DIAGNOSTIC MEDICAL SONOGRAPHY

Student Handbook
Part I - 2016

DIAGNOSTIC MEDICAL SONOGRAPHY

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DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

STUDENT ORIENTATION

1. Each student will receive a Student Handbook on the first day of class. During that class, DMS program faculty will briefly review the policies and procedures in the manual; however, the student is ultimately responsible for reading and understanding all of the contents in the handbook, as compliance is vital to the success of the student in the DMS program.

2. Following the review of the student handbook including policies, forms and recommended web sites, students will be asked to sign the Student Acknowledgement Form and submit to the Program Director as instructed during the orientation.

3. If a student requests a replacement of the handbook, a fee of $20.00 will be charged to the student. This fee will cover the cost of paper, printing, and labor.

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM
STUDENT ACKNOWLEDGMENT

The undersigned student acknowledges that he/she understands the following in regard to the DMS Program sponsored by Columbus Technical College:

1. The DMS Program is for the benefit and education of the student.

2. The student acknowledges receipt of the DMS Student Handbook and has reviewed all the policies of the Program and understands these policies.

3. The student agrees to comply with the rules, regulations, and procedures of the DMS Program, Columbus Technical College and the affiliate clinical sites as stated in the student handbook.

4. Students shall pay the specified amount of tuition per semester to Columbus Technical College for each of the four required semesters.

5. The student is responsible for the purchase of text books, uniforms, or other expenses such as project material and understands that these items are required for participation in the DMS Program.

6. The CTC/DMS Program does not give refunds to students who do not complete the course. Textbooks remain the property of the student.

7. The student understands that items issued (book/video/DVD loaned to the student from the CTC Library and/or DMS Program collection) must be returned upon exit of Program.

8. The student must provide his/her own transportation, meals, housing, and all expenses.

9. The student is solely responsible for his/her own transportation to and from clinical assignments, classes and lab sessions. CTC is not responsible for damages or injuries to the students and/or others in the event of an accident occurring while en route to or from any school related activity.

10. The student is responsible for reading the Code of Ethics, Scope of Practice, and Diagnostic Medical Ultrasound Clinical Practice Standards as published by the Society of Diagnostic Sonography. These documents are available on their website: www.sdms.org.

11. The student understands it is his/her sole responsibility to apply for, schedule and pay the fees for the American Registry for Diagnostic Medical Sonography (ARDMS) national examination. The program does not guarantee a passing score. It is the student's responsibility to study the material presented in order to obtain a passing score. The current mandatory cost for all 3 exams is $700.00. These fees are expected to be paid throughout the duration of the program.

12. The DMS Program does not involve an employer/employee relationship. The student is not entitled to wages for any educational/clinical training time in this Program.

13. Neither Columbus Technical College nor any clinical affiliate is obligated to the student for employment upon completion of the Program.

14. The student has read and understands the Disciplinary Action Policy.

15. The student understands that the first two semesters of the Program are probationary.

16. The Program reserves the right to dismiss a student at any time during the training period. If it becomes evident to the faculty that the student's attitude or aptitude for a career in Diagnostic Medical Sonography is unsuitable, the student will be advised and/or required to withdraw from the program.

17.The student has read and understands the grading system and classroom policies.

18. The student acknowledges understanding of the attendance policy. The student knows that any missed clinical time must be made up before the beginning of the following semester to meet standards to graduate.

19. The student shall sign a Graduation Requirement Form obligating the student to attain certain objectives and submit various items prior to graduation. The student understands that signing the Graduation Requirements Form constitutes an agreement to comply with those requirements.

20. Student records can be released to a third party ONLY with a signed written consent.

While the provisions of this statement and the rules and regulations of the program and clinical affiliates will ordinarily be applied as stated, Columbus Technical College and the Diagnostic Medical Sonography Program reserve the right to change any policy or procedure without prior notice. Every effort will be made to keep the student advised of any such changes.

Acknowledged by: _____ Date: _____
(Student Signature)

_____
(Print Name)

Witnessed by: _____ Date: _____

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

WEB PAGE AND MARKETING PERMISSION

I (print name) _____, give Columbus Technical College permission to use pictures of me in publications, advertisements, and on the CTC web pages.

Student Signature: _____ Date: _____

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

HISTORY

COLUMBUSTECHNICALCOLLEGE

On December 1, 1961 what was then known as Columbus Area Vocational-Technical School began classes under the Muscogee County School District. In July 1966 the Columbus Area Vocational-Technical School and the Muscogee Area Vocational-Technical School combined to become Columbus Technical Institute. The State legislature created a new State Board of Postsecondary Vocational Education (now called the Technical College System of Georgia) in 1985. On July 1, 1987 control of the institute was transferred from the Muscogee County School District to the new State Board. In May 2000, the College name was changed to Columbus Technical College.

Columbus Technical College is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools. (SACSCOC - 1866 Southern Land, Decatur, GA 30033-4097, 404-679-4501)

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

Prior to July of 2005, Columbus Technical College received numerous calls from prospective students as well as regional hospitals requesting a sonography program. During July and August of 2005, an informal, telephone survey of human resource departments at regional facilities was conducted to determine the need for sonography graduates. Topics of discussion included: current vacancies, level of education desired, number of positions filled annually, and salary range. All contacts voiced their concern over the shortage of diagnostic medical sonographers, and they complained about being forced to contract help from national agencies at an extremely high cost. Following the survey, the decision was made to propose the program to the Technical College System of Georgia. (formally known as Georgia Department of Technical and Adult Education)

Approval through the Technical College System of Georgia (TCSG) for a Diagnostic Medical Sonography (DMS) Associates Degree Program at Columbus Technical College was granted in the Fall of 2005.

The first DMS Program started in the Winter of 2007. The professional phase is a 16 month (4semesters) program set up under TCSG DMS curriculum guidelines which includes general core, technical, and clinical courses. The standards and guidelines as written by the Technical College System of Georgia are available in the program manager's office.

In December of 2010, Columbus Technical College completed construction on the new, state-of-the-art Wright Health Science Center. The DMS program moved into the new building located on 4600 River Road in Columbus Georgia in January, 2011.

In the Spring of 2013, the Columbus Technical College's DMS program was granted accreditation by the Commission on Accreditation of Allied Health Education Programs (CAAHEP).

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

MISSION STATEMENT

It is the mission of the Columbus Technical College Diagnostic Medical Sonography (DMS) program to provide high quality education consistent with the Technical College System of Georgia (TCSG) standards. In a didactic and clinical setting, a curriculum is provided that will give the students the knowledge, skills, and ethics to graduate and become successful and competent employees in the field of Sonography.

PURPOSE

1. To develop the knowledge and skills of the DMS students under the standards of the TCSG. Upon completion of the DMS program, the student is prepared for the national certification examination thus enabling him or her to achieve recognition in the profession and allow for subsequent upward mobility.

2. To have qualified instructors both in the didactic and clinical setting to meet the stated educational objectives of this program.

3. To assist each student in reaching their potential within the program, the instructor provides organized instruction through many resources and coordinates the clinical education to complement each area of didactic instruction. The student assumes responsibility for actively learning through course text books, library resources, video and DVD presentations, and fully participating in the clinical setting to obtain knowledge through personal experience under qualified supervision.

4. To provide for individual learning differences by monitoring the student's didactic and clinical performance and providing counseling as needed.

5. To improve academic instruction as the need arises because of new technical advances in the field of Sonography.

6. To pursue financial assistance for students.

7. To assist the profession and community by providing qualified Diagnostic Medical Sonographers to meet the needs of hospitals, clinics, imaging centers and private practices in the region.

8. To promote continuing medical education and involvement in professional sonography organizations to the DMS students to assure they maintain their professional learning and that they become involved and active in the issues of the profession.

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM
PROGRAM GOALS AND OBJECTIVES

GOAL 1: Prepare competent entry-level general sonographers in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains under the guidance of the Technical College System of Georgia, and the Commission on Accreditation of Allied Health Education Programs (CAAHEP) standards.

OBJECTIVES:

1. Assist each student to reach their potential within the program by providing organized instruction through many resources such as course text books, library resources, video and DVD presentations, anatomy models, case studies, and professional journal articles.

2. Provide adequate laboratory time for hands on experience with ultrasound imaging systems, various transducers, and imaging phantoms corresponding to their didactic education.

3. Coordination of the student's clinical education to complement each area of didactic instruction while maintaining the required hours of clinical experience and competency completions.

4. Monitor the student's didactic and clinical performance and provide counseling for improvement as needed.

5. Offer opportunities for the students to request individual tutoring during the instructor's office hours.

6. Implement new lesson plans and lecture material to accommodate new technical advances in the field of sonography as needed.

GOAL 2: Provide qualified instructors in both the didactic and clinical settings.

OBJECTIVES:

1. Hire experienced, registered instructors for didactic instruction.

2. Require the staff to continue professional development in both the field of education and the field of sonography through CTC professional development courses and National sonography and/or imaging organization meetings.

3. Monitor the experience level and registration of the clinical instructors at the clinical sites.

GOAL 3: Assist the profession and community by providing qualified diagnostic medical sonographers to meet the needs of hospitals, physician's offices, clinics, and imaging centers in the region.

OBJECTIVES:

1. Obtain evaluations and suggestions from the members of the DMS Advisory Committee regarding all aspects of the program.

2. Maintain a good rapport with our clinical facilities to monitor the education level and skills of the students and to foster employer anticipation and confidence in the DMS program graduates.

3. Support the Society of Diagnostic Medical Sonography professional code of ethics, scope of practice, and clinical practice standards.

4. Promote continuing medical education and involvement in professional sonographic organizations to the DMS students assuring they maintain their professional learning and become involved and active in potential issues within the profession.

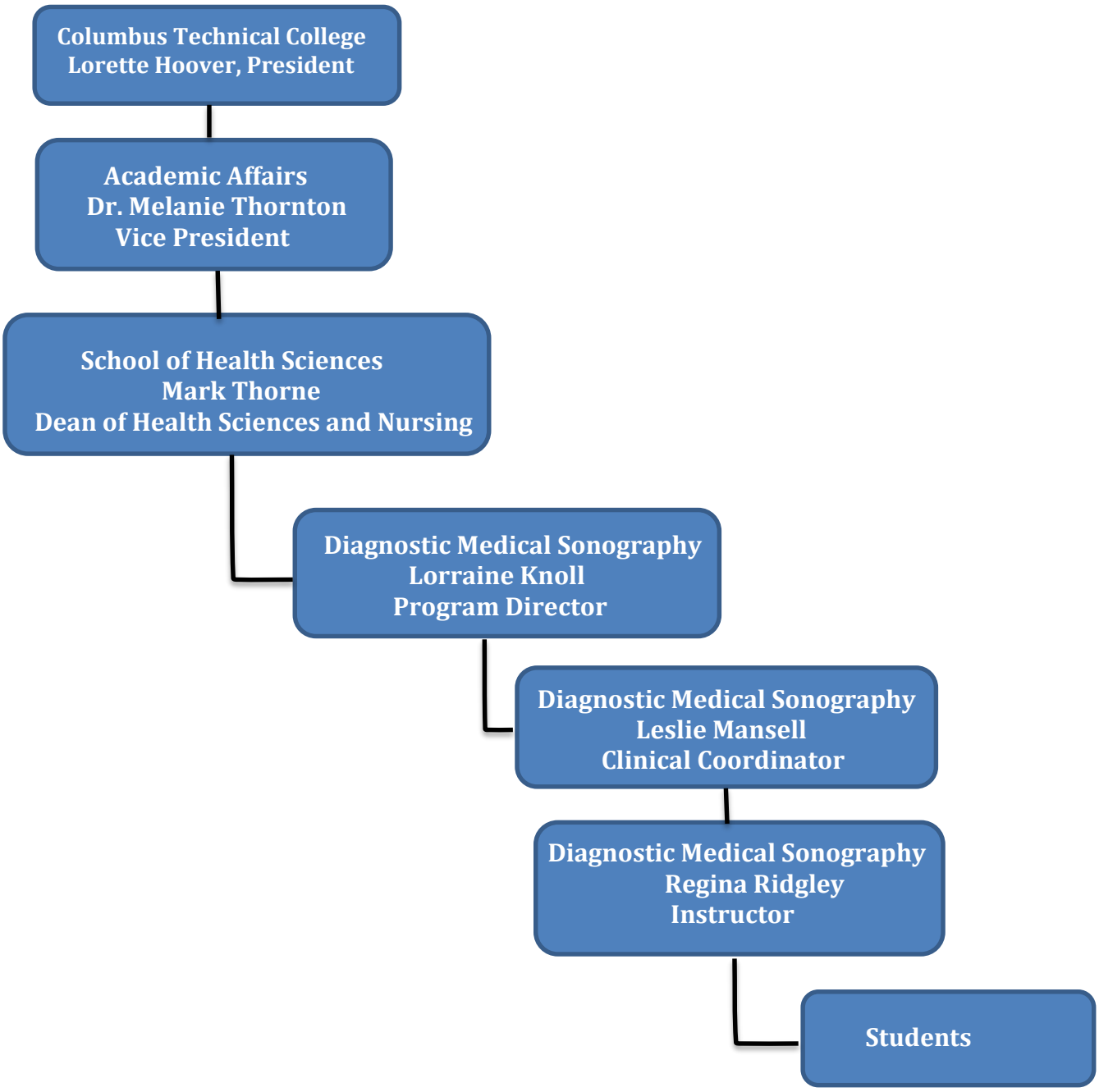
GOAL 4: Sustain accreditation of the DMS program through CAA HEP/JRC-DMS.

OBJECTIVES:

1. Operate the Program under the JRC-DMS standards to maintain accreditation status.

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

TABLE OF ORGANIZATION



AVAILABILITY OF STUDENT CTC POLICIES AND PROCEDURES

The student is able to access all policies, procedures of the college at www.columbustech.edu

AVAILABILITY OF STUDENT RECORDS POLICY

In accordance with CTC Policy, all student/graduate transcripts are maintained by the Registrar's Office. Transcripts are provided upon request and a service fee may be charged.

Information specific to the student's involvement in the DMS Program is kept on file in the program manager's office under lock and key. Students may review these records by appointment with the program manager. The program manager or other assigned faculty member **MUST** be present when the student reviews the records. No portion of the file will be copied or removed from the Program office. Third Party inspection of the records is not allowed without the expressed written consent of the student/graduate.

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

LIBRARY SERVICE POLICY

COLLEGE LIBRARY

The CTC library is available for all student use. It is intended for student research and other independent studies. The library provides a selection of periodicals, books, and audio visual aids in addition to access to computers and the internet. Hours of operation are listed on the college website.

A complete resource catalog is available on the college intranet. Click on the library icon and use keywords "ultrasound" or "sonography" for a list of resources specifically for the DMS program. By accessing the *video library* you can view many pertinent DVDs and videos.

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

CHANGES IN PERSONAL DATA POLICY

Any changes in name, address, telephone number, marital status, etc. must be made in writing and presented to the program manager and the Admissions Office of CTC within 7 days of the change. This notification is needed for new name badge, records, and mailing information.

Upon graduation, and for the subsequent 2 years, it is requested that any change in contact information be called to the Program Director (706-641-4012) for follow up surveys.

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

CHANGE OF PERSONAL DATA FORM

This form is to change your personal data in the Diagnostic Medical Sonography Program only. You must also change the information with CTC Admissions and Financial Aid. Depending on the change, you may be required to obtain a new ID badge.

Name: _____

Change Requested:

_____

_____

_____

Reason for Change:

_____

_____

_____

Student Signature: _____ Date: _____

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

POLICY FOR DMSO 1080
(Sonographic Physics &Instrumentation Review Course)

If a DMS student sits for the ARDMS SPI (Physics) exam and passes after DMSO 1040 or before the end of DMSO 1080, then he/she will be permitted to remain in the DMS program

Any student who does not pass the SPI exam by the end of the DMSO 1080 will be dropped from the program and will have to compete again the following year if they wish to complete the program. If a student is permitted back into the program they will be required to repeat any lab proficiencies they received during the first and/or second semester during the program and attend lecture.

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

COMPETENCY REQUIREMENTS FOR GRADUATION

The Columbus Technical College DMS Program is a competency based program which requires the student to satisfactorily complete the 4 semesters of academic and clinical assignments and to demonstrate proficiency in performing various sonographic exams. The students must complete the program within the 16 month program schedule and within the stated attendance guidelines.

A student will not be considered for completion of the program and receipt of a degree until all requirements and attendance are met.

1. Academics
    a. The student must achieve a minimum grade of **70%** in each course (overall grade), in addition to this, the student must also achieve a score of **70%** or greater in any "Exam", "Midterm", or "Final Exam" portion of the grade calculation section found in each course syllabus.

2. Lab
    a. Due to the high performance demands and operator-dependent nature of the diagnostic medical sonography field, the DMS program must uphold a high standard in this area of student performance. Failure to achieve an **80%** or greater on any anatomic Lab Proficiency will result in failure of the course and automatic program dismissal.

3. Clinical
    a. The student must satisfactorily pass all the required competency evaluations for each sonographic procedure assigned and have a clinical grade average of **80%** or above for the course, the clinical evaluation category, and clinical competencies.

4. Attendance
    a. The student must be present in both the clinical and academic environments in order to meet the required competency levels. The student must adhere to the attendance policies of the Program as explained in each course syllabus and

    within this Student Handbook. The student shall not graduate with the class if he/she does not complete the DMS Program within the specified time. Any absences and/or discipline days must be completed/made up before the degree is awarded.

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

HONOR SOCIETY

Lambda Nu is a national honor society for the Radiologic and Imaging Sciences.
Its objectives are to:

1. Foster academic scholarship at the highest academic levels.
2. Promote research and investigation in the Radiologic and Imaging Sciences.
3. Recognize exemplary scholarship.

The Georgia Gamma Chapter of Lambda Nu has been established at Columbus Technical College and is available to the students of the School of Radiology as well as the students of the Diagnostic Medical Sonography Program.

Requirements for Membership include:

1. Professional course GPA of 3.5 or higher on a 4.0 scale.
2. Enrollment in the Radiologic or Diagnostic Medical Sonography Program as a full-time student for a least three (3) full semesters.
3. Evidence of professional commitment beyond minimum requirements of the program, including, but not limited to:
    a. GPA higher than Chapter minimum.
    b. Active membership in a professional organization.
    c. Clinical-based employment in a Radiologic or Diagnostic Medical Sonography field.
4. Faculty members are eligible for membership upon meeting the following criteria:
    a. Actively teaching in Radiology or DMS Program at the institution of the above chapter (full-time, part-time, adjunct, or guest faculty).
5. Professional membership will be awarded to those Technologists and Radiologists who are not alumni of the program and who have achieved a GPA of 3.5 or higher from their accredited program of study.
6. All members must register and pay national dues as well as meet all Chapter obligations.
7. Exemplary honors may be achieved upon evidence of advanced professional recognition (i.e. academic paper or poster presentation, publication, etc.).

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

ACADEMIC STANDARDS

Students are required to achieve a grade of 70% (C) in all academic courses in the DMS program and an individual average of 70% or greater for any "Exam" category within any course syllabus. An 80% (B) must be maintained for all clinical courses. If a final grade is lower than the required course grade, the student will be dismissed from the program. Students that are dismissed from the DMS program will be assisted by referral to counseling and guidance to redirect their program of study.

