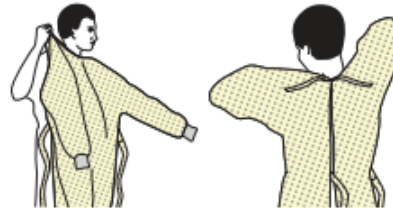
1. <https://www.cdc.gov/hai/pdfs/ppe/PPE-Sequence.pdf> Sequence for Putting On Personal Protective Equipment (PPE)

SEQUENCE FOR PUTTING ON PERSONAL PROTECTIVE EQUIPMENT (PPE)

The type of PPE used will vary based on the level of precautions required, such as standard and contact, droplet or airborne infection isolation precautions. The procedure for putting on and removing PPE should be tailored to the specific type of PPE.

1. GOWN

- Fully cover torso from neck to knees, arms to end of wrists, and wrap around the back
- Fasten in back of neck and waist



2. MASK OR RESPIRATOR

- Secure ties or elastic bands at middle of head and neck
- Fit flexible band to nose bridge
- Fit snug to face and below chin
- Fit-check respirator



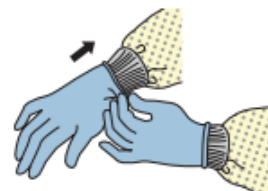
3. GOGGLES OR FACE SHIELD

- Place over face and eyes and adjust to fit



4. GLOVES

- Extend to cover wrist of isolation gown



USE SAFE WORK PRACTICES TO PROTECT YOURSELF AND LIMIT THE SPREAD OF CONTAMINATION

- Keep hands away from face
- Limit surfaces touched
- Change gloves when torn or heavily contaminated
- Perform hand hygiene



HOW TO SAFELY REMOVE PERSONAL PROTECTIVE EQUIPMENT (PPE) EXAMPLE 1

There are a variety of ways to safely remove PPE without contaminating your clothing, skin, or mucous membranes with potentially infectious materials. Here is one example. **Remove all PPE before exiting the patient room** except a respirator, if worn. Remove the respirator **after** leaving the patient room and closing the door. Remove PPE in the following sequence:

1. GLOVES

- Outside of gloves are contaminated!
- If your hands get contaminated during glove removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Using a gloved hand, grasp the palm area of the other gloved hand and peel off first glove
- Hold removed glove in gloved hand
- Slide fingers of ungloved hand under remaining glove at wrist and peel off second glove over first glove
- Discard gloves in a waste container



2. GOGGLES OR FACE SHIELD

- Outside of goggles or face shield are contaminated!
- If your hands get contaminated during goggle or face shield removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Remove goggles or face shield from the back by lifting head band or ear pieces
- If the item is reusable, place in designated receptacle for reprocessing. Otherwise, discard in a waste container



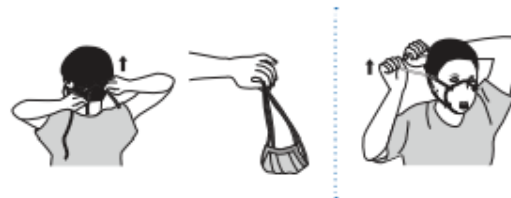
3. GOWN

- Gown front and sleeves are contaminated!
- If your hands get contaminated during gown removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Unfasten gown ties, taking care that sleeves don't contact your body when reaching for ties
- Pull gown away from neck and shoulders, touching inside of gown only
- Turn gown inside out
- Fold or roll into a bundle and discard in a waste container

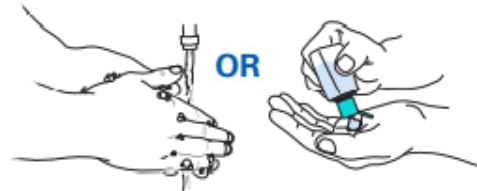


4. MASK OR RESPIRATOR

- Front of mask/respirator is contaminated — DO NOT TOUCH!
- If your hands get contaminated during mask/respirator removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp bottom ties or elastics of the mask/respirator, then the ones at the top, and remove without touching the front
- Discard in a waste container



5. WASH HANDS OR USE AN ALCOHOL-BASED HAND SANITIZER IMMEDIATELY AFTER REMOVING ALL PPE



**PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS
BECOME CONTAMINATED AND IMMEDIATELY AFTER
REMOVING ALL PPE**

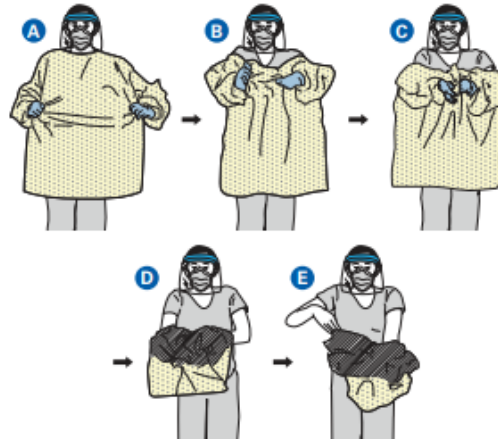


HOW TO SAFELY REMOVE PERSONAL PROTECTIVE EQUIPMENT (PPE) EXAMPLE 2

Here is another way to safely remove PPE without contaminating your clothing, skin, or mucous membranes with potentially infectious materials. **Remove all PPE before exiting the patient room** except a respirator, if worn. Remove the respirator **after** leaving the patient room and closing the door. Remove PPE in the following sequence:

1. GOWN AND GLOVES

- Gown front and sleeves and the outside of gloves are contaminated!
- If your hands get contaminated during gown or glove removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp the gown in the front and pull away from your body so that the ties break, touching outside of gown only with gloved hands
- While removing the gown, fold or roll the gown inside-out into a bundle
- As you are removing the gown, peel off your gloves at the same time, only touching the inside of the gloves and gown with your bare hands. Place the gown and gloves into a waste container



2. GOGGLES OR FACE SHIELD

- Outside of goggles or face shield are contaminated!
- If your hands get contaminated during goggle or face shield removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Remove goggles or face shield from the back by lifting head band and without touching the front of the goggles or face shield
- If the item is reusable, place in designated receptacle for reprocessing. Otherwise, discard in a waste container

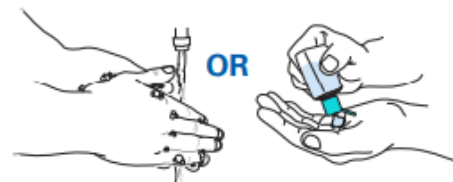


3. MASK OR RESPIRATOR

- Front of mask/respirator is contaminated — **DO NOT TOUCH!**
- If your hands get contaminated during mask/respirator removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp bottom ties or elastics of the mask/respirator, then the ones at the top, and remove without touching the front
- Discard in a waste container



4. WASH HANDS OR USE AN ALCOHOL-BASED HAND SANITIZER IMMEDIATELY AFTER REMOVING ALL PPE



**PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS
BECOME CONTAMINATED AND IMMEDIATELY AFTER
REMOVING ALL PPE**