Completion of the DMS program shall be dependent on documented achievement of objectives and competencies defined in each syllabus.

Because of the progressive manner of the curriculum in the DMS program, students must take the courses each semester as described.

Testing procedures:

Testing is an essential means of assessing student progress. The DMS program will utilize any of the following methods:

1. Exams
2. Quizzes
3. Laboratory quizzes/checklists (where applicable)
4. Projects, writing assignments, and short answer essays
5. Hourly/midterm/final examinations

The course tests/quizzes will be composed of questions in the form of true or false statements, multiple choice, fill in the blank, essay, short answer, or matching. In the matching sections, each item may be used once, more than once, or not at all. The tests/quizzes will cover classroom lecture, PowerPoint presentations, assigned reading material, handouts and laboratory instruction. The type of examination administered is at the discretion of the instructor.

Tests/quizzes will be graded and posted in Blackboard as soon as possible. It is the instructor's discretion whether or not the answer sheets are reviewed in class. In either case, each student will have an opportunity to review the examination with the instructor outside of class time by scheduling an appointment as described in the course syllabus. Graded tests will not be reviewed in class if one or more students are absent for the test/quiz.

Should a student be absent from an examination, he/she must consult with the instructor for a make-up exam. All examinations are expected to be made up on the day following the absence. **Failure to make up an exam in this manner will result in a grade of "0" for that exam.**

There will not be any make-up tests/quizzes given for any previously failed exam.

Guest lecturers (Radiologist, Physician, Sonographer, Physicist, or a representative of a commercial company) will sometimes present lectures or conduct classes. These are part of the formal education and exams/quizzes may be given on material presented.

Testing tools for the clinical portion of the DMS program are explained in detail in the clinical education section of the handbook.

Teaching Methods:

A variety of teaching methods will be used in the DMS program and could include:

1. Lecture/discussion
2. PowerPoint/media presentation
3. Handouts
4. Video or DVD presentation
5. Demonstration/performance
6. Guest speakers
7. Case study presentations
8. Question/answer review

Evaluations:

Surveys will routinely be provided for evaluation purposes of the instructor, clinical instructors, staff sonographers, and clinical affiliates. These evaluations are part of the Program's quality assurance and program development plans.

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

COURSE GRADING

Grading is in accordance with current school policy.

90-100 A - Excellent
80-89 B - Good
70-79 C - Average
60-69 D - Below Average
0-59 F - Failure

Grade Standard for academic or clinical courses:
Students must earn a grade of C or higher in each academic course and a grade of B or higher in each clinical course.
When a student earns less than a 70/80%, the following will occur:

1. **The student will be dismissed from the DMS Program.**
2. The student may apply for acceptance into the next class for Diagnostic Medical Sonography & must go through the competitive admission process again.
    a. The program manager will evaluate the reason for dismissal from the Program and evaluate whether the student is eligible to reenter the Program based on his/her past performance.

Lab Grade standard for all academic courses:
The students must complete all lab competencies with a grade of 80% or greater per course requirements in order to proceed in the DMS program.
The following will occur if all the competencies are not completed:

1. **The student will be dismissed from the DMS Program.**
2. The student may apply for acceptance into the next class for Diagnostic Medical Sonography & must go through the competitive admission process again.
    a. The program manager will evaluate the reason for dismissal from the Program and evaluate whether the student is eligible to reenter the Program based on his/her past performance.

The student will be assigned a grade for the Lab portion of the syllabus based on an average of all lab competencies that are required for all courses containing a lab. The following DMS courses: DMSO 1010 and DMSO 1040, are the exception to the policy as they require a lab, but some of the competencies are evaluated on a "Pass/Fail" grading system. All competencies must be in good standing to continue within the DMS program.

WORK ETHICS:
A separate Work Ethics grade will be given for every class. This grade is not calculated into the overall course grade. The following are ten areas of work ethic traits that will be evaluated: Attendance, Character, Teamwork, Appearance, Attitude, Productivity, Organizational Skills, Communication, Cooperation, and Respect. (See the following Work Ethics Evaluation Forms.)

WORK ETHICS ACKNOWLEDGEMENT

COURSE NUMBER _____ SEMESTER _____

CRN _____

The work ethics that are monitored are as follows: attendance, character, teamwork, appearance, attitude, productivity, organizational skills, communication, cooperation, and respect. Work ethics will be evaluated by the following method. Remember, to meet expectations is a good thing. In the workforce as well as in college most people fall in the category of 2 - meets expectations. Attached is the TCSG evaluation form that will be used.

NUMERICAL GRADE	DESCRIPTION
3 (24-30)	**Exceeds Expectations**
2 (20-23)	**Meets Expectations**
1 (17-19)	**Needs Improvement**
0 (0-16)	**Unacceptable**

I have attended the first day of class where I received a course syllabus which explains the specific course requirements and policies.

I will abide by all rules and regulations set forth as a policy by Columbus Technical College. I will practice behavior that is responsible, ethical, and legal.

There is a procedure for appeal in place for the work ethics program. It is as follows:

1. If the student does not feel that the evaluation he or she received is justified, the student should put the appeal in writing to the instructor.
2. If the student is not satisfied with the results received from the instructor, he or she may appeal to the Program Manager.
3. If the student is not satisfied with the results from the Program Manager, he or she may appeal to the Dean.
4. If extenuating circumstances warrant further investigation, a final written appeal should be submitted to the Work Ethics Coordination Monitors.
5. **NOTE:** All appeals must be in writing.

PRINT NAME _____

SIGNATURE _____ Date _____

COLUMBUS TECHNICAL COLLEGE

Grading Scale **3** - 24-30 Exceeds Expectations **2** - 20-23 Meets Expectations **1** - 17-19 Needs Improvement **0** - 0-16 Unacceptable	Exceeds Expectations	Meets Expectations	Needs Improvement	Unacceptable	Exceeds Expectations	Meets Expectations	Needs Improvement	Unacceptable
Work Ethics Trait	Point Score				Point Score			
	3	2	1	0	3	2	1	0
Attendance: Attends class; arrives/leaves on time; notifies instructor in advance of planned absences.								
Character: Displays loyalty, honesty, trustworthiness, dependability, reliability, initiative, self-discipline, and self-responsibility.								
Teamwork: Respects the rights of others; respects confidentiality; is a team worker; is cooperative; is assertive; displays a customer service attitude; seeks opportunities for continuous learning; demonstrates mannerly behavior.								
Appearance: Displays appropriate dress, grooming, hygiene, and etiquette.								
Attitude: Demonstrates a positive attitude; appears self-confident; has realistic expectations of self.								
Productivity: Follows safety practices; conserves materials; keeps work area neat and clean; follows directions and procedures; makes up assignments punctually; participates.								
Organizational Skills: Manifests skill in prioritizing and management of time and stress; demonstrates flexibility in handling change.								
Communication: Displays appropriate nonverbal (eye contact, body language) and oral (listening, telephone etiquette, grammar) skills.								
Cooperation: Displays leadership skills; appropriately handles criticism, conflicts, and complaints; demonstrates problem-solving capability; maintains appropriate relationships with supervisors and peers; follows chain of command.								
Respect: Deals appropriately with cultural/racial diversity; does not engage in harassment of any kind.								
SUBTOTAL	0	0	0	0	0	0	0	0

TOTAL SCORE		GRADE	
	MID-Semester GRADE:		**FINAL GRADE:**
	2 (Meets Expectations)		**2 (Meets Expectations)**

Explanation of Work Ethics Grades	
Exceeds Expectations:	Work ethics performance is exemplary. Student has consistently demonstrated characteristics that will stand out in the work environment.
Meets Expectations:	All work ethics standards are met. The quality of student's work ethics performance is that of a good employee in the normal work environment.
Needs Improvement:	Some standards were not met. Additional training in employability skills is recommended.
Unacceptable:	Work ethics performance was below average. Additional training in employability skills is a must if the student is to survive in the work environment.

COLUMBUS TECHNICAL COLLEGE

WORK ETHICS EVALUATION

Name _____ **Course** _____ **Date:** _____

WORK ETHICS EVALUATION
Exception Form

Name: _____ **Course:** _____ **Date:** _____

POINTS ADDED OR DELETED PER WORK ETHICS TRAIT:

Exceeds Expectations (+1) Needs Improvement (-1) Unacceptable (-2)

_____ Attendance _____ Character _____ Teamwork _____ Appearance _____ Attitude

_____ Productivity _____ Organizational Skills _____ Communication _____ Cooperation _____ Respect

PROBLEM OR COMMENDATION:

_____

_____

STUDENT RESPONSE:

_____

_____

IMPROVEMENT PLAN:

_____

_____

Date for Review Session: _____

(Review may be scheduled for mid-quarter, or at any other designated time.)

_____ / _____

Instructor **Student**

OUTCOME OF REVIEW SESSION:

Points to be added or deleted, if any, from the Work Ethics Evaluation Form:

Exceeds Expectations (+1) Needs Improvement (-1) Unacceptable (-2)

_____ Attendance _____ Character _____ Teamwork _____ Appearance _____ Attitude

_____ Productivity _____ Organizational Skills _____ Communication _____ Cooperation _____ Respect

_____

_____

Instructor _____ Date _____

Student _____ Date _____

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM
ACADEMIC CLASSROOM POLICIES

Throughout the DMS program, professionalism is emphasized. From the first day of class, students will be expected to act and dress accordingly. The following standards are MANDATORY for all classes in the DMS program:

1. Classroom and lab dress code:
   - ⇒ Name badges must be worn and clearly visible at all times on campus and at clinical.
   - ⇒ No halter or tank tops shall be worn to class.
   - ⇒ No extremely short shorts, skirts, or low cut tops are permitted in class.
   - ⇒ In accordance with CTC policy, no hats or hoodies are permitted in class.
   - ⇒ No torn jeans (or other type of clothing) will be allowed.
   - ⇒ Shoes with closed toe and back must be worn in lab.
   - ⇒ No excessive jewelry or piercings are permitted.
     - Only wedding bands & one pair of small stud earrings are allowed at clinical.
   - ⇒ Hair must be kept clean and pulled back. If colored, must be of a natural hair color.
   - ⇒ Nails must be kept short and clean. No artificial nails or colored nail polish at clinical.

2. Students must be prompt to class. Tardiness will not be tolerated.

3. Talking or passing notes to classmates during class will not be tolerated. Students will show respect for all instructors and classmates.

4. **ALL cell phones and electronic devices should be turned off in class, lab, and at clinical**. Failure to abide by this rule will result in the student being asked to leave the classroom. The remainder of class time will be recorded as absent. If there are circumstances that require the student to be available by cell phone, the student must discuss those circumstances with the instructor prior to class. The Health Sciences administrative assistant (706-225-0502) or security department (706-649-1933) may be used in case of emergency.

5. Food and drinks are not permitted in classrooms or labs.

6. Feet shall not be propped up on desks and no school property shall be defaced. Defacing of school property is grounds for dismissal from the Program and the College.

7. Sleeping **will not** be tolerated in class. Students sleeping shall be warned on the 1st offense. On the 2nd offense, the student will be asked to leave class and will be counted as absent. On the 3rd offense, the student will be requested to meet with the instructor and the program manager. Further action will be taken as necessary.

8. Columbus Technical College is a smoke-free campus. Smoking and e-cigarettes is not permitted anywhere on college grounds or on the grounds of any clinical sites.

9. Use of profanity is unacceptable and will not be tolerated.

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

STUDENT ADVISEMENT FOR ACADEMIC COURSE PREPARATION

1. It is recommended the student study and challenge the objectives at the beginning of each chapter and/or complete the practice quizzes at the end of the chapter in the pertinent textbook(s) for the course or section of study.

2. It is essential that the student does the pre-reading of assigned or suggested reading prior to the lecture(s) as indicated on the course syllabus or as further advised by the instructor.

3. It is required that students be present for the lecture(s) as it is very important for successful achievement.

4. Students should take adequate notes during the lecture and maintain all handouts provided by the instructor.

5. Students should bring the required textbook(s) to every class and utilize as instructed. Sharing a textbook with a classmate is distracting and is discouraged.

6. Students should ask pertinent questions when further interpretation is needed either during the lecture or immediately following. If further explanation is needed, the student should make an appointment with the instructor. Instructors welcome your inquires as they want you to succeed.

7. Students should complete any post-reading of the assigned or suggested material as indicated in the course syllabus or further advised by the instructor.

8. An appropriate amount of time should be allowed in the scheduling plan of the student to address all topics. The appropriateness of scheduling study time should address the quantity and quality of the time spent. Last minute cramming is poor preparation and is NOT recommended.

9. It is the student's responsibility to study and learn the material presented and/or assigned to achieve course content knowledge which will be needed for clinical competencies and for the post-graduation registry examination.

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM
EMPLOYABILITY ACADEMIC STANDARDS

COURSE: _____

Each semester the student will receive 100 points for academic standards. The designated point values listed below will be deducted for **EACH** violation during the semester. At the end of the semester, the remaining points will be the final grade.

Maximum Points Deducted per Occurrence	**Academic Standards** ***(Work Ethics Traits)***
10	A. Failure to contact instructor or department manager prior to scheduled class time regarding absence or tardiness. *(Attendance, Communication)*
5	B. Absent or tardy more than 2 times per semester. Continued absence or tardiness will result in an increase of point deduction and a written warning. *(Attendance)*
5	C. Talking or causing other distractions during class or lab. *(Respect)*
5	D. Leaving class before the designated time, regardless of the reason, without notifying instructor or department manager. *(Character)*
5	E. Non- compliance of the dress code: no hats, hoodies. Missing student badge. Proper attire and shoes for lab. Appropriate coverage of body. See DMS Student Handbook for other details on dress code. *(Appearance, Cooperation)*
5	F. Failure to park in the assigned student parking. *(Cooperation)*
10	G. Poor attitude, argumentative. *(Character, Attitude)*
10	H. Not paying attention during class: sleeping or the appearance of sleeping, daydreaming, doing other program work.*(Productivity, Respect)*
5	I. Poor participation in class or lab. *(Character, Communication, Teamwork)*
15	J. Being disrespectful to instructor or fellow student. *(Respect, Attitude)*
5	K. Failure to turn in homework or assignments on time. *(Cooperation, Productivity, Organization)*
5	L. Failure to use time wisely in the lab. *(Productivity)*
5	M. Not following instructions in lab or classroom. *(Character)*
5	N. Taking food or drinks into the classroom. *(Cooperation)*
5	O. Smoking on campus. *(Cooperation)*
5	P. Use of profanity. (*Respect)*
3	Q. Failing an exam or quiz. (*Organization, Productivity*)
10	R. Texting or any use of cell phones in classroom or lab
20	S. Failure to attend a mandatory scheduled event *(Attendance, Participation)*

Comments:

_____

_____

_____

_____

_____

FINAL GRADE _____

STUDENT: _____ **INSTRUCTOR:** _____

Violation # _____ **Date** _____ **Points Deducted:**_____

Details/Comments:

_____

_____

_____

_____

Violation # _____ **Date** _____ **Points Deducted:**_____

Details/Comments:

_____

_____

_____

_____

Violation # _____ **Date** _____ **Points Deducted:**_____

Details/Comments:

_____

_____

_____

_____

Violation # _____ **Date** _____ **Points Deducted:**_____

Details/Comments:

_____

_____

_____

_____

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

ATTENDANCE POLICY

HOLIDAYS:
Holidays are scheduled into the CTC Academic Calendar for each year.

ABSENCES:
Absences from academic classes or from clinical assignments can affect your status in the Program. If a student is absent more than 10% of the course time for the semester, he/she **WILL** be dismissed from the program. An absence is defined as missing more than 15 minutes during any class hour. Both tardiness and early departure from class are forms of absenteeism. The course syllabus will define what the 10% means to each individual course. See Disciplinary Action Process.

CLINICAL MAKE UP:
Clinical assignment make-up time may be allowed by the program manager/clinical coordinator based on the clinical schedule and college breaks. Clinical time may be earned and banked for future absence on a limited basis, per clinical course. Clinical bank time and clinical make up time MUST be approved by, and scheduled with, the program manager or clinical coordinator and approved by the clinical instructor. See Clinical Handbook for further more details.

REPORTING AN ABSENCE DUE TO ILLNESS:
The student must notify the program manager and/or appropriate instructor prior to the beginning of academic classes. If the absence occurs during clinical hours, clinical coordinator and the clinical instructor must be informed prior to the scheduled start time. If the clinical instructor is unavailable, leave a message with your contact phone number.
NOTE: A physician's note does not dismiss an absence.
Also see the Communicable Disease Policy.

REPORTING AN ILLNESS DURING CLINICAL ASSIGNMENT:
If a student becomes ill during clinical assignment hours, he/she should report to the clinical instructor and the clinical coordinator. If indicated, the student should then leave for home OR see their personal physician (at their own expense).

PRESCHEDULED ABSENCE:
When the student knows ahead of time that he/she will have to be absent during academic classes or clinical rotation time, he/she must notify the program manager/instructor/clinical coordinator and clinical instructor. These absences will apply toward the 10%.

NOTE: The only exceptions to the 10% rule are:

a. **Jury duty:** The student is required to submit a request for exclusion from jury duty due to enrollment in courses that are sequential and essential to the Program.
If needed, the program manager will verify the student's involvement in the DMS Program. If unable to be excused from short term jury duty, days missed will not count as absences, but the student is required to makeup class work, homework assignments, quizzes, and tests. If the student is placed on long term jury duty, he/she can request a leave of absence and reenter the Program the following year at the same place in the course sequence. Documentation of exclusion request and denial are required to be submitted to the program manager.

b. **Military deployment:** If the student is active duty or reserve military and is deployed for a short period of time, days missed will not count as absences, but the student is required to makeup class work, homework assignments, quizzes, and tests. If the deployment will be long term, he/she can request a leave of absence and reenter the Program the following year at the same place in the course sequence. The program manager will evaluate the student's technical skills and determine if any of the previously obtained competencies will need to be repeated. If the student does not request reentry into the Program, then he/she will have to reapply in the competitive admission process.

Note: Upon return of the student following an extended period of time, the program manager will evaluate the student's technical skills. It is at the program manager's discretion to require the student to repeat the competencies previously acquired. If the student does not request reentry into the Program within a year, he/she must reapply and compete for admission.

Failure to notify the program manager, instructor, clinical coordinator, and clinical instructor in the event of an absence is a Category Two offense and the appropriate action will be taken. See the Disciplinary Action Policy. Students must have a prior plan in place, especially if they do not have access to a phone (which will not be accepted as a reason for failure to notify). It is unacceptable to inform classmates of your tardiness/absence and expect them to notify the instructor. It is the sole responsibility of the student who is going to be absent/tardy to contact the instructor.

Days missed for reprimand/suspension will be recorded as absences and will count toward the accepted 10%.

The Program has a required amount of clinical time. All clinical assignments must be made up through approval by the program manager/clinical coordinator, and clinical instructor. Failure to make up clinical time will result in an incomplete grade (I) which can prevent continuation in the program due to its progressive nature.

Students will be held responsible for all class and lab material covered on the day of absence. Absence for outside appointments: These will be counted as absences. The student should schedule all dental, doctor, and other appointments after school, while off-duty, or between semester breaks.

Academic attendance will be taken at the start of each class. Clinical assignment attendance will be monitored by time sheets which document in and out time at the clinical site.

TARDINESS

The student should arrive to their classes on time. It is disruptive behavior to classmates and instructors. In addition, the student misses important material being presented. Any student who is absent from class up to 15 minutes during any hour of class time will be counted as tardy. Any student who has been tardy three times will be charged with a one-hour absence.

Students must report for clinical duty at least 10 minutes prior to their scheduled time. This allows for time to put away personal belongings and get to their clinical area. Arriving five minutes past the scheduled time is, and will be, considered tardy. Arriving in the parking lot at the scheduled time does not constitute being on time. Repeated tardiness will affect the Clinical Standards grade. After the third tardy, the student will be charged with one hour absence. It is very important to the student (for future employment) and to the DMS program (for maintaining the site) that clinical assignments are taken seriously and the students act in a professional manner.

NOTE: Excessive tardiness is a Category Two Offense. Please refer to the Disciplinary Action Process.

INCLEMENT WEATHER – COLLEGE CLOSING:

For all situations involving inclement weather, Columbus Technical College will close when the Muscogee County School System closes. Likewise, when the weather situation permits, Columbus Technical College will reopen when the Muscogee County School System reopens. If the school is open, the student is expected to attend classes and clinicals. If the student feels that the weather/road conditions are unsafe in their area, it is up to their discretion if they choose to miss class or clinicals. However, any time missed must be made up if the school was not closed.

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

STUDENT WITHDRAWAL POLICY

If the student decides to withdraw from the DMS Program for any reason, the follow items **MUST** be submitted to the Program:

1. Written intent to withdraw from the Program
2. Any book/video/DVD loaned to the student from the College or Program Library.

The student must also withdraw from Columbus Technical College **or** complete a "Change of Major" form to be moved to another field of study. Advisors are available to assist the student with that process.

Students withdrawn from the DMS program for attendance, or for failing a course, may reapply for the next year's program under the competitive admission process. Students will only be accepted into the program a total of two times.

Students withdrawn from the DMS program for disciplinary reasons will not be allowed to reapply for the program.

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

LEAVE OF ABSENCE FORM

Name: _____ Student ID #: _____

Length of time for leave: _____

Reason for Leave (Attach Physician note, jury duty documentation, etc. as applicable):

_____

_____

Student Signature: _____ Date: _____

Course of Action Recommendation:

_____

_____

Actions Taken:

_____

_____

Program Director Signature: _____ Date: _____

Division Chairperson Signature: _____ Date: _____

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

GUIDANCE AND STUDENT COUNSELING POLICY

- Academic guidance is provided to the student at advisement.
- The Care Center offers help in writing and math, if needed.
- Academic counseling is performed by the program manager and/or course instructor if the student's grades drop below the minimum "C" in academic classes or "B" in clinical courses, or disciplinary requirements are not met. See the Disciplinary Action Policy.

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

STUDENT COMPLAINT/GRIEVANCE POLICY

Columbus Technical College will receive and respond to complaints concerning the construction or administration of laws, policies, standards, or procedures related to Columbus Technical College and the Diagnostic Medical Sonography Program. The college prohibits retaliation in any form for filing of a complaint, the reporting of instances of discrimination, or for participation in these complaint procedures. The complaints include ones filed by faculty, students, parents, and the public. This procedure can be used for civil rights complaints. All Title IX complaints shall be handled in a confidential manner to the fullest extent prescribed by law. Every attempt will be made to limit the distribution of information to those people with a need-to-know basis within the confines of the college and agency reporting procedures and investigative process. Students making appeals for disciplinary actions should refer to Appeal Procedures in Student Right and Responsibilities in the Columbus Technical College Student Handbook and Catalog. The following procedures are to be used in seeking resolution of complaints and grievances:

Step 1: Hold an informal discussion of the complaint with the instructor/program manager and then with the Dean of Health Sciences. Records of the relevant factors should be kept in case a formal written charge is made.

Step 2: To speak with someone outside of instruction, please contact the Director of Community Education and Special Populations in the Administrative Building.

Step 3: If the complaint is not resolved informally (step 1 and 2), a formal charge may be submitted in writing to the Director of Community Education and Special Populations in the Administrative Building.

Step 4: After conducting an investigation of the charge, the appropriate vice president will issue a decision within ten (10) working or school days.

Step 5: An appeal of the decision of the vice president cited in steps 4 and 5 should be made in writing to the President of Columbus Technical College within ten (10) working days after receiving notification from the appropriate vice president. The President of Columbus Technical College will send a reply to the aggrieved party within ten (10) working or school days of having received the charge.

See CTC Catalog for more detailed information:
http://columbustech.smartcatalogiq.com/Draft-of-2015-2016/Catalog-and-Student-Handbook/Student-Handbook/Student-Activities-and-Services/Grievance-Procedure

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

STUDENT COUNSELING

The faculty members encourage students to consult with them at any time regarding questions, problems, or comments. Students may approach the faculty during designated office hours as well as before and after class sessions.

CLINICAL: Counseling regarding clinical deficiencies or questions is handled regularly through the bi-weekly evaluation forms. If deemed necessary and/or requested by the student, a conference is set up between the program faculty, student and/or involved/appropriate staff technologist(s).

ACADEMIC: Counseling regarding academic deficiencies or questions is handled through conferences between the appropriate faculty member(s) and the student as deemed necessary by the individual course instructors and/or program manager.

Grades posted in Blackboard are often used as a means of informing students of current test averages.

CORRECTIVE ACTION: If a student incurs an infraction necessitating disciplinary action, a Student Counseling and Disciplinary Action form will be completed on each student to include a synopsis of clinical and academic performance and attendance. If a student is deficient, he/she shall be counseled in order to encourage improvement. If their clinical and/or academic performance does not meet the minimum passing grade, the student will dismissed from the program.

Students are reminded of the Disciplinary Action process as well as the appeals procedure.

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

DISCIPLINARY ACTION POLICY

PROBATIONARY PERIOD:

All students are on probation for the first 2 semesters of the Program. An evaluation of academic and technical performance at the end of each semester is reviewed by the Program faculty to include the Program Manager and the Health Science Division Dean. Counseling with the student is conducted as deemed appropriate.

If a student's work has not been satisfactory during the first two semesters, he/she may be placed on Academic Exclusion (elimination from enrollment in the program).

If it becomes evident to the faculty that a student's attitude and/*or aptitude* for a career in Diagnostic Medical Sonography is unsuitable, the student will be so advised and requested to withdraw from the Program in the best interest of both the student and the Program.

A student does not have to be in a probationary or suspension status to be dismissed. The program manager/school reserves the right in every case to dismiss any student at any time for infractions, especially for any of the following:

A. Insubordination.
B. Inability to maintain the minimum academic or clinical average.
C. Greater than 10% absence from any course.
D. Failure to develop those qualities considered essential to the ethical practice of Diagnostic Medical Sonography. See Society of Diagnostic Medical Sonography website for Code of Ethics for the Profession of Diagnostic Medical Sonography: www.sdms.org/about/codeofethics.asp
E. Failure to follow the policies and procedures of the School, DMS Program, or Affiliate Clinical Sites.

It is to be understood that the above are not necessarily all of the reasons why a student would be placed in suspension or dismissed. Specifically stated disciplinary action policies follow:

DISCIPLINARY ACTION:

Every act of misconduct cannot be specified. However, the Program has listed the following for all students who violate the rules and regulations of the DMS Program. Candidates who are accepted into the Program are required to read this manual and they are required to attend an orientation session. In this session, the Policy and Procedure Manual is reviewed and explained and is considered a time of fair warning regarding the rules of conduct.

PROGRESSIVE DISCIPLINARY ACTION STEPS:
In instances where a student incurs a misconduct offense, the disciplinary actions will progress to stronger measures. The normal progression is listed below:

Step 1: A written warning. If the misconduct continues, there will be progression to step 2.

Step 2: A reprimand. The student will have a counseling session with the program manager. Disciplinary Reprimand will result in the drop of one letter grade for the course or for the clinical evaluation grade that semester. Continuation of misconduct will result in progression to step 3.

Step 3: Possible suspension. The student will meet with the program manager and the Dean of the Health Science Department at which time the student may be placed on suspension with further misconduct resulting in progression to step 4.

Step 4: Probation or Program dismissal. The student will meet with the program manager and the Dean of the Health Science Department at which time the student may be placed on probation or dismissed from the Program.

NOTE:
1. The student should be aware that the seriousness of the offense may require that some or all of the normal steps may be skipped.
2. Suspension will affect attendance, and will be counted as absences. See Attendance Policy in the DMS Student Handbook.

CATEGORY ONE OFFENSE:
Violations of these rules are serious in nature and will result in suspension or **immediate dismissal.** A student dismissed for a Category One violation will NOT be eligible to return for enrollment in the DMS Program.
Examples of Category One offenses include, but are not limited to, the following:

1. Fraudulent completion of clinical assignment(s) to include time and attendance documentation.
2. Failure to complete and/or submit academic and clinical assignments.
3. Sleeping while on clinical assignment.
4. Cheating on an academic examination.
5. Reporting to academic or clinical assignment under the suspected influence of alcohol or illegal substances.
6. Reporting to academic or clinical assignment in the possession of alcohol or illegal substances.
7. Use of alcohol or illegal substances while on school or affiliate site property for academic or clinical assignment.
8. Exchanging of assigned clinical time without proper permission.
9. Leaving any clinical assignment at any clinical site without the permission of the

program manager or clinical coordinator.

10. Theft of hospital/affiliate, patient, school, or employee property.
11. Willful destruction of hospital/affiliate, patient, school, or employee property.
12. Arrest and conviction of a felony.
13. Arrest and conviction for illegal use, possession, or distribution of illegal substances.
14. Insubordination to include refusal to perform assigned task or obey instructions.
15. Negligence or deliberate oral or physical abuse in the care and treatment of patients, guests, students, or employees.
16. Breach of confidential information.
17. Falsification of any official hospital/affiliate records.
18. Immoral or lewd conduct on school or affiliate property.
19. Possession of firearms or weapons on school or affiliate property.
20. Unethical behavior.

CATEGORY TWO OFFENSE:

Violations of these rules are considered in a range of less serious to serious in nature. However, depending on the severity of the offense or multiple offenses, the progressive disciplinary action for the following will be written warning, reprimand, suspension and then dismissal.

Examples of Category Two offenses include, but are not limited to, the following:

1. Failure to report for clinical assignment without contacting the clinical instructor **and** the clinical coordinator.
2. Failure to attend an academic class without informing the instructor or Program Manager.
3. Failure to report illness to school, i.e. notify the program office and the clinical site.
4. Excessive tardiness. Any student who is absent from class up to 15 minutes during any hour of class time will be counted as tardy. Any student who has been tardy three times will be charged with a one-hour absence.
6. Sleeping in class during academic time.
7. Continued late completion and/or submission of academic and/or clinical assignments.
8. Loitering in non-assigned areas of any clinical assignment.
9. Smoking, eating, drinking, or chewing gum in non-designated areas.
10. Horseplay and unprofessional conduct or behavior in or around patient care areas or academic classes.

11. Abusing the approved time (30 min.) for lunch period.
12. Use or excessive use of hospital/affiliate sites telephones or equipment for personal use or calls.
13. Use of cell phone while on clinical duty.
14. Reporting to a clinical or academic assignment in improper attire, appearance

or grooming as defined in the Academic Classroom Policy and the Dress Code and Grooming Policy.

15. Continued violation of Dress Code and/or Grooming Policy will result in dismissal.
16. Unsatisfactory attitude.
17. Breach of professional confidence.
18. Use of profanity at school or on clinical assignment.

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

STUDENT CONFERENCE SHEET

Student: _____ SID#:_____

Program Director: _____ Date: _____

Instructor: _____Class: _____

Issue/Occurrence

_____

_____

_____

_____

Intervention/Plan:_____

_____

_____

_____

Comments/Outcome: _____

_____

_____

_____

_____

Student signature Instructor signature Date of Conference

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

PREGNANCY POLICY

Students who are, or become, pregnant should notify the program manager. Pregnant students are expected to maintain their academic schedules for each class including clinical rotations. The student will be counseled on the school policy for absences, and may have to withdraw. If the student is in good standing in the Program, she can request a leave of absence and re-enter the Program the following year at the point in the course sequence where she withdrew. The student willbe required to repeat previously obtained competencies at the discretion of the program manager upon evaluation. If the student has not requested to reenter the Program following a year of leave, then she will have to reapply in the competitive admission process.

Students who are pregnant are NOT allowed to perform, or allow others to perform, ultrasound scans of the fetus unless authorized and supervised by the Program Manager or instructor.

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

TRANSPORTATION POLICY

CLINICAL ROTATIONS AND REGULAR CLASSES:
Transportation to and from class and clinical sites, including those outside of the Columbus area, is the responsibility of the student. The travel time between activities is not counted as program time and is considered to be the student's own time. Some of the clinical sites are up to 50 miles or more from Columbus. All students will do at least one or more clinical rotations to an out of town site. Clinical assignments are made based upon program competency needs and the student may not request specific locations or ask to be changed to a different location. Columbus Technical College and the Program faculty are NOT responsible for any injury/damage sustained during transportation time.

FIELD TRIPS:
Field trips may periodically occur during the course of study. Field Trip Release Forms must be signed before the field trip occurs. Transportation to and from the field trip site is the responsibility of the student. CTC and the Program faculty are NOT responsible for any injury/damage sustained during transportation time. If the student does not attend a scheduled field trip, he/she must attend clinical as scheduled.

MEETINGS/SEMINARS:
Transportation to and from meetings/seminars is the responsibility of the student. The student must arrange their own transportation. CTC and the Program faculty are NOT responsible for any injury/damage sustained during transportation time.

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

STUDENT ATTENDANCE TO SEMINARS/MEETINGS POLICY

If the student would like to attend a specific Diagnostic Medical Sonography meeting or seminar, he/she must get approval from the program manager (if it involves program time). The student must submit the information/brochure for the meeting or seminar to the program manager for review.

Students who attend educational seminars and/or meetings shall abide by the following guidelines:

1. If attending while on program time, attendance to all educational sessions is **MANDATORY.**
2. All attendance Verification Forms **must** be authorized by the session guest speaker, moderator, program manager, or other faculty in attendance.
3. If the student fails to attend a session, the student forfeits any future chance of attending any seminars/meetings on program time.
4. Students under the age of 21 are responsible for observing and obeying state laws regarding drinking alcoholic beverages. Any illegal acts are the responsibility of the individual and disciplinary action will be enforced. Seethe Disciplinary Action Policy in the DMS Student Handbook.
5. Students are responsible for any damages incurred as a direct result of the student's actions while attending a seminar/meeting.
6. Columbus Technical College and/or any of its faculty are not liable for any physical or personal damages or injuries incurred during or en route to or from a seminar/meeting.
7. Attendance Verification Forms **must** be turned in to the program manager on the first day of return to class or clinic. If forms are not turned in promptly, the student will be charged with absences for each day missed.
8. If the student does not attend an offered seminar, he/she must attend clinical as scheduled.

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

ATTENDANCE VERIFICATION FORM

Student's Name: _____ Seminar Name: _____

Session/Activity Title	Date & Time	Verification Signature
1. _____	_____	_____
2. _____	_____	_____
3. _____	_____	_____
4. _____	_____	_____
5. _____	_____	_____
6. _____	_____	_____
7. _____	_____	_____
8. _____	_____	_____

Use additional Verification Forms as needed. Signature may be that of the speaker, session moderator, program manager, or faculty or CTC DMS Program faculty (if in attendance).

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

SOCIAL MEDIA POLICY

Students participating in clinical experiences are held to the same confidentiality standards as the employees of the assigned clinical site.

Confidentiality standards are enacted to protect any information pertaining to patients, procedures, policies, and identification of clinical sites. The standard of confidentiality extends to include any and all Social Media Networking Sites. (Facebook, Instagram, Twitter, etc.)

Students are required to comply with and abide by all clinical site policies and procedures including posting on social media networking sites. Students are also subject to the same penalties as employees of the clinical site, including immediate dismissal from the clinical site resulting from breach of the social media policy and possible dismissal from the program.

Students are strictly prohibited from posting any information pertaining to or descriptive of a clinical site, instructor/preceptor, patient, employee, or procedure. This includes revealing the location of the clinical site either by posting or by GPS locator evidence. The use of social media to post negative or derogatory comments about a patient, clinical site, clinical instructor, faculty member, staff member, or fellow student is strictly prohibited.

Posting any comments that would reflect on the clinical site is prohibited. Any disgruntled comments pertaining to the clinical experience or form of clinical instruction is also prohibited. It should also be noted that posting of any unfavorable comments during clinical hours (i.e. on break or lunch) regarding personal issues may be interpreted as clinical site related issues. The student must refrain from any identifiable posting during clinical hours or be subject to the penalties of breaching the social media policy.

To avert infractions, the student is required to research their clinical site's policies and procedures, in particular the social media policy. Violations of the social media policy may result in a reduction in the student's clinical grade, immediate dismissal from the clinical site where the infraction occurred, dismissal from the clinical portion of the Diagnostic Medical Sonography program, or any combination of the above.

Also, failure to comply with the clinical site's social media policy may result in additional disciplinary actions specific to and directed by the clinical site. Be aware that violating the social media policy for this program may also violate federal law under the Health Insurance Portability and Accountability Act of 1996 (HIPAA).http://www.hhs.gov/ocr/privacy/hipaa/understanding/summary/index.html

Acknowledgement Form

By signing below, I hereby confirm that the Social Media Policy for the Diagnostic Medical Sonography Program at Columbus Technical College has been explained to me and that I thoroughly understand the policy. I am aware that the consequences associated with violation of this policy and/or the social media policies of any affiliated clinical site, may result in my dismissal from both institutions.

DMS Student Signature: _____ Date: _____

II. D. 7. Accidents on Campus

OPR: Vice President of Operations

STATEMENT:

All accidents on campus must be reported immediately to the Vice President of Operations so that appropriate action can be taken to assist victims and forestall other accidents.

PROCEDURE:

Whenever an accident resulting in an injury, **no matter how minor**, occurs on campus, a report detailing the circumstances must be filed. The report should be submitted to the Vice President of Operations as soon as possible after the accident occurs.

An Accident Report Form is available on the campus intranet, or can be provided upon request in the Personnel Office located in the Administration Building.

The accident report will be used to document circumstances of the injury for student insurance claims, Workers Compensation requirements, or any other follow-up action required.

The accident report may be filed by a faculty or staff member who witnessed the accident, was notified of the accident, or the victim may initiate it. Any faculty or staff member who is approached by a student reporting an accident or injury should be prepared to assist with the filing of the report.

If an injury/accident involves an automobile, no matter how minor, it should be immediately reported to the Security Office so that a police report can be prepared. Call the Security Office, 649-1933, or contact the Business Office or the switchboard for assistance in locating a security officer.

Adopted: October 2002

Reprinted from the CTC Policy Manual

V. M. Student Accident Insurance

OPR: Vice President of Administrative Services

STATEMENT:

Columbus Technical College shall coordinate a student health and accident insurance program that will be available to all College students.

Students enrolled in Degree/Diploma/Certificate Programs, [and effective Fall 2002 students in Business and Industry Programs] pay a fee to be covered by Student Accident Insurance.

This insurance will cover medical expenses associated with treatment for injuries or emergency illness which occurs while the student is on campus or participating in a college sponsored activity (excluding athletic events).

Students enrolled in Allied Health or Cosmetology clinical classes shall also purchase professional liability insurance.

PROCEDURE:

The student should report accident or injury immediately to supervising faculty member or any available faculty or staff member if the injury did not occur during class.

Faculty or staff member should see that the student receives appropriate medical attention. Depending on the student's condition, faculty or staff member should:

1) Contact Emergency Medical Services (EMS) by call **911** if emergency assistance is needed. Contact the Security Office either directly, Ext. 1933, or through the College switchboard to alert them that the EMS has been contacted and will be responding.
2) Offer first aid, if appropriate.
3) Direct student to seek medical attention through a personal physician of choice or a local hospital.

Faculty or staff member should file an Accident Report with the Vice President of Administrative Services.

Student may obtain insurance claim form through the Personnel Office, 156 A, in the Administration Building. Claim forms accompanied by detailed medical receipts or invoices should be submitted to the Personal Office, which forwards them to the carrier for reimbursement or payment. Students may contact the Personnel Office at 649-1883 for assistance.

ACCIDENT REPORT FORM

PATIENT INFORMATION: **Take this form to Emergency Department; must present current college name badge.**

Name: _____ **Dept:** _____

Address: _____

Sex: ____ **M** ____ **F** **Age:** _____ **Student ID #:** _____

Place of Accident: Building _____ **Grounds** _____ **Other** _____

RESPONSIBLE PERSON/NEXT OF KIN:

Name: _____ **Phone:** _____

Relationship: _____ **Was responsible person notified: Yes** _____ **No** _____

By whom notified: _____ **Date:** _____ **Time:** _____

AREA OF INJURY:

1. ( ) Head
2. ( ) Face
3. ( ) Eye
4. ( ) Neck
5. ( ) Left Shoulder, Arm, Hand
6. ( ) Right Shoulder, Arm, Hand
7. ( ) Back
8. ( ) Chest
9. ( ) Abdomen
10. ( ) Pelvis
11. ( ) Buttocks
12. ( ) Other

EMERGENCY CARE RENDERED:

1. ( ) Oral Airway
2. ( ) C.P.R.
3. ( ) Controlled Bleeding
4. ( ) Bandaged Wounds
5. ( ) Spinal Immobilization
6. ( )Applied Splint
7. ( ) Applied Traction
8. ( ) Applied Restraints
9. ( ) Obstetrical - Delivery
10. ( ) Refused Treatment
11. ( ) Other _____

ACTION TAKEN ON ACCIDENT:

1. **EMS Phoned** _____ **(By Whom)** _____
2. **First-Aid Treatment** _____ **(By Whom)** _____
3. **Sent Home** _____ **(By Whom)** _____
4. **Sent to Physician** _____ **(By Whom)** _____
5. **Sent to Hospital** _____ **(By Whom)** _____
6. **Name of Hospital** _____

SCHOOL INFORMATION

Report By:_____ **Department** _____

Witness: _____ **Date:** _____ **Time:** _____

COMMENTS: _____

_____

II. D. 3. a. Occupational Exposure to Blood Borne Pathogens

OPR: Vice President of Operations

STATEMENT:

The Technical College System of Georgia has developed plans and established procedures to control exposure to blood borne pathogens to minimize or eliminate potential exposure by certain categories of faculty members and students in high-risk occupational training programs.

Columbus Technical College shall have in place a state-approved Blood Borne Pathogen Exposure Control Plan designed to minimize or eliminate faculty and student occupational exposure to blood and other potentially infectious body materials in certain high-risk occupational training programs.

PROCEDURE:

Columbus Technical College maintains a state-approved Blood Borne Pathogens Exposure Control Plan and operates in compliance with State Board policy "Occupational Exposure to Blood Borne Pathogens" (II. D. 3. a.) adopted August 5, 1993 and last revised March 30, 2001.

EXPOSURE CONTROL PLAN

BODY FLUIDS AND BLOOD BORNE PATHOGENS

General Information

The body fluids of all persons should be considered to contain potentially infectious agents (germs).

The term "body fluids" includes: blood, semen, drainage from scrapes and cuts, feces, urine, vomitus, respiratory secretions (e.g. nasal discharge) and saliva.

Contact with body fluids presents a risk of infection with a variety of germs.

In general, however, the risk is very low and dependent on a variety of factors including the type of fluid with which contact is made and the type of contact made with it.

II. D. 3. b. Occupational Exposure to Air Borne Pathogens/Tuberculosis

OPR: Vice President of Operations

STATEMENT:

The Technical College System of Georgia has developed plans and established procedures to control occupational exposure to tuberculosis and other airborne pathogens to minimize or eliminate potential exposure by certain categories of faculty members and students in high-risk occupational training programs.

Columbus Technical College shall have in place a state-approved Tuberculosis Exposure Control Plan designed to minimize or eliminate faculty and student occupational exposure to tuberculosis and other airborne pathogens in certain high-risk occupational training programs.

PROCEDURE:

Columbus Technical College maintains a state-approved Tuberculosis Exposure Control Plan and operates in compliance with State Board policy "Occupational Exposure to Air Borne Pathogens/Tuberculosis " (II. D. 3. b.) created March 30, 2001.

Health and Safety Prevention, Protection and Control Related to Georgia's Notifiable Diseases

Columbus Technical College faculty, staff and students will be asked to cooperate with the West Central Public Health District and/or designated county Department(s) of Public Health in the event that reports are received of potential exposure to any of Georgia's Notifiable Diseases listed on the most current Department of Human Resources, Division of Public Health, Epidemiology Branch.

The West Central Public Health District and/or designated county Department(s) of Public Health will conduct the appropriate disease specific surveillance and investigation and make client and if appropriate agency specific recommendations for the prevention and control of cases.

Clinical Education Setting Exposure will be monitored and the protocol of the Medical Facility where the exposure took place will be followed. The Medical Facility where the exposure took place will be followed. The Medical Facility will report to the West Central Public Health District and/or designated county Department(s) of Public Health the occurrence/diagnosis of Georgia's Nitifiable Disease among any of their agency student population.

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

COMMUNICABLE DISEASE POLICY

STUDENT WITH A KNOWN COMMUNICABLE DISEASE:

1. The student should report the illness to the program manager as soon as it is known. The student should not report to the clinical site until evaluated and cleared by a physician. In extreme cases, the student may be administratively withdrawn. Following physician clearance, the student will be reentered into the Program the following year at the place in the course sequence they were withdrawn.

2. Any student withholding information regarding a known communicable disease either for the pre-admission physical or while enrolled in the DMS Program may be dismissed for unethical behavior.

3. The student maintains the right to appeal any decision through the grievance process.

STUDENT EXPOSURE TO COMMUNICABLE DISEASES:

The students should be aware that they will come in contact with patients who have communicable diseases in the clinical setting. Students will be taught universal precautions prior to beginning their clinical rotations. It is the student's responsibility to follow these precautions to avoid exposure. The student should refer to the Incident/Exposure Policy for reporting contaminated sharp stick or exposure to blood/body fluids.

KNOWN EXPOSURE TO TB:

Students must make sure their identification is documented on all studies they were involved in at the clinical site. If the hospital determines that a patient has TB, they will search through the patient's medical record to identify all caregivers that may have come in contact with the patient. The Infection Control Officer will identify any student(s) who may have been exposed and will notify the program manager. The student will be sent to the CTC Infection Control Coordinator for follow up PPD.

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

EMERGENCY PROCEDURES POLICY

Columbus Technical College Emergency Procedures including security and emergency phone numbers is available to students on the College intranet and are posted in each classroom.

These Emergency Procedures include:

1. Accident/Railroad Accident/Chemical Spill
2. Bomb Threat
3. Death/Suicide on Campus
4. Fire
5. Intruder, Armed or Threatening; Hostages
6. Tornado
7. Bioterrorism/Earthquake/Flood/Hurricane/Nuclear Attack
8. Injury or Illness
9. Body Fluids and Blood borne pathogens.

It is the student's responsibility to read and know these procedures.

This policy also applies to the assigned clinical sites and will be covered in detail during the clinical orientations that take place during DMSO 1060.

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

EMERGENCY CONTACT OF STUDENT POLICY

The student shall be called out of class or clinic to receive calls for emergencies **ONLY.**

The call should be placed to the Health Science Department Office at 706-225-0502 or to the Security department at 706-649-1933. The caller should indicate that the student is in the DMS Program. The instructor will be notified of the call and the student brought out of class. If the student is at a clinical site, he/she will be notified by CTC staff.

The student is not to receive personal calls for non-emergencies during class or at the clinical site. Students are not to receive calls or beeps on their cell phones or pagers in while in class, lab, or clinic. If there is a problem with personal calls during clinic, the clinical instructor will document the problem and notify the program manager. Disciplinary action will occur.

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

QUALITY IMPROVEMENT POLICY

A variety of surveys are used to evaluate the quality of the DMS Program in meeting the needs of the students, instructors, clinical sites, community, and the JRC-DMS, (Joint Review Committee on Education in Diagnostic Medical Sonography) our accrediting organization.

1. Program requirements, curriculum, purpose, goals, objectives, and equipment are reviewed annually by the Advisory Committee.

2. Clinical Instructor Surveys are completed annually within the semester prior to graduation.

3. Faculty and Student Resource Surveys are completed annually within the semester prior to graduation.

4. Graduate and Employer Surveys are completed 6 months after graduation.

5. Program statistics and outcomes are reported annually to the JRC-DMS for each graduating class.

6. Characteristics of Clinical forms will be completed Spring semester.

Results of the surveys are reviewed and analyzed by the Program Director and then brought to the attention of the DMS faculty and the Advisory Board Committee for further review and action planning.

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

LABORATORY SESSIONS POLICY

In addition to class time, the student will have laboratory sessions for demonstration of equipment and techniques and for hands on time to practice these techniques.

The student will be required to demonstrate mastery of theory and practice of these clinical skills under simulated conditions. The assessment will include terminology, anatomy, physical parameters of machine settings, possible findings, performance of imaging protocols, and patient care issues related to each exam.

The goals of the lab sessions include:

Knowledge of cross sectional anatomy
Optimization of equipment settings to accurately demonstrate tissue characteristics
Identification of the appropriate diagnostic image for each particular exam
Identification and compensation of artifacts
Correct annotation of patient identification, organs, position, and plane information
Identification of pathology
Correct measurement of organs and pathology

Being able to function to the appropriate level of the clinical setting is a mandatory assessment. Each check- off will be evaluated as if the student was performing an actual exam on a patient. Students must be able to demonstrate all the requirements of each procedure without being directed by the evaluator. If a student demonstrates that he/she does not have the necessary aptitude for scanning, the instructor and program manager will discuss the student's potential as a sonographer, and the student may be advised to leave the Program.

LAB PRACTICE:
There should be ample time to practice scanning during each lab session. Students are asked to be mindful of others needing scan time or time on a particular machine. Students will be required to formulate and adhere to a lab schedule assigning groups of students and pieces of equipment so that time utilization can be monitored.

LAB SESSION LOCATIONS: HSC Room 2101

IMAGING EQUIPMENT:
Mindray Laptop (3)
Accuson Sequoia
GE Logic P5

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM
CONSENT AND WAIVER FORM FOR LABS

The objective of lab time is to observe and perform basic scanning skills and to obtain check-offs once proficient enough to perform these procedures in a clinical setting. Students or volunteer "patients" will be used during lab sessions. Being scanned by other students or instructors is not mandatory. Students may volunteer or decline to be scanned without the choice affecting their grade.

Lab Rules:

1. The nature of ultrasound requires skin contact. This will necessitate some level of personal exposure of the student being scanned, but an appropriate level of modesty should be maintained. When mixed gender scanning is being performed, the instructor should be present in the lab. Certain areas will be scanned via phantoms/or animal cadaver parts.

2. The opportunity to scan is essential. **Each student is responsible for making sure they have adequate time with hands on experience.** Students are expected to rotate partners and equipment and utilize their time wisely. If a student feels they are not getting enough scan time, it is the responsibility of the student to discuss it with the lab instructor during the lab session. If, for any reason, a student feels uncomfortable with another student, he/she should speak to the lab instructor and reasonable accommodations will be made.

3. No student should be scanned in excess of 10 hours on an individual organ over the course of the entire program.

4. Pregnant students are not allowed to perform fetal ultrasounds on themselves or allow others to perform fetal scans.

5. The students understand that these scanning lab sessions are not diagnostic and that the finding of pathology or missed pathology will occur. If pathology is noted by the instructor, the student will be advised to see his/her personal physician, so an official examination can be ordered, performed, and interpreted by a physician.

6. For safety reasons, closed toe shoes must be worn in lab. No flip-flops/sandals are allowed. If a student is noncompliant, he/she will be sent home and counted absent for that session.

7. The equipment is only to be used by students during lab time with an instructor present.

By signing below, the student indicates he/she has read and understands the Lab rules and will:

1. Act in a professional manner during the scanning sessions.
2. Not expect any diagnosis based on the scan session.
3. Not take any legal action if a pathologic condition is missed during a scan session.

☐ *I understand that it is my choice to be scanned by my peers and instructor*.

☐ *I decline to be scanned by my peers or instructor*

COLUMBUS TECHNICAL COLLEGE

_____ _____ _____

Student name (print) Student Signature Date

Rubric: Lab Proficiency

Sonographic Study: _____

Course: _____

Instructor/Credentials: _____

Student Name: _____

Start Time: _____
End Time: _____
Patient Name: _____
Machine: _____

CATEGORY	4	3	2	1
Machine Image settings and proper usage: Focus, transducer, depth, gain, exam selection etc	Student demonstrated appropriate knowledge of sonographic equipment through use of proper image settings and selections (no errors)	Student demonstrated basic knowledge of sonographic equipment as it relates to proper image selection/settings (one error)	Student demonstrated minimal knowledge of sonographic equipment as it relates to proper image selection/settings (two errors)	Student demonstrated little to no knowledge of proper usage of US equipment as it relates to proper image selection/settings (three or more errors)
Image Annotation: e.g. TRV, SAG, Organ/Structure, RT/LT	All sonographic images were annotated correctly	There is one error in image annotation	There are two errors in image annotation	There are three or more errors in image annotation
Caliper Placement/ measurement, Spectral and/or Color Doppler where appropriate	All images requiring calipers, Color/Spectral Doppler were demonstrated appropriately	Images requiring calipers, Color/Spectral Doppler were demonstrated with one error	Images requiring calipers, Color/Spectral Doppler were demonstrated with two errors	Images requiring calipers, Color/Spectral Doppler were demonstrated with at least three errors or more
Longitudinal and Transverse Images	All structures required were accurately displayed.	Most of the structures requested were accurately displayed.	Minimal structures requested were accurately displayed.	Most or all of the structures requested were NOT accurately displayed.
Exam Time	Student completed proficiency in the time allowed (to include 3 additional minutes)	Student completed proficiency 4-8 minutes past the time allowed	Student completed proficiency 9 - 12 minutes past the time allowed	Student completed proficiency 13 minutes or greater beyond the time allowed **Note: Student may be asked to repeat study within an acceptable time**

20 points = 100%
19 points = 95%
18 points = 90%
17 points = 85%

15-16 points = 80%
13-14 points = 75%
11-12 points = 70%

1-10 points = 50%
0 points = 0%

Total Points: _____ Grade:

Due to the high performance demands and operator-dependant nature of the diagnostic medical sonography field, the DMS program must uphold a high standard in this area of student performance. Failure to achieve an 80% or greater on any Lab Proficiency will result in failure of this course and automatic program dismissal.

Exam Times:

Complete Abdomen……..45 minutes

Right Upper Quadrant……..35 minutes

Renal/Bladder……30 minutes

Aorta……..25 minutes

Complete Pelvic……35 minutes

Transvaginal GYN……..25 minutes

Transvaginal 1st Trimester……30 minutes

OB 2nd Trimester……25 minutes

Venous Lower Extremity……..40 minutes

Carotid……30 minutes

All other individual "Organ" exams completed in DMSO 1020 and 1070 must be completed in 20 minutes, with the exception of the "Liver & GB" being 25 minutes.

***The highest grade possible on any attempts after a failure is 80%**

Additional Notes:

_____
_____
_____
_____
_____
_____
_____

_____ _____
Instructor Signature Date

_____
Student Signature

COLUMBUS TECHNICAL COLLEGE

_____ has successfully passed the following lab competencies:
(Student Name)

Procedure	Date passed
BASICS	
Moving a patient from a wheelchair	
Moving a patient from bed to stretcher	
Rolling a patient	
Patient Positioning	
Imaging Planes	
Sonographic Appearance	
Basic Operation of Equipment	
Basic Operation of Doppler	
Fire Extinguisher	
Vital Signs	
VASCULAR	
Carotid Artery	
Venous Lower Extremity	

Procedure	Date passed
ABDOMEN	
Abdominal Aorta and IVC	
Gallbladder	
Pancreas	
Spleen	
Liver	
Portal Venous System	
Kidneys	
Bladder	
Normal Structure Appearance	
Cross Sectional Anatomy	
INVASIVE/SMALL PARTS	
Breast	
Thyroid	
Prostate (Transpelvic)	
Scrotal	
Sterile Tray Prep/Biopsy	
OB/GYN	
Nonpregnant Transabdominal Pelvis	
1st Trimester OB (phantom)	
2nd Trimester OB (phantom)	
Transvaginal (phantom)	

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

DIAGNOSTIC MEDICAL SONOGRAPHY

Student Handbook II

Clinical Sonography

2016 - 2017

http://www.healthcare.siemens.com/

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

STATEMENT REGARDING STUDENT ENROLLMENT AND CLINICAL ACTIVITIES

It shall be understood by the enrolled student that neither Columbus Technical College nor any of its affiliate clinical sites will be obligated to provide wages for any time enrolled as a student. And further, the DMS program's clinical rotations do not constitute an employer/employee relationship but is strictly for education to benefit the enrolled student.

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

DRESS CODE AND GROOMING POLICY

UNIFORMS:

Students will purchase the required uniforms at a time specified by the program before the first clinical rotation. The uniforms must be clean and ironed at all times. Students will be required to purchase new uniforms if they become stained or faded. Appropriate undergarments must be worn (solid white or flesh colored undergarments under light colored pants, no thongs, etc). No undergarments should be visible at any time. Lab coats may be worn and must be clean and ironed. Only lab coats purchased from the uniform company with the CTC patch on the sleeve are acceptable. No sweaters or other jackets will be worn while on actual duty. **Note: Smoking (to include electronic cigarettes) or drinking alcohol is not allowed while in uniform regardless of whether you are at the clinical site or out in public.**

SHOES:

Only solid white shoes (with closed toe and heel/complete back) are permitted to be worn with uniforms. They must be clean (including the strings) at all times. Shoes that are worn out, torn or out of condition do not present a professional appearance and must be replaced. **Proper shoes are to be worn with uniforms at all times regardless of whether you are at the clinical site or out in public**.

OR SCRUBS:

Scrub clothes are worn only when one is on surgery rotation. Never wear OR scrubs outside of the hospital, including to class. Scrubs, which are the property of the hospitals, **SHALL NOT** be removed from the facility for any reason.

HOSIERY:

White socks must be worn with the uniform. No colored socks are permitted. Knee highs, light weight trouser socks, or ankle socks may be worn with the uniforms as long as they are white.

PHOTO ID/NAME BADGES:

Name ID/photo badges are issued by Columbus Technical College and must be worn clearly visible at all times. DO NOT cover any part of the CTC student badge. Students are prohibited from loaning their name badges to anyone else. Students who need a replacement badge due to a name change or loss/damage must see the Admissions Office.

HAIR:

Hair must be clean and neat. If it is shoulder length or longer, it **MUST** be pulled back away from patients and equipment. This means that hair must be worn in a ponytail, braid or other acceptable styles. Barrettes or hair clips that blend in with the hair color are acceptable. DO NOT use bright, large, trendy clips or elastic ties. Wet hair is NOT permitted. Hair color must appear natural and style must be professional. Males must comply with the same rules. Males may have a mustache and/or beard provided it is moderate in length and neatly groomed at all times.

FINGERNAILS:

Nails should be clean, well-manicured and no longer than the length of the fingertips. No excessively long nails are permitted. Clear, neutral or very light pink nail polish is acceptable. NO dark or loud colors of nail polish are permitted. Fingernails have been implicated in the transmission of nosocomial infections and can affect the barrier quality of personal protection equipment; therefore, **artificial nails (acrylic or gel) are not allowed.**

BODY ART/TATTOOS:

Body art and tattoos **MUST** be covered at all times.

MAKE UP/COLOGNE:

Fragrances can affect people with allergies and/or pulmonary diseases; therefore, NO perfume or cologne is to be worn in the clinical setting. This includes body sprays and hand lotions. Only unscented hand lotion should be used. Make up must be moderate and professional. Refrain from wearing heavy, dark eyeliner and/or bright, multicolored eye shadows.

JEWLERY/PIERCING:

NO jewelry except watches and/or plain wedding bands should be worn during clinicals. All facial piercings (eyebrow, lip, cheek, tongue, etc.) must be removed while on duty. Only one pair of small, pierced, stud earrings are allowed to be worn.

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

CLINICAL ASSIGNMENT POLICY

The DMS students will be assigned to a clinical site(s) every semester. These schedules are based on the clinical rotation master plan. The clinical sites are located throughout the Columbus and surrounding area. Some of our sites will require traveling up to 50 miles, and are located in the central time zone, so additional costs may be encored, or alternate childcare may be needed.

Students are required to adhere to his/her assigned clinical schedule and are **NOT** allowed to switch with other students. No personal adjustments will be made to the assigned schedule.

The student has responsibilities on the clinical site. See Responsibilities of the Student on the Clinic Site Policy and the Clinical Time and Attendance Clocking Policy. While on clinical duty, students answer to the clinical instructor. The clinical instructor will assign duties, and will perform competency evaluations on the students. The sonographer to whom the student is assigned is directly responsible for that student on a working basis. The student must comply with their instructions. The student must stay with that sonographer at all times unless directed otherwise by the clinical instructor. There will be **NO** loitering or talking with other staff/students instead of being with the assigned sonographer. The clinical instructor reports every other week to the clinical coordinator or program manager regarding the student's behavior and performance on the clinical site by completing the Student Performance Evaluation Report. See the Student Performance Evaluation Form for evaluation criteria.

If a student is asked to be removed from a clinical site, the student's grade will be negatively affected, and based on the reason, there may be disciplinary action involved. Following assessment of the situation, the student may be rotated to a different clinical site. Other student rotations will not be adjusted to make room at a new clinical site. If none of our clinical affiliates will accept that student, then they will be dismissed from the program as there is mandatory clinical time necessary to graduate.

Scheduled times for clinical assignment will be on the schedule distributed each semester. The student is to report to the clinical supervisor **NO** later than their scheduled time. The student should arrive 10 minutes before their scheduled time to allow time for parking and putting away personal items. Being in the parking lot at the assigned time does not count as on time.

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

CLINICAL ASSIGNMENT INTRODUCTION

Clinical education is an essential part of the DMS program. The student learns to apply his/her classroom and lab knowledge to obtain practical experience. The students' clinical assignments are for student knowledge and experience, and do not constitute an employee/employer relationship. No wages will be received. The student is not allowed to receive any compensation for clinical time.

Clinical rotation assignments will be arranged by the DMS clinical coordinator in conjunction with the affiliate clinical facilities. The student must adhere to the clinical site's policies and procedures and work under the direction of the clinical instructor. The clinical instructor will assign the students to sonographer duties in conjunction with the level of student ability according to the academic course sequence and lab experience. The student is directly responsible to the sonographer to which they are assigned and must comply with their instructions.

While on clinical assignment, it is the student's responsibility to remain with the sonographer at all times. Loitering and talking to others instead of performing/observing procedures will not be tolerated. The sonographers/clinical instructors are donating their time and adjust their routines to accommodate the students. Do not abuse this privilege. Disciplinary action will be taken for offenses, and the student may be removed from the clinical assignments and dismissed from the program. We must preserve our clinical affiliates and we will not tolerate any nonprofessional behavior.

The student should always bear in mind that the clinical sites are future employment sites and the impression they make on clinical assignments will affect future employment opportunities.

In case of illness or other emergencies, the student must personally notify the clinical instructor and DMS clinical coordinator prior to the scheduled clinical time. If you will be late to your clinical site, notify the clinical instructor before your scheduled arrival time.

The clinical portion of the DMS program is divided into four (4) clinical courses. Progression to the next clinical level is based upon completion of the course requirements. Refer to the clinical course descriptions listed in the State Board Approved Diagnostic Medical Sonography Curriculum.

Written: 06/06
Revised: 5/11, 12/15
Reviewed: 8/12

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

GENERAL CLINICAL RULES AND PROCEDURES

DRESS AND GROOMING:

See Dress Code and Grooming Policy.

PARKING:

The student is required to park his/her vehicle in the areas indicated by the clinical instructor. Student should park farther away from the clinical site as to reserve closer parking for patients.

LUNCH/BREAKS:

The student will be scheduled a mandatory 30 minute lunch break at the discretion of the clinical instructor if on a 6 or 8 hour clinical assignment. A break is not mandatory. A break may be taken as the work schedule permits and if approved by the clinical instructor. Breaks may be taken in a location approved by the clinical instructor. The student may not leave the clinical site for lunch or break, unless the tech leaves, in which the student may also leave but needs to verify what time to return.

CLINICAL SITE POLICIES AND PROCEDURES:

The students are required to abide by the clinical site's policies and procedures. The clinical instructor will provide this information during the student's orientation to each clinical site.

BEHAVIOR:

If the student is not acting professionally or if the student behaves in a way that may endanger a patient, the clinical instructor/department director will send the student home and contact the program manager. (See the Disciplinary Action Policy.)

No student should ever ask to leave a site due to a low volume of patients. Only the Clinical Instructor(s) at the site may request for the student to leave by contacting the Clinical Coordinator at the school so that the student can be placed at a different site for the day.

The student **is not** to get personally involved with any staff members at the clinical sites. This includes sending or accepting "friend requests" on Facebook. (See the Social Media Policy.) The student should not be involved in any staff conflicts at the clinical sites.

PHONE CALLS:

The student is not to receive personal calls at the clinical sites while on duty. The exception is emergency contact calls. (See the Emergency Student Contact Policy.) Cell phones or beepers may NOT be utilized while on clinical duty. Points will be deducted from the Clinical Standards grades if cell phones or other electronic devices are used at the clinical site. Excessive misuse will be subject to disciplinary action. (See the Disciplinary Action Policy in DMS Student Handbook.)

PATIENT PRIVACY:

The student must comply with the Health Insurance Portability and Accountability Act (HIPAA) of 1996. All students must keep in strict confidence any Protected Health Information including medical, health (including mental health), and financial information. The students are instructed in HIPAA regulations and patient privacy in their Foundations of Sonography course.

CLINICAL COURSE PROGRESSION:

The clinical course sequence has a progressive nature. In order to progress to the next level the student must:

1. Have obtained a passing score on their required competencies for the course as listed in the course syllabus.
2. Be able to demonstrate previously completed competencies whenever requested by the clinical instructor.
3. Successfully completed all academic courses in the previous semester.
4. Have a clinical course grade average of 80% or above.

RE-ENTRY INTO THE PROGRAM:

Students that are re-entering the program (returning from medical leave, military leave or jury duty time) will have to retake all the previously completed clinical competencies to ensure the student is still proficient enough to proceed in the Program.

Written: 06/06
Revised: 03/08, 06/10, 5/11, 12/15

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

CLINICAL STANDARDS POLICY

The students will be evaluated on their compliance to the policies of the DMS program as outlined in their student handbook. Each clinical semester the student will receive 100 points for clinical standards. The designated point values listed below will be deducted for **EACH** violation during the semester. At the end of the semester, the remaining points in the clinical standards will be the grade for the semester.

Work Ethic Traits	Points deducted	Clinical Standards Violation
Attendance/ Communication	≤10	Failure to contact the **DMS Clinical Coordinator** and/or the **clinical instructor** at the clinical site of an absence or tardiness before the scheduled clinical time.
Communication Attendance Productivity	≤10	Leaving the clinical site before the designated time, regardless of the reason, without notifying the DMS Clinical Coordinator and clinical instructor at the clinical site (exception are if there is a pre-arrangement because of site hours)
Appearance	≤10	Failure to wear the proper uniform to the clinical site including ID badge. Failure to follow guidelines of the Dress and Grooming Policy.
Cooperation	≤10	Failure to park in the assigned student parking at the clinical sites
Character	≤10	Abusing break and/or lunch scheduled times (One break=15 min, lunch =30 min)
Character Productivity	≤10	Failure to remain in the clinical department unless on officially approved break or lunch
Productivity	≤15	Loitering instead of observing or assisting with ultrasound exams. (No picking and choosing exams or turning down exams offered)
Appearance	≤5	Chewing gum on the clinical site
Productivity	≤10	Non-emergency personal phone calls
Character Productivity	≤20	Having a cell phone on the clinical site. (Checking messages, texting, phone calls or any use of cell phone)
Attitude	20-50	Failure to demonstrate appropriate professional or ethical behavior. Failure to follow the clinical policies of the DMS program (incidents will be evaluated on an individual basis by the clinical instructor and the DMS Clinical Coordinator)

Organization	≤10	Failure to hand in clinical documentation for the previous week on time (due date described on the course syllabi).Incomplete documentation. Documentation is defined as: **Signed** time card, daily journals, weekly total sheet; semester total sheet, evaluations, competencies.
Attendance	≤10	Failure to show up or arriving late for junior lab mentoring.
Teamwork Attitude	≤20	Receiving negative feedback from junior students or instructors regarding conduct or helpfulness while mentoring.
Respect	20 - 50	Gossiping about fellow students or sonographers or getting involved with internal problems at the clinical site.
Cooperation Respect	≤20	Failure to handle criticism appropriately. Makes excuses rather than accepting the feedback and learning from it. Confrontational.

Written: 03/08
Revised 3/09, 9/09, 8/11, 12/15
Reviewed: 8/12

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

RESPONSIBILITIES OF THE CLINICAL INSTRUCTOR

1. Give the student sonographers an orientation including parking locations, ultrasound suite/department tour, cafeteria tour, introduction of sonographers, presentation of pertinent hospital policies and ultrasound department policies.

2. Manage the schedule of sonographer(s) and duties assigned to the student based on the checklist of procedures that the student is cleared to do through lab assessment or competency check offs.

3. Keep documentation if the student is absent or late on assigned clinical days. Forward details to the DMS Clinical Coordinator every two (2) weeks with the Clinical Performance Evaluation form.

4. Check on the progress of the students with the sonographers. Call or email the DMS Clinical Coordinator with any concerns/problems.

5. Authorize a Competency Evaluation for the student after checking that all the requirements are met. Verify that the evaluation is performed by an appropriately credentialed/qualified sonographer as stated on the evaluation form.

6. Complete the required Clinical Performance Evaluation every two (2) weeks. If the student has worked with multiple sonographers during this two week period, the clinical instructor will speak to each sonographer and fill out the Clinical Performance Evaluation accordingly. The students will provide the Clinical Instructor with the evaluation form and due date. Completed evaluations will be forwarded to the DMS clinical coordinator via the student, or will be picked up if requested. It is the Clinical Instructor's choice whether to review the Clinical Performance Evaluation with the student or to send the evaluation in a sealed envelope. All evaluations will be reviewed with the student by the Clinical Coordinator.

7. Contact the DMS Clinical Coordinator if it is believed that the student is not ready academically or technically for specific procedures, or if any physicians have concerns about the student.

8. The Clinical Instructor has the right to send a student home if they are unprofessional, unethical, confrontational, or acting in an unsafe manner. The Clinical Coordinator should be informed of the dismissal and the circumstances leading up to it.

Written: 06/06
Revised: 8/11, 11/15
Reviewed: 8/12

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

RESPONSIBILITIES OF THE CLINICAL SONOGRAPHER

The Clinical Site Sonographers are an important part of the clinical learning experience. They will pass their knowledge and skills on to the CTC DMS students. The Sonographers responsibilities to the student are as follows:

1. Student will be assigned to sonographers and duties by the clinical instructors.

2. Sonographers will instruct the student on patient preparation, obtaining a history, room and machine setup, and checking the requisition for appropriateness.

3. Sonographers will teach the student scanning techniques, equipment optimization, and protocols for each procedure.

4. Once the student has observed a minimum of two (2) procedures, sonographers should allow the student to backscan and ask questions (after the exam is completed) regarding any difficulties or problems encountered. Sonographers will watch the student scan and make recommendations.

5. Once the sonographer is comfortable with the student's backscanning, they should allow the student to do the procedure with direct supervision and coaching as needed. The student should be allowed to present the procedure to the physician, if needed. A minimum of two assisted studies is recommended before students are able to progress to completing the exam on their own.

6. Once the student has demonstrated the capability to scan on his/her own, allow him/her to do the procedure without assistance, but with direct supervision. Have the student present the study to the physician. It is suggested that students have five completes before attempting a competency.

7. The student will request to attempt a competency evaluation once he/she is confident that the necessary skills for that exam have been mastered. Students will present their competency forms to the Clinical Instructors to verify that the requirements have been completed. A patient will be selected from the schedule for the competency attempt. The evaluator will record his/her observations and grades on the form. The student is to return the competency evaluation to the DMS Clinical Coordinator - pass or fail. If the student fails the competency evaluation, the Clinical Instructor should have the student perform additional assisted studies until he/she feels that the student is ready to retake the competency. Once the student passes a competency, he/she could be allowed to perform that exam with indirect supervision however; all patients should be rescanned and evaluated by the sonographer.

8. If a sonographer has doubts regarding a student's ability after having passed a competency, he/she may issue a challenge and request that the student repeat the competency evaluation. The student will have to return to performing under direct supervision until the evaluation is retaken and passed. The Clinical Instructor will determine when the student is ready. The evaluator's comments and grades should be recorded on a new evaluation form, and the form should be returned to the DMS Clinical Coordinator – pass or fail. Once the student passes the competency, he/she will once again be able to perform that exam under indirect supervision.

9. The student must have direct supervision regardless of competency when in surgery, on all portables, and in the emergency room.

10. It is not the sonographer's responsibility to locate the student if he/she is not in the department. It is the student's responsibility to remain with the assigned sonographer unless directed by the Clinical Instructor.

11. If the Clinical Instructor is not available, the clinical sonographer is responsible for the student.

12. The student must be scheduled a 30 minute lunch. Breaks are not mandatory, but the student is allowed one 15 minute break (with permission) if the schedule permits.

13. Every two weeks, the clinical instructor will be required to complete a Clinical Performance Evaluation. Honest feedback from all sonographers is needed because the student's grades come directly from the evaluation. The DMS Program needs to know if there are any problems that need to be addressed or if there are any suggestions to improve the student's clinical experience. Specific problems need be addressed immediately so that the student has time to improve. Of course, positive comments are encouraged as well; they are essential for the student's confidence.

14. The student must maintain required information for the DMS Program. They need to document their time in and out of the clinical facility. Time cards **must be signed** by the Clinical Instructor. Students are required to log all the procedures they were involved with on a daily basis. During the first semester, students will be required to turn in a weekly journal of interesting cases or lessons learned. In addition, students will be required to prepare a case study for presentation. It is the sole responsibility of the student to keep up with this documentation without letting it take too much time away from scanning. The student is also required to comply with all HIPAA regulations and ensure that all patient data is removed from the images before presenting the case study.

Written: 06/06
Revised 06/10, 5/11, 8/12, 11/15

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

DIAGNOSTIC MEDICAL SONOGRAPHY

RESPONSIBILITIES OF THE STUDENT ON THE CLINICAL SITE

Before the first clinical assignment, the DMS student will read the Code of Ethics for the Profession of Diagnostic Medical Sonography on the Society of Diagnostic Medical Sonography's website: www.sdms.org/about/codeofethics.asp.

1. The student should always show proper respect, consideration, and courtesy to physicians, sonographers, and all staff members, other students, patients, and their family members.

2. The student will work under the strict orders of the physician under whom they are working.

3. The student should never discuss or criticize a physician or express a preference of a physician with a patient or their family members.

4. Always respect and uphold the patient's right of privacy.

5. The student should always be aware of the responsibility of his/her position and not be careless or neglectful. The patient should have the student's full attention and respect.

6. The student should treat patients with kindness and empathy.

7. The student should always be conscious of the safety of the patient. Standard precautions and equipment disinfecting techniques should always be utilized to avoid contamination between patients.

8. The student will use a teamwork mentality to assist and guide others.

9. The student will not criticize sonographers or other students except to clinical instructor/program manager in cases that may be affecting their personal learning experience.

10. The student will assume a professional manner in attire and conduct.

11. The student should be willing to accept responsibility for their own work and results.

12. The student must follow all policies and guidelines for each of the clinical sites.

13. The clinical instructor is in charge of the students on the clinical site. He/She will give the student assignments and evaluate the student's clinical competencies. If any problems occur at the clinical site, the student is to report to the clinical instructor first. If necessary, the clinical instructor/student will contact the program manager if the problem is not resolved. See the Student Complaint/Grievance Policy.

14. The sonographer to whom the student is assigned is directly responsible for that student. The student must comply with his/her instructions.

15. The student must respect the dignity of every person regardless of race, creed, nationality, color, or economic status.

Violation of these Student Responsibilities will result in disciplinary action.
Please see Disciplinary Action Policy.

Written: 06/06
Revised: 5/11, 11/15

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

CLINICAL SUPERVISION POLICY

The onsite clinical instructors are the supervisors of the students on clinical assignments. If the clinical instructor is absent, then the assigned sonographer is the acting supervisor.

The clinical instructor will assign sonographer duties to the students. The students are to stay with their sonographer as assigned unless directed otherwise by the clinical instructor.

Until the competencies are passed for a given procedure, procedures must be performed under the direct supervision of a qualified sonographer.

The following is considered direct supervision:

1. The sonographer reviews the request for the examination and evaluates the condition of the patient.

2. The sonographer determines the appropriate student involvement based on his/her level of achievement.

3. The sonographer must be present while the student is scanning and presenting the case to the physician.

It is recommended that the student observe two, assist two, and complete at least five exams under direct supervision for each competency required. See Competency Policy. Once the student has passed a competency, he/she may perform that procedure with indirect supervision.

The following is considered indirect supervision:

1. The sonographer does not have to be present during the performance of the procedure, but remains immediately available to assist the student upon request.

If the images produced by the student need to be repeated or additional images are requested, direct supervision will be necessary.

The students must have direct supervision at all times when assigned to surgery, portables, or the emergency room.

The student must present his/her checklist of successfully passed competencies to the clinical instructor before scanning a specific procedure.

Written: 06/06

Revised: 5/11, 11/15

CLINICAL SITE VISIT POLICY

The DMS program manager and/or clinical coordinator will visit each of the clinical sites at least twice per semester. At these visits the faculty will:

1. Speak with the clinical instructor.

2. Speak with the sonographers.

3. Speak with the students.
    a. Check their Daily Procedure Logs
    b. Check Master Competency List.
    c. Review Clinical Performance Evaluations

Written: 06/06
Revised: 06/10, 5/11, 7/11, 11/15

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

CLINICAL SITE ORIENTATION

Before clinical assignments begin, students will be have an orientation at each clinical site. They will meet the clinical instructor for that location. She/he will give them an orientation that covers:

1. Parking locations for students.

2. Directions to radiology and a tour of the ultrasound suite.

3. Introduction to sonographers.

4. Cafeteria location and pricing.

3. Pertinent hospital policies and procedures as indicated by the clinical instructor.

4. Ultrasound department student procedures.

5. Protocols for procedures.

6. Location of fire extinguishers and emergency evacuation routes.

Written: 06/06

Revised: 5/11, 11/15

COLUMBUS TECHNICAL COLLEGE
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DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

CLINICAL TIME AND ATTENDANCE POLICY

Timesheets will be posted on Blackboard at the beginning of each semester for the student to print. It will be the responsibility of each student to keep track of his/her timesheet and use the appropriate sheet each week for recording in and out at the clinical site.

Students will manually enter in and out times on the approved timesheet. No other time card will be accepted. DO NOT record time on a piece of paper and attach it to the daily log sheets.

ALL TIMESHEETS MUST BE INITIALED DAILY BY THE CLINICAL INSTRUCTOR OR ASSIGNED SONOGRAPHER. NO TIME WILL BE RECORDED UNTIL THE TIMESHEET IS SIGNED.

Timesheets are to be turned in as stated in the course syllabus. If a timesheet is lost, it must be reported to the program manager and a second sheet must be obtained.

Students are subject to disciplinary action including dismissal if:

1. Fraudulently recording clinical time in any manner.
2. Leaving earlier than the approved time without notifying the clinical coordinator.
3. Habitually failing to record in or out properly according to this policy.
4. Habitually failing to turn in the time sheet as noted on the syllabus.
5. Habitually failing to write dates, week number and name on time cards.

Failure to turn in a time card will result in those days being recorded as an absence. Failure to record IN or OUT times will be counted as an absence unless the student contacts the school.

Written: 06/06
Revised: 06/10, 8/11, 8/12, 12/15

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

COLUMBUS TECHNICAL COLLEGE DMS TIME SHEET

NAME: _____ CLINICAL SITE _____

WEEK#: _____ WEEK ENDING: _____/_____/_____

Use 30 minute increments ie. 1:00 - 1:15 = 1:00 ; 1:16 - 1:30 = 1:30; 1:30 -1:45 = 1:30; 1:46 - 2:00 = 2:00

Day	Date	Date Absent	In	Out	In	Out	Total	Clinical Instructor
Monday								
Tuesday								
Wednesday								
Thursday								
Friday								
Saturday								
Sunday								
						TOTAL	**0**	

Make Up Hours	Date	Date Absent	In	Out	In	Out	Total	Clinical Instructor
						TOTAL	0	

Student Notes or Comments:

OFFICE USE ONLY		
WEEKLY TOTAL	0	

STUDENT SIGNATURE_____

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

DAILY PROCEDURE LOG POLICY

The student must maintain a daily log of procedures to include all studies observed, back-scanned, assisted, completed, or for competency assessment.

These are defined as:

Observed: Watching the sonographer scan.

Back-scan: Student scans the patient while the sonographer is checking their films or writing reports and are not in the room.

Assisted: The student scans while the sonographer is present. (direct supervision)

Completed: Student is able to complete the procedure without assistance or prompting from the sonographer. (direct supervision)

Competency: Assessment that the student is qualified to perform a specific procedure independently. Competency evaluations must be performed by a registered sonographer (ARDMS, CCI or ARRT (S)) in that specific area.

NOTE: Once a competency is completed for a specific exam, the student may be allowed to perform that procedure without sonographer assistance or observation. (indirect supervision)

These logs are to be filled in every clinical day, and should include ALL procedures that the student observed, back-scanned, assisted, or completed. Logs are to be turned in weekly along with the Weekly Clinical Procedure Total form. Failure to turn in forms on time will result in a deduction of points from the clinical standards grade.

Total procedures will be monitored and documented weekly, per semester, and for the entire program by the clinical coordinator.

Written: 06/06
Revised: 09/09, 06/10, 5/11, 12/15
Reviewed: 8/12

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

COLUMBUS TECHNICAL COLLEGE **DAILY LOG OF PROCEDURES**

DMS PROGRAM

DMSO _____ Week # _____

Student Name: _____

Dates Included _____/_____ to _____/_____

SCANNED

Date	Case #	Tech Initials	EXAM ORDERED	Abdomen	OB	GYN	Vascular	Other		Observed	Limited	Complete	Competency	Challenge
			TOTALS	0	0	0	0	0		0	0	0		

COLUMBUS TECHNICAL COLLEGE
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DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

CLINICAL WEEKLY TOTALS

Name: _____ Week # _____

Dates : From _____/_____/_____ to _____/_____/_____

DMSO: 1060 1100 2030 2050 **Semester:** Fall Spring Summer

(Bold Course Number) (Bold Semester)

I certify that the procedure totals listed below are accurate and may be verified by review of the Daily Log of Procedures.
I have personally observed or scanned (either back-scanned, assisted or completed) the following number of procedures.

Student Signature: _____

Abdominal Examinations	**Observed**	**Scanned**
Complete Abdomen		
Limited Abdomen		
Aorta		
IVC		
Pancreas		
Gallbladder		
Spleen		
Liver		
Renal		
Bladder		
Thyroid		
Scrotal		
Breast		
Invasive Procedure		
TOTALS	0	0

Other Exams	**Observed**	**Scanned**
TOTALS	0	0

GYN Examinations	**Observed**	**Scanned**
Transabd. Pelvis		
Transvag. Pelvis		
Limited Pelvis		
TOTALS	0	0

OB Examinations	**Observed**	**Scanned**
1st Trimester OB		
2nd Trimester OB		
3rd Trimester OB		
TOTALS	**0**	0

Vascular Exams	**Observed**	**Scanned**
Carotid		
Venous Legs		
LE Arterial		
TOTALS	0	0

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

CLINICAL SEMESTER TOTALS

Name: _____

Dates : From _____/_____/_____ to _____/_____/_____

DMSO: 1060 1100 2030 2050 **Semester:** Fall Spring Summer

(Bold Course Number) (Bold Semester)

I certify that the procedure totals listed below are accurate and may be verified by review of the Daily Log of Procedures.
I have personally observed or scanned (either back-scanned, assisted or completed) the following number of procedures.

Student Signature: _____

Abdominal Examinations	**Observed**	**Scanned**
Complete Abdomen		
Limited Abdomen		
Aorta		
IVC		
Pancreas		
Gallbladder		
Spleen		
Liver		
Renal		
Bladder		
Thyroid		
Scrotal		
Breast		
Invasive Procedure		
TOTALS	0	0

Other Exams	**Observed**	**Scanned**
TOTALS	0	0

GYN Examinations	**Observed**	**Scanned**
Transabd. Pelvis		
Transvag. Pelvis		
Limited Pelvis		
TOTALS	0	0

OB Examinations	**Observed**	**Scanned**
1st Trimester OB		
2nd Trimester OB		
3rd Trimester OB		
TOTALS	**0**	0

Vascular Exams	**Observed**	**Scanned**
Carotid		
Venous Legs		
LE Arterial		
TOTALS	0	0

COLUMBUS TECHNICAL COLLEGE
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SEMESTER TOTALS

***For personal use only. It does not need to be turned in at end of semester.**

WEEK PROCEDURE	Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Wk 10	Wk 11	Wk 12	Wk 13	Wk 14	Wk 15	TOTAL
GB																
Liver																
Pancreas																
Abdomen																
Spleen																
Kidney																
Bladder																
TA Pelvis																
TV Pelvis																
1st Tri OB																
2nd Tri OB																
3rd Tri OB																
Thyroid																
Scrotal																
Breast																

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Invasive																
Abd Aorta																
Carotid																
LE Venous																
LE Arterial																
Muscle/Joint																
Prostate																
Totals																

COLUMBUS TECHNICAL COLLEGE
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DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

CLINICAL JOURNAL ASSIGNMENT POLICY

The student may be required to record and submit a journal during a clinical semester per the syllabi. One case each clinical day should be documented. The journal assignment is designed to enable the student to express what they are learning through the clinical experience.

It is recommended that the student carry a pocket-size notebook for journaling so they can document their thoughts at the time of the exam and not try and recall them later.

Each Journal entry should include: (See Sample Journal Entry)

1. Date
2. Clinical facility
3. Assigned sonographer
4. Age and sex of the patient
5. Medical Record number of the patient
6. The procedure performed. Whether observed, backscanned, assisted or completed the procedure
7. Findings
8. Observations:
    a. Documentation of student's thoughts and feelings
    b. What the student learned
    c. What they would do the same/different for other similar cases
    d. Difficulties and how to overcome

The student will be required to turn in their journal entries as scheduled on the course syllabus. Include your name, course number, and clinical site at the top of your journal submission. Failure to turn journals in on time will result in a loss of points on the Clinical Standards grade.

Written: 06/06
Revised 06/10, 5/11, 7/11, 12/15
Reviewed: 8/12

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

SAMPLE: JOURNAL ENTRY WEEKLY SUMMARY

Student Name

DMSO 1060

The Medical Center

5/15/06

Today I was working with Marlene. We had a 35 year old woman for a pelvic ultrasound which I was observing. Her medical record # is: 000000000. The patient's bladder was not full when she was brought in for scanning. I was surprised at how little you can see if the bladder is not full. The patient was given more water to drink, and we waited to bring her back in until she said she was feeling full. The study was normal. I learned how important a full bladder is. Next time I will ask the patient if they feel full before bringing them back and if not give them water right away.

5/16/06

Today I was working with Jessica. I backscanned.an 80 year old man for a kidney ultrasound. His medical record # is 0000000000. He was rather large and had a lot of bowel gas. I had a hard time visualizing the kidneys. Jessica showed me how I could see better by using a different angle intercostally. The patient had a renal cyst on the right. I was able to show it very nicely. I learned to check from all different scan angles and planes to get the optimal images.

5/17/06

Today I was working with Jessica. We had to go to ICU to do a portable on a 52 year old woman. Her medical record # is 000000000000. I observed Jessica during the abdomen procedure. I was a little intimidated by all the lines and tubes connected to the patient. I was unsure about what I could touch or move. Jessica explained what each tube was and if I could move it. The patient had some bandages which were slightly in the way. Jessica asked the nurse to move them back a little. The patient had gall stones. Going on portables is harder than I thought. The patient was not able to move, so Jessica had to do a lot of reaching and stretching in order obtain the images. I learned a lot about what you have to do in this kind of situation.

COLUMBUS TECHNICAL COLLEGE
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DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

CASE STUDY POLICY

Students may be required to present a case study during a clinical semester. Ideally, the case study should be a procedure that the student was involved with, but exceptions can be made with instructor approval. The case study sessions will provide an opportunity for review and presentation of theoretical concepts.

The case study presentations will be scheduled by the clinical coordinator or course instructor based on classroom availability and clinical schedules.

The purpose of case studies:

1. Provide students an opportunity to correlate their didactic and clinical education.
2. Allow other students to learn/review through case study presentations.
3. Students will learn how to use patient history and physical, lab values, other imaging modalities, etc to understand what they are assessing for before scanning.
4. Students learn about pathology in clinical context.
5. Allow the students to utilize the equipment in the correct capacity.
6. Are useful in assessing for educational decisions, revision of curriculum, or course content.

Case Study Requirements:

1. Report the following portfolio items for this case study as listed below:
    a. Patient age, race, referral route
    b. Patient history including surgeries, symptoms, physical findings.
    c. Describe the reasons for the examination.
    d. Discuss any pertinent prior test results and if they are considered negative or positive. Include previous sonograms, lab values, ancillary tests (X-ray, CT, MRI, Nuclear Medicine, PET scan)
    e. Describe the equipment used. Include the manufacturer and model of the equipment, the type of transducer and frequency selected, (and why).
    f. Describe the findings for this examination, and show the film documentation for the findings.
    g. Describe follow up procedure findings, including other imaging studies, surgical findings and/or pathology reports for this case.

2. Detail the pathology/abnormality of the case study including what causes it, sonographic appearances, what it can be associated with, sizes if pertinent, occurrence, progression, prognosis, and pathologic/autopsy specimen examples. Research the focus of your case study.

Written: 06/06

Revised: 03/09, 8/10, 5/11, 11/15

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

REQUIRED CLINICAL RECORDS/ASSIGNMENTS

Every clinical semester students are required to keep records of attendance, procedures, and competency/proficiencies. These records are important documentation of the students' clinical experience.

The following records and assignments are required:

1. Time Records: According to the Clinical Time and Attendance Clocking Policy. **Timesheets must be signed daily to get credit for the hours**.

2. Daily Procedures: The student must document procedures observed/performed each day on the Daily Procedures Log Sheet. These should be turned in each week, along with the Weekly Procedure Total Log sheet as specified on the course syllabus. Students must also turn in a Semester Procedure Total Log Sheet at the end of each clinical semester.

3. Semester Competencies/Proficiencies: The student is expected to complete a minimum number of competencies/proficiencies each semester as listed in the course syllabus in order to progress to the next clinical level.

4. Case Study: Case study presentations may be assigned during any one, or all, of the clinical semesters. See the Case Study Policy for details.

5. Journal: The students are required to keep a journal during Clinical Sonography I. See the Journal Policy for details.

NOTE: All required forms will be posted in Blackboard or may be picked up in the DMS office.

Written: 06/06
Revised: 5/11, 12/15

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

CLINICAL PERFORMANCE EVALUATION POLICY

The student will have a clinical performance evaluation every two weeks during each clinical semester.

These evaluations are designed to:

1. Provide the students with feedback, both positive and negative, regarding their clinical performance.

2. To improve the individual clinical performance of the student.

3. To help the student understand the achievement of clinical education as it affects career goals.

4. To provide information for the evaluation of the DMS Program curriculum/class content, laboratory instruction, student remediation and termination.

5. To conform to quality assurance guidelines of accrediting agencies.

The onsite clinical instructor will complete the Clinical Performance Evaluation every two weeks. The clinical instructor should get feedback from all those who worked with the student. Clinical instructors should review his/her scores and comments with the student. Signed forms (evaluator and student) will be returned to the DMS clinical coordinator. Grades will be calculated and posted on Blackboard.

Circle Eval Number

1 2 3

4 5 6 7

COLUMBUS TECHNICAL COLLEGE

A Unit of the Technical College System of Georgia

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM
CLINICAL PERFORMANCE EVALUATION DMSO 1060

Dates From:_____/_____/_____ **To:** _____/_____/_____

Student _____ **Clinical Site**: _____

RATING:

4 = OUTSTANDING – Consistently maintains and exceeds performance expectations.
3 = SATISFACTORY – Performance consistently meets the minimum acceptable expectations.
2 = NEEDS IMPROVEMENT – Performance meets some, but not all, expectations. Performance must be more consistent.
1 = UNSATISFACTORY – Performance is below expectations.

Performance Criteria	Rating	Comments
PUNCTUALITY: Arrives on time in the A.M. Does not abuse lunch time or breaks.		
ROUTINE DUTIES: Cleans room between patients; fills gel bottles; stocks linen.		
PATIENT CARE AND SAFETY: Adjusts environment for patient comfort; protects patient privacy; drapes patient appropriately; safely transports and transfers patients to and from exam table.		
COMMUNICATION: Communicates with patients confidently and compassionately; communicates with staff and physicians professionally; uses proper medical terminology; refrains from curt, sarcastic remarks; listens well.		
ATTITUDE AND PROFESSIONAL COMPOSURE: Accepts constructive criticism and instructions; accepts tasks with a positive attitude;, displays flexibility and adaptability		
INITIATIVE: Initiates scan opportunities; volunteers to help; does not refuse studies.		
OBSERVATION & ATTENTIVENESS during procedures; asks questions; displays active involvement in cases.		
TECHNIQUE: Proper transducer and application selection; appropriate depth, focus and gain settings; follows protocol.		
APPEARANCE: Maintains professional appearance. Uniform neat and clean; Hair pulled back; one moderate pair of earrings, no hoops or dangles; wears name badge at all times. Fingernails trimmed, neat, clean - if polished – clear, neutral or light pink only.		

Evaluator_____Clinical Instructor _____

Student _____ Date _____

Clinical Coordinator/Manager_____Grade _____

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ADDITIONALCOMMENTS:_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Evaluator Initial _____

DMS DIRECTOR/CLINICAL COORDINATOR COMMENTS:

_____

_____

_____

_____

_____

_____

_____

_____

Student Initial/Coordinator Initial _____ **Date**_____

Revised 4/09, 9/09, 5/11
Reviewed: 8/12

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

CLINICAL GRADING POLICY

The final grade for Clinical Sonography I – IV will include the Clinical Performance Evaluations, Clinical Standards, Competencies, Clinical Paperwork and assignments.

See the individual policies for each of the above areas for the grading standards. The weighted percentage may vary each term and will be specified in each course syllabi.

The student must maintain a clinical grade average of 80% or above for each clinical semester to remain in the program.

Written: 06/06
Revised 03/08, 03/09, 06/10, 5/11, 7/11
Reviewed: 8/12

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

CLINICAL COMPETENCY POLICY

The student is responsible for maintaining the records for Competency Evaluations. It is suggested that they maintain a notebook with the required forms, so they are not misplaced. The procedure used for the competency check-off must be documented in the Daily Log of Procedures. The student should also log the completion on the Master Competency List, so he/she can see what is still needed. The evaluator must fill out and sign the evaluation form. The student must also sign the form before turning it in to the clinical coordinator.

Each student is responsible for completing all required competencies by the end of Clinical Sonography IV (DMSO 2050) in order to graduate. The student is responsible for communicating with the clinical instructors and clinical coordinator as to their remaining requirements, so they can be scheduled accordingly on the clinical site.

<u>Competencies should be signed off by an ARDMS, CCI or ARRT(S) registered sonographer who has credentials for the specific specialty being evaluated</u>

Falsification of competency evaluations will result in dismissal from the DMS Program. Refer to the Disciplinary Action Policy.

The faculty of the DMS Program will periodically review the documentation of the Competency Evaluation including but not limited to; names, dates, procedure, sonographer and grading. This is for ongoing quality assurance and to ensure the validity of the information.

The student is expected to observe, assist and complete (under direct supervision) a number of the procedures prior to attempting a competency. These procedures must be documented on the Daily Procedure Log. When the student is confident in his/her ability to attempt a competency, he/she will present the Competency Evaluation Form to the clinical instructor. The clinical instructor must be comfortable with the student's ability to perform the task, if not, the student may be required to complete additional procedures. Once the student is deemed ready, the clinical instructor will select a patient from the schedule and observe the student's performance from beginning to end.

Written: 06/06
Revised: 05/0, 09/09, 06/10, 5/11, 8/12

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

COMPETENCY DESCRIPTION/GRADING POLICY

Competencies are evaluations that assess the student's skills in specific procedures. These assessments indicate when the student is technically proficient for that procedure. Once an assessment is passed, the student is able to scan those specific procedures with indirect supervision. Once all the competencies and the mandatory courses of the DMS Program are satisfactorily completed, the student is qualified to graduate. The student is strongly encouraged to take the ARDMS registry exam.

A competency is defined as an evaluation of a specific exam by an ARDMS, CCI or ARRT(S) registered sonographer in the area being evaluated.

The following are the preferred credentials for the different types of procedures:

Abdomen:	RDMS (AB), ARRT(S)
OB/GYN:	RDMS (OB/GYN), ARRT(S)
Breast:	RDMS (BR); RDMS (AB, OB/GYN)
Carotid:	ARDMS RVT, CCI RVS
Venous leg:	ARDMS RVT, CCI RVS
Arterial leg:	ARDMS RVT, CCI RVS

Written: 06/06
Revised 03/08, 09/09, 06/10, 5/11 8/12

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM
COMPLETION OF A COMPETENCY POLICY

The following is the process for completion of a Competency Evaluation:

1. Each procedure being evaluated has a different form. The correct form must be used.

2. The evaluator must be ARDMS, CCI, or ARRT(S) registered for competencies.

3. The evaluator must directly observe the student's performance. The study must be performed without error or assistance.

4. The evaluator will score the student's performance and note the scores for each item on the evaluation.

5. Items may be scored as: "Pass" if the student's performance is acceptable or "Fail" if the student's performance is unacceptable. If the performance was unsatisfactory, the sonographer will note the deficiencies in the comments, so the student knows what to improve for the next attempt. Both the evaluator and the student must sign the form.

6. If the sonographer has to intervene or if additional images are requested by the physician, the competency is not acceptable and must be repeated on a different patient.

7. The sonographer has the right to stop the competency exam if, in their opinion, the student is hesitant, not accurate or not performing in a timely manner.

8. To pass the evaluation, all categories in the Pass field that applies to that site must be obtained.

9. All attempts, whether pass or fail, must be presented to the clinical coordinator.

10. The clinical coordinator will document the competencies as either pass or fail in order to keep records of the student's progress and to demonstrate proof of competency for graduation.

11. The student may be challenged to repeat a competency if the clinical instructor notes a deficiency in the student's performance. The student must provide another evaluation form for this challenge. The clinical instructor will choose the patient. The student must pass this challenge to continue with indirect supervision. If the challenge is failed, the student must repeat the competency until it is passed. The challenge evaluation must be presented to the clinical coordinator for documentation, pass or fail, and to note if another attempt is required.

12. All competencies and challenges should be noted on the Daily Log of Procedures.

Written: 06/06
Revised 03/08, 5/09, 9/09, 5/11, 8/12

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

SENIOR MENTORING PROGRAM

The senior class will actively participate with the juniors in a Mentoring Program as follows:

1. Upon the start of a new class, the seniors will host a "meet and greet" reception to welcome the new students, answer questions, and help alleviate some of their fears about being a student in the DMS program.

2. Seniors will be scheduled dates and times to assist the juniors in their lab sessions. Seniors are to be positive about this assignment and should be helpful with their comments/answers to the junior students. They will assist the juniors in scanning techniques and preparing for lab check offs. Time spent in the lab mentoring will count toward clinical hours.

Grades will not be issued for mentoring, but points will be deducted from the Clinical Standards for such things as failure to show, tardiness, and poor attitude. The mentoring program should be a learning experience for both the junior and senior students, as future employment in the field often requires working with students and inexperienced new hires.

The senior students will also be required to mentor the junior students at the clinical sites during Clinical IV. The seniors will be graded by the Clinical Instructor on their Clinical Evaluation on how well they are assisting the juniors to becoming acclimated to the sites.

Written: 6/09
Revised: 3/10, 8/12, 12/15

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

MASTER COMPETENCY LIST

_____ has completed the following competencies:

Student Name

Procedure	Date
Gallbladder	
Liver	
Pancreas	
Complete ABD	
Spleen	
Kidneys	
Bladder	
Abdominal Aorta	
Transabdominal Pelvis	
Transvaginal Pelvis	
1st Trimester OB	
2nd or 3rd Trimester OB	
Thyroid	
Scrotal	
Breast	
Invasive Procedure	
Carotid	
Venous Lower Extremity	
Arterial LE Seg Pressures	

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

COLUMBUS TECHNICAL COLLEGE
DMS PROGRAM COMPETENCY EVALUATION

1st TRIMESTER OB

Student Name: _____

Clinical Site: _____ Semester:_____ _____

Clinical Instructors: If mutually agreed that the student is ready, the clinical instructor will randomly select a patient from the schedule for the competency exam. **The student must perform the entire procedure under direct supervision by the evaluator.** The competency **should not** be approved if repeat or additional images are requested or intervention is necessary. Once the clinical instructor is satisfied with the student's performance, and the student passes **all the parameters** listed below*, the evaluator completes the table below and signs the form. The student must sign the form and return it to the DMS clinical coordinator / program manager.

PATIENT #_____

***Parameters may be modified to reflect the clinical site's protocol**

OBSERVATION	Pass	Fail
Introduction of self, patient identification and procedure verification		
Patient directions and explanation of procedure, patient history		
Patient safety precautions		
Patient comfort		
Demonstrates cervix, long and trans		
Demonstrates uterus, long and trans with measurements		
Demonstrates bilateral ovaries, long and trans with measurements		
Demonstrates gestational sac, long and trans with measurements		
Demonstrates Maternal decidua		
Demonstrates yolk sac		
Demonstrates embryo with crown rump measurements		
Identifies and demonstrates normal and abnormal sonographic findings		
Optimizes equipment settings to accurately demonstrate tissue characteristics		
Demonstrates good judgment in obtaining diagnostic images		
Identifies and compensates for artifacts		
Completes study in reasonable amount of time for student's level of experience		
Presents the procedure to the physician in an organized manner		

PASS FAIL
(circle one)

Evaluator :_____ _____ Registry # _____

Clinical Instructor: _____ Registry # _____
(If not the Evaluator)

Comments:_____
_____
_____
_____
_____

Student Signature: _____ Date: _____

_____
Program Manager/Clinical Coordinator Signature

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

COLUMBUS TECHNICAL COLLEGE
DMS PROGRAM COMPETENCY EVALUATION

2ND OR 3RD TRIMESTER OB

Student Name: _____

Clinical Site: _____ DMSO _____

Clinical Instructors: If mutually agreed that the student is ready, the clinical instructor will randomly select a patient from the schedule for the competency exam. **The student must perform the entire procedure under direct supervision by the evaluator.** The competency **should not** be approved if repeat or additional images are requested or intervention is necessary. Once the clinical instructor is satisfied with the student's performance, and the student passes **all the parameters** listed below*, the evaluator completes the table below and signs the form. The student must sign the form and return it to the DMS clinical coordinator / program manager.

a. Pt. # _____ b. Pt # _____ c. Pt # _____

***Parameters may be modified to reflect the clinical site's protocol**

Pt	Evl	OBSERVATION	Pass	Fail
		Introduction of self, patient identification and procedure verification		
		Patient directions and explanation of procedure, patient history		
		Patient safety precautions		
		Patient comfort		
		Demonstrates placenta and amniotic fluid		
		Demonstrates fetal lie and viability		
		Demonstrates cervix		
		Demonstrates fetal biparietal diameter, abd circumference, femur length with measurements		
		Demonstrates 4 chamber heart		
		Demonstrates fetal cerebral ventricles, stomach, kidneys, bladder, extremities, face, spine		
		Identifies and demonstrates normal and abnormal sonographic findings		
		Optimizes equipment settings to accurately demonstrate tissue characteristics		
		Demonstrates good judgment in obtaining diagnostic images		
		Identifies and compensates for artifacts		
		Completes study in reasonable amount of time for student's level of experience		
		Presents the procedure to the physician in an organized manner		

1. Evaluator :_____ Registry # _____ Date:_____

2. Evaluator :_____ Registry # _____ Date:_____

3. Evaluator: _____ Registry # _____ Date: _____

Clinical Instructor: _____ Registry # _____
(If not the Evaluator)

Comments:_____
_____
_____
_____
_____

Student Signature: _____ Date Completed: _____

_____
Program Manager/Clinical Coordinator Signature

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

COLUMBUS TECHNICAL COLLEGE
DMS PROGRAM COMPETENCY EVALUATION

ABDOMINAL AORTA

Student Name: _____

Clinical Site: _____ Semester:_____ _____

Clinical Instructors: If mutually agreed that the student is ready, the clinical instructor will randomly select a patient from the schedule for the competency exam. **The student must perform the entire procedure under direct supervision by the evaluator.** The competency **should not** be approved if repeat or additional images are requested or intervention is necessary. Once the clinical instructor is satisfied with the student's performance, and the student passes **all the parameters** listed below*, the evaluator completes the table below and signs the form. The student must sign the form and return it to the DMS clinical coordinator / program manager.

PATIENT #_____

***Parameters may be modified to reflect the clinical site's protocol**

OBSERVATION	Pass	Fail
Introduction of self, patient identification and procedure verification		
Patient directions and explanation of procedure, patient history		
Patient safety precautions		
Patient comfort		
Demonstrates abdominal aorta, long with measurements		
Demonstrates abdominal aorta, trans with measurements		
Demonstrates celiac axis		
Demonstrates SMA origin		
Demonstrates color flow in abdominal aorta		
Identifies and demonstrates normal and abnormal sonographic findings		
Optimizes equipment settings to accurately demonstrate tissue characteristics		
Demonstrates good judgment in obtaining diagnostic images		
Identifies and compensates for artifacts		
Presents the procedure to the physician in an organized manner		
Completes study in reasonable amount of time for student's level of experience		

PASS FAIL
(circle one)

Evaluator :_____ Registry # _____

Clinical Instructor: _____ Registry # _____
(If not the Evaluator)

Comments:_____
_____
_____
_____
_____

Student Signature: _____ Date: _____

_____
Program Manager/Clinical Coordinator Signature

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

COLUMBUS TECHNICAL COLLEGE
DMS PROGRAM COMPETENCY EVALUATION

COMPLETE ABDOMEN

Student Name: _____

Clinical Site: _____ Semester:_____ _____

Clinical Instructors: If mutually agreed that the student is ready, the clinical instructor will randomly select a patient from the schedule for the competency exam. **The student must perform the entire procedure under direct supervision by the evaluator.** The competency **should not** be approved if repeat or additional images are requested or intervention is necessary. Once the clinical instructor is satisfied with the student's performance, and the student passes **all the parameters** listed below*, the evaluator completes the table below and signs the form. The student must sign the form and return it to the DMS clinical coordinator / program manager.

PATIENT #_____

***Parameters may be modified to reflect the clinical site's protocol**

OBSERVATION	Pass	Fail
Introduction of self, patient identification and procedure verification		
Patient directions and explanation of procedure, patient history		
Patient safety precautions		
Patient comfort		
Demonstrates liver, long and trans		
Demonstrates GB, long and trans		
Demonstrates Pancreas, long and trans		
Demonstrates Spleen, long and trans		
Demonstrates Kidneys, long and trans		
Demonstrates Abdominal Aorta and IVC, long and trans		
Demonstrate and compare liver/renal/spleen echogenicity		
Identifies and demonstrates normal and abnormal sonographic findings		
Optimizes equipment settings to accurately demonstrate tissue characteristics		
Demonstrates good judgment in obtaining diagnostic images		
Identifies and compensates for artifacts		
Presents the procedure to the physician in an organized manner		
Completes study in reasonable amount of time for student's level of experience		

PASS FAIL
(circle one)

Evaluator :_____ _____ Registry # _____

Clinical Instructor: _____ Registry # _____
(If not the Evaluator)

Comments:_____
_____
_____
_____
_____

Student Signature: _____ Date: _____

_____
Program Manager/Clinical Coordinator Signature

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

COLUMBUS TECHNICAL COLLEGE
DMS PROGRAM COMPETENCY EVALUATION

PANCREAS

Student Name: _____

Clinical Site: _____ Semester:_____ _____

Clinical Instructors: If mutually agreed that the student is ready, the clinical instructor will randomly select a patient from the schedule for the competency exam. **The student must perform the entire procedure under direct supervision by the evaluator.** The competency **should not** be approved if repeat or additional images are requested or intervention is necessary. Once the clinical instructor is satisfied with the student's performance, and the student passes **all the parameters** listed below*, the evaluator completes the table below and signs the form. The student must sign the form and return it to the DMS clinical coordinator / program manager.

PATIENT #_____

***Parameters may be modified to reflect the clinical site's protocol**

OBSERVATION	Pass	Fail
Introduction of self, patient identification and procedure verification		
Patient directions and explanation of procedure, patient history		
Patient safety precautions		
Patient comfort		
Demonstrates head of the pancreas, long and trans		
Demonstrates body of pancreas, long and trans		
Demonstrates tail of pancreas, long and trans		
Demonstrates measurements		
Identifies and demonstrates normal and abnormal sonographic findings		
Optimizes equipment settings to accurately demonstrate tissue characteristics		
Demonstrates good judgment in obtaining diagnostic images		
Identifies and compensates for artifacts		
Completes study in reasonable amount of time for student's level of experience		
Presents the procedure to the physician in an organized manner		

PASS FAIL
(circle one)

Evaluator :_____ _____ Registry # _____

Clinical Instructor: _____ Registry # _____
(If not the Evaluator)

Comments:_____
_____
_____
_____
_____

Student Signature: _____ Date: _____

_____
Program Manager/Clinical Coordinator Signature

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

COLUMBUS TECHNICAL COLLEGE
DMS PROGRAM COMPETENCY EVALUATION

LIVER

Student Name: _____

Clinical Site: _____ Semester: _____

Clinical Instructors: If mutually agreed that the student is ready, the clinical instructor will randomly select a patient from the schedule for the competency exam. **The student must perform the entire procedure under direct supervision by the evaluator.** The competency **should not** be approved if repeat or additional images are requested or intervention is necessary. Once the clinical instructor is satisfied with the student's performance, and the student passes **all the parameters** listed below*, the evaluator completes the table below and signs the form. The student must sign the form and return it to the DMS clinical coordinator / program manager.

PATIENT #_____

***Parameters may be modified to reflect the clinical site's protocol**

OBSERVATION	Pass	Fail
Introduction of self, patient identification and procedure verification		
Patient directions and explanation of procedure, patient history		
Patient safety precautions		
Patient comfort		
Demonstrates left lobe of liver, long and trans		
Demonstrates right lobe of the liver, long and trans		
Demonstrates dome of liver, long and trans		
Demonstrates caudate lobe, long and trans		
Demonstrate hepatic veins/IVC junction		
Demonstrate and compare liver echogenicity to right kidney		
Demonstrates measurements		
Identifies and demonstrates normal and abnormal sonographic findings		
Optimizes equipment settings to accurately demonstrate tissue characteristics		
Demonstrates good judgment in obtaining diagnostic images		
Identifies and compensates for artifacts		
Completes study in reasonable amount of time for student's level of experience		
Presents the procedure to the physician in an organized manner		

PASS FAIL
(circle one)

Evaluator :_____ _____ Registry # _____

Clinical Instructor: _____ Registry # _____
(If not the Evaluator)

Comments:_____
_____
_____
_____
_____

Student Signature: _____ Date: _____

_____
Program Manager/Clinical Coordinator Signature

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

COLUMBUS TECHNICAL COLLEGE
DMS PROGRAM COMPETENCY EVALUATION

SPLEEN

Student Name: _____

Clinical Site: _____ Semester:_____ _____

Clinical Instructors: If mutually agreed that the student is ready, the clinical instructor will randomly select a patient from the schedule for the competency exam. **The student must perform the entire procedure under direct supervision by the evaluator.** The competency **should not** be approved if repeat or additional images are requested or intervention is necessary. Once the clinical instructor is satisfied with the student's performance, and the student passes **all the parameters** listed below*, the evaluator completes the table below and signs the form. The student must sign the form and return it to the DMS clinical coordinator / program manager.

PATIENT #_____

***Parameters may be modified to reflect the clinical site's protocol**

OBSERVATION	Pass	Fail
Introduction of self, patient identification and procedure verification		
Patient directions and explanation of procedure		
Patient safety precautions		
Patient comfort		
Demonstrates superior spleen, long and trans		
Demonstrates inferior spleen, long and trans		
Demonstrates mid spleen, long and trans		
Demonstrates long axis of spleen, with measurements		
Demonstrates maximum transverse AP of spleen with measurements		
Demonstrates maximum transverse width of spleen with measurements		
Identifies and demonstrates normal and abnormal sonographic findings		
Optimizes equipment settings to accurately demonstrate tissue characteristics		
Demonstrates good judgment in obtaining diagnostic images		
Identifies and compensates for artifacts		
Completes study in reasonable amount of time for student's level of experience		
Presents the procedure to the physician in an organized manner		

PASS FAIL
(circle one)

Evaluator :_____ _____ Registry # _____

Clinical Instructor: _____ Registry # _____
(If not the Evaluator)

Comments:_____
_____
_____
_____
_____

Student Signature: _____ Date: _____

_____
Program Manager/Clinical Coordinator Signature

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

COLUMBUS TECHNICAL COLLEGE
DMS PROGRAM COMPETENCY EVALUATION

GALLBLADDER

Student Name: _____

Clinical Site: _____ Semester: _____

Clinical Instructors: If mutually agreed that the student is ready, the clinical instructor will randomly select a patient from the schedule for the competency exam. **The student must perform the entire procedure under direct supervision by the evaluator.** The competency **should not** be approved if repeat or additional images are requested or intervention is necessary. Once the clinical instructor is satisfied with the student's performance, and the student passes **all the parameters** listed below*, the evaluator completes the table below and signs the form. The student must sign the form and return it to the DMS clinical coordinator / program manager.

PATIENT #_____

***Parameters may be modified to reflect the clinical site's protocol**

OBSERVATION	Pass	Fail
Introduction of self, patient identification and procedure verification		
Patient directions and explanation of procedure, patient history		
Patient safety precautions		
Patient comfort		
Demonstrates neck of GB, long and trans		
Demonstrates body of GB, long and trans		
Demonstrates fundus of GB, long and trans		
Demonstrates cystic duct		
Demonstrates hepatic ducts		
Demonstrates CBD with measurements		
Demonstrate the GB wall with measurements		
Identifies and demonstrates normal and abnormal sonographic findings		
Optimizes equipment settings to accurately demonstrate tissue characteristics		
Demonstrates good judgment in obtaining diagnostic images		
Identifies and compensates for artifacts		
Completes study in reasonable amount of time for student's level of experience		
Presents the procedure to the physician in an organized manner		

PASS FAIL
(circle one)

Evaluator :_____ _____ Registry # _____

Clinical Instructor: _____ Registry # _____
(If not the Evaluator)

Comments:_____
_____
_____
_____
_____

Student Signature: _____ Date: _____

_____
Program Manager/Clinical Coordinator Signature

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

COLUMBUS TECHNICAL COLLEGE
DMS PROGRAM COMPETENCY EVALUATION

KIDNEYS

Student Name: _____

Clinical Site: _____ Semester: _____

Clinical Instructor:
If mutually agreed that the student is ready, the clinical instructor will randomly select a patient from the schedule for the competency exam. **The student must perform the entire procedure under direct supervision by the evaluator.** The competency **should not** be approved if repeat or additional images are requested or intervention is necessary. Once the clinical instructor is satisfied with the student's performance, and the student passes **all the parameters** listed below, the evaluator completes the table below and signs the form. The student must sign the form and return it to the DMS clinical coordinator / program manager along with the Competency Readiness Report.

PATIENT #_____

OBSERVATION	Pass	Fail
Introduction of self, patient identification and procedure verification		
Patient directions and explanation of procedure, patient history		
Patient safety precautions		
Patient comfort		
Demonstrates medial kidney bilateral, long		
Demonstrates mid kidney bilateral, long with measurements		
Demonstrates lateral kidney bilateral, long		
Demonstrates superior kidney bilateral, trans		
Demonstrates mid kidney bilateral, trans with measurements		
Demonstrates inferior kidney bilateral, trans		
Demonstrates renal collecting system and cortex and measures as necessary		
Identifies and demonstrates normal and abnormal sonographic findings		
Optimizes equipment settings to accurately demonstrate tissue characteristics		
Demonstrates good judgment in obtaining diagnostic images		
Identifies and compensates for artifacts		
Completes study in reasonable amount of time for student's level of experience		
Presents the procedure to the physician in an organized manner		

Evaluator Name (print): _____ Registry # _____

Evaluators Signature: _____ Date: _____

Comments:_____
_____
_____
_____

Student Signature: _____

Student Passed Competency. Competency Readiness Report complete:

_____
Program Manager/Clinical Coordinator Signature

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

COLUMBUS TECHNICAL COLLEGE
DMS PROGRAM COMPETENCY EVALUATION

TRANSABDOMINAL PELVIS

Student Name: _____

Clinical Site: _____ Semester: _____

Clinical Instructor:
If mutually agreed that the student is ready, the clinical instructor will randomly select a patient from the schedule for the competency exam. **The student must perform the entire procedure under direct supervision by the evaluator.** The competency **should not** be approved if repeat or additional images are requested or intervention is necessary. Once the clinical instructor is satisfied with the student's performance, and the student passes **all the parameters** listed below, the evaluator completes the table below and signs the form. The student must sign the form and return it to the DMS clinical coordinator / program manager along with the Competency Readiness report.

PATIENT #_____

OBSERVATION	Pass	Fail
Introduction of self, patient identification and procedure verification		
Patient directions and explanation of procedure, patient history		
Patient safety precautions		
Patient comfort		
Demonstrates vagina, long and trans		
Demonstrates cervix, long and trans		
Demonstrates uterus, long and trans with measurements		
Demonstrates bilateral ovaries, long and trans with measurements		
Identifies and demonstrates normal and abnormal sonographic findings		
Optimizes equipment settings to accurately demonstrate tissue characteristics		
Demonstrates good judgment in obtaining diagnostic images		
Identifies and compensates for artifacts		
Completes study in reasonable amount of time for student's level of experience		
Presents the procedure to the physician in an organized manner		

Evaluator Name (print): _____ Registry # _____

Evaluators Signature: _____ Date: _____

Comments:_____
_____
_____
_____
_____

Student Signature: _____

Student Passed Competency. Readiness Report complete:

_____
Program Manager/Clinical Coordinator Signature

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

COLUMBUS TECHNICAL COLLEGE
DMS PROGRAM COMPETENCY EVALUATION

TRANSVAGINAL PELVIS

Student Name: _____

Clinical Site: _____ Semester: _____

Clinical Instructor:
If mutually agreed that the student is ready, the clinical instructor will randomly select a patient from the schedule for the competency exam. **The student must perform the entire procedure under direct supervision by the evaluator.** The competency **should not** be approved if repeat or additional images are requested or intervention is necessary. Once the clinical instructor is satisfied with the student's performance, and the student passes **all the parameters** listed below, the evaluator completes the table below and signs the form. The student must sign the form and return it to the DMS clinical coordinator / program manager.

PATIENT #_____

OBSERVATION	Pass	Fail
Introduction of self, patient identification and procedure verification		
Patient directions and explanation of procedure, patient history		
Patient safety precautions		
Patient comfort		
Demonstrates cervix, long and trans		
Demonstrates uterus, long and trans with measurements		
Demonstrates bilateral ovaries, long and trans with measurements		
Identifies and demonstrates normal and abnormal sonographic findings		
Optimizes equipment settings to accurately demonstrate tissue characteristics		
Demonstrates good judgment in obtaining diagnostic images		
Identifies and compensates for artifacts		
Completes study in reasonable amount of time for student's level of experience		
Presents the procedure to the physician in an organized manner		

Evaluator Name (print): _____ Registry # _____

Evaluators Signature: _____ Date: _____

Comments:_____
_____
_____
_____
_____

Student Signature: _____

Student Passed Competency. Readiness Report Complete:

_____
Program Manager/Clinical Coordinator Signature

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

COLUMBUS TECHNICAL COLLEGE
DMS PROGRAM COMPETENCY EVALUATION

THYROID

Student Name: _____

Clinical Site: _____ Semester: _____

Clinical Instructor:
If mutually agreed that the student is ready, the clinical instructor will randomly select a patient from the schedule for the competency exam. **The student must perform the entire procedure under direct supervision by the evaluator.** The competency **should not** be approved if repeat or additional images are requested or intervention is necessary. Once the clinical instructor is satisfied with the student's performance, and the student passes **all the parameters** listed below, the evaluator completes the table below and signs the form. The student must sign the form and return it to the DMS clinical coordinator / program manager along with the Competency Readiness Report..

PATIENT #_____

OBSERVATION	Pass	Fail
Introduction of self, patient identification and procedure verification		
Patient directions and explanation of procedure, patient history		
Patient safety precautions		
Patient comfort		
Demonstrates medial thyroid bilateral, long		
Demonstrates mid thyroid bilateral, long with measurements		
Demonstrates lateral thyroid bilateral, long		
Demonstrates superior thyroid bilateral, trans		
Demonstrate mid thyroid bilateral, trans with measurements		
Demonstrates inferior thyroid bilateral, trans		
Demonstrates thyroid isthmus with measurements		
Identifies and demonstrates normal and abnormal sonographic findings		
Optimizes equipment settings to accurately demonstrate tissue characteristics		
Demonstrates good judgment in obtaining diagnostic images		
Identifies and compensates for artifacts		
Completes study in reasonable amount of time for student's level of experience		
Presents the procedure to the physician in an organized manner		

Evaluator Name (print): _____ Registry # _____

Evaluators Signature: _____ Date: _____

Comments:_____
_____
_____
_____

Student Signature: _____

Student Passed Competency. Competency Readiness Report Complete.

_____
Program Manager/Clinical Coordinator Signature

COLUMBUS TECHNICAL COLLEGE
A Unit of the Technical College System of Georgia

COLUMBUS TECHNICAL COLLEGE
DMS PROGRAM COMPETENCY EVALUATION

CAROTID ARTERIES

Student Name: _____

Clinical Site: _____ Semester:____ _____

Clinical Instructor:
If mutually agreed that the student is ready, the clinical instructor will randomly select a patient from the schedule for the competency exam. **The student must perform the entire procedure under direct supervision by the evaluator.** The competency **should not** be approved if repeat or additional images are requested or intervention is necessary. Once the clinical instructor is satisfied with the student's performance, and the student passes **all the parameters** listed below, the evaluator completes the table below and signs the form. The student must sign the form and return it to the DMS clinical coordinator / program manager along with the Competency Readiness Report.

PATIENT #_____

OBSERVATION	Pass	Fail
Introduction of self, patient identification and procedure verification		
Patient directions and explanation of procedure, patient history		
Patient safety precautions		
Patient comfort		
Demonstrates common carotid artery bilateral with gray scale, color flow and Doppler		
Demonstrates CCA bifurcation bilateral with gray scale, color flow and Doppler		
Demonstrates internal carotid artery bilateral with gray scale, color flow and Doppler		
Demonstrates external carotid artery bilateral with gray scale, color flow and Doppler		
Demonstrates vertebral artery bilateral with gray scale, color flow and Doppler		
Identifies and demonstrates normal and abnormal sonographic findings		
Optimizes equipment settings to accurately demonstrate tissue characteristics		
Demonstrates good judgment in obtaining diagnostic images		
Identifies and compensates for artifacts		
Completes study in reasonable amount of time for student's level of experience		
Presents the procedure to the physician in an organized manner		

Evaluator Name (print): _____ Registry # _____

Evaluators Signature: _____ Date: _____

Comments:_____
_____
_____
_____

Student Signature: _____

Student Passed Competency. Competency Readiness Report Complete:

_____
Program Manager/Clinical Coordinator Signature

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COLUMBUS TECHNICAL COLLEGE
DMS PROGRAM COMPETENCY EVALUATION

VENOUS LOWER EXTREMITY

Student Name: _____

Clinical Site: _____ Semester: _____

Clinical Instructor:
If mutually agreed that the student is ready, the clinical instructor will randomly select a patient from the schedule for the competency exam. **The student must perform the entire procedure under direct supervision by the evaluator.** The competency **should not** be approved if repeat or additional images are requested or intervention is necessary. Once the clinical instructor is satisfied with the student's performance, and the student passes **all the parameters** listed below, the evaluator completes the table below and signs the form. The student must sign the form and return it to the DMS clinical coordinator / program manager along with the Competency Readiness Report.

PATIENT #_____

OBSERVATION	Pass	Fail
Introduction of self, patient identification and procedure verification		
Patient directions and explanation of procedure, patient history		
Patient safety precautions		
Patient comfort		
Identifies common femoral vein/artery with Doppler		
Demonstrates common femoral vein with color flow, compression, and augmentation		
Demonstrates superficial femoral vein bilateral with color flow, compression and augmentation		
Demonstrates popliteal vein bilateral with color flow, compression and augmentation		
Identifies and demonstrates normal and abnormal sonographic findings		
Optimizes equipment settings to accurately demonstrate tissue characteristics		
Demonstrates good judgment in obtaining diagnostic images		
Identifies and compensates for artifacts		
Completes study in reasonable amount of time for student's level of experience		
Presents the procedure to the physician in an organized manner		

Evaluator Name (print): _____ Registry # _____

Evaluators Signature: _____ Date: _____

Comments:_____
_____
_____
_____

Student Signature: _____

Student Passed Competency. Competency Readiness Report Complete.

_____
Program Manager/Clinical Coordinator Signature

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COLUMBUS TECHNICAL COLLEGE
DMS PROGRAM COMPETENCY EVALUATION

ARTERIAL LE

Student Name: _____

Clinical Site: _____ Semester:_____ _____

Clinical Instructor:
If mutually agreed that the student is ready, the clinical instructor will randomly select a patient from the schedule for the competency exam. **The student must perform the entire procedure under direct supervision by the evaluator.** The competency **should not** be approved if repeat or additional images are requested or intervention is necessary. Once the clinical instructor is satisfied with the student's performance, and the student passes **all the parameters** listed below, the evaluator completes the table below and signs the form. The student must sign the form and return it to the DMS clinical coordinator / program manager along with Competency Readiness Report.

PATIENT #_____

OBSERVATION	Pass	Fail
Introduction of self, patient identification and procedure verification		
Patient directions and explanation of procedure, patient history		
Patient safety precautions		
Patient comfort		
Palpates pulses (CFA, Pop, PT, DP)		
Chooses proper cuff size for patient's body habitus		
Proper placement of cuffs		
Selects correct Doppler probe		
Identifies PT and DP with Doppler		
Optimizes Doppler signal		
Inflates cuffs to approximately 20 mmHg over loss of signal		
Maintains probe position during deflation		
Recognizes return of flow and documents correct pressure		
Able to calculate ABI		
Completes study in reasonable amount of time for student's level of experience		
Presents the procedure to the physician in an organized manner		

Evaluator Name (print): _____ Registry # _____

Evaluators Signature: _____ Date: _____

Comments:_____

Student Signature: _____

Student Passed Competency. Competency Readiness Report Complete.

_____
Program Manager/Clinical Coordinator Signature

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COLUMBUS TECHNICAL COLLEGE
DMS PROGRAM COMPETENCY EVALUATION

BLADDER

Student Name: _____

Clinical Site: _____ Semester:_____ _____

Clinical Instructor:
If mutually agreed that the student is ready, the clinical instructor will randomly select a patient from the schedule for the competency exam. **The student must perform the entire procedure under direct supervision by the evaluator.** The competency **should not** be approved if repeat or additional images are requested or intervention is necessary. Once the clinical instructor is satisfied with the student's performance, and the student passes **all the parameters** listed below, the evaluator completes the table below and signs the form. The student must sign the form and return it to the DMS clinical coordinator / program manager along with Competency Readiness Report.

PATIENT #_____

OBSERVATION	Pass	Fail
Introduction of self, patient identification and procedure verification		
Patient directions and explanation of procedure, patient history		
Patient safety precautions		
Patient comfort		
Demonstrates mid bladder, long and trans with measurements		
Demonstrates lateral bladder, long		
Demonstrates superior bladder, trans		
Demonstrates inferior bladder, trans		
Demonstrates Post void bladder, long and trans with measurement		
Computes pre and post void bladder volumes		
Identifies and demonstrates normal and abnormal sonographic findings		
Optimizes equipment settings to accurately demonstrate tissue characteristics		
Demonstrates good judgement in obtaining diagnostic images		
Identifies and compensates for artifacts		
Completes study in a reasonable amount of time for student's level of experience		
Presents the procedure to the physician in an organized manner		

Evaluator Name (print): _____ Registry # _____

Evaluators Signature: _____ Date: _____

Comments:_____

Student Signature: _____

Student Passed Competency. Competency Readiness Report Complete.

_____
Program Manager/Clinical Coordinator Signature

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COLUMBUS TECHNICAL COLLEGE
DMS PROGRAM COMPETENCY EVALUATION

BREAST

Student Name: _____

Clinical Site: _____ Semester:_____ _____

Clinical Instructor:
If mutually agreed that the student is ready, the clinical instructor will randomly select a patient from the schedule for the competency exam. **The student must perform the entire procedure under direct supervision by the evaluator.** The competency **should not** be approved if repeat or additional images are requested or intervention is necessary. Once the clinical instructor is satisfied with the student's performance, and the student passes **all the parameters** listed below, the evaluator completes the table below and signs the form. The student must sign the form and return it to the DMS clinical coordinator / program manager along with Competency Readiness Report.

PATIENT #_____

OBSERVATION	Pass	Fail
Introduction of self, patient identification and procedure verification		
Patient directions and explanation of procedure, patient history		
Patient safety precautions		
Patient comfort		
Demonstrates breast parenchyma pattern, radial and antiradial		
Demonstrates the correct location of the o'clock position		
Demonstrates measurements of abnormalities, radial and antiradial		
Identitifies and demonstrates normal and abnormal sonographic findings		
Optimizes equipment settings to accurately demonstrate tissue characteristics		
Demonstrates good judgement in obtaining diagnostic images		
Identifies and compensates for artifacts		
Complete study in reasonable amount of time for the student's level of experience		
Presents the procedure to the physician in an organized manner		

Evaluator Name (print): _____ Registry # _____

Evaluators Signature: _____ Date: _____

Comments:_____

Student Signature: _____

Student Passed Competency. Competency Readiness Report Complete.

_____
Program Manager/Clinical Coordinator Signature

COLUMBUS TECHNICAL COLLEGE
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COLUMBUS TECHNICAL COLLEGE
DMS PROGRAM COMPETENCY EVALUATION

SCROTAL

Student Name: _____

Clinical Site: _____ Semester:_____ _____

Clinical Instructor:
If mutually agreed that the student is ready, the clinical instructor will randomly select a patient from the schedule for the competency exam. **The student must perform the entire procedure under direct supervision by the evaluator.** The competency **should not** be approved if repeat or additional images are requested or intervention is necessary. Once the clinical instructor is satisfied with the student's performance, and the student passes **all the parameters** listed below, the evaluator completes the table below and signs the form. The student must sign the form and return it to the DMS clinical coordinator / program manager along with Competency Readiness Report.

PATIENT #_____

OBSERVATION	Pass	Fail
Introduction of self, patient identification and procedure verification		
Patient directions and explanation of procedure, patient history		
Patient safety precautions		
Patient comfort		
Demonstrates medial testes, long		
Demonstrates mid testes, long with measurements		
Demonstrates lateral testes, long		
Demonstrate superior testes, trans		
Demonstrate mid testes, trans with measurements		
Demonstrates inferior testes, trans		
Demonstrates epididymal head bilateral		
Identifies and demonstrates normal and abnormal sonographic findings		
Optimizes equipment settings to accurately demonstrate tissue characteristics		
Demonstrates good judgement in obtaining diagnostic images		
Identifies and compensates for artifacts		
Completes study in reasonable amount of time for student's level of experience		
Presents the procedure to the physician in an organized manner		

Evaluator Name (print): _____ Registry # _____

Evaluators Signature: _____ Date: _____

Comments:_____

Student Signature: _____

Student Passed Competency. Competency Readiness Report Complete.

_____
Program Manager/Clinical Coordinator Signature

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COLUMBUSTECHNICAL COLLEGE
DMS PROGRAMCOMPETENCY EVALUATION

INVASIVE PROCEDURE

Student Name: _____
Clinical Site: _____ Semester:_____

Clinical Instructor:
If mutually agreed that the student is ready, the clinical instructor will randomly select a patient from the schedule for the competency exam. **The student must perform the entire procedure under direct supervision by the evaluator.**The competency **should not** be approved if repeat or additionalimages are requested or intervention is necessary. Once the clinical instructor is satisfied with the student's performance, and the student passes **all the parameters** listed below, the evaluator completes the table below and signs the form. The student must sign the form and return it to the DMS clinical coordinator /program manager along with Competency Readiness Report.

PATIENT #_____

OBSERVATION	Pass	Fail
Introduction of self, patient identification and procedure verification		
Patient directions and explanation of procedure, patient history		
Obtain proper consents		
Patient comfort		
Correctly set up sterile tray		
Demonstrates area for procedure and documents		
Scans while procedure being performed with visualization of the needle placement		
Maintains sterile field		
Properly labels fluid/tissue samples		
Optimizes equipment settings to accurately demonstrate tissue characteristics		
Demonstrates good judgment in obtaining diagnostic images		
Identifies and compensates for artifact		
Cleans up tray and room after procedure		

Evaluator Name (print): _____ Registry # _____

Evaluators Signature: _____Date: _____

Comments:_____

Student Signature: _____

Student Passed Competency. Competency Readiness Report Complete.

_____
Program Manager/Clinical Coordinator Signature

COLUMBUS TECHNICAL COLLEGE
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Diagnostic Medical Sonography

Accident Report Form

If the students are injured while at the clinicals site, they must inform the Clinical Instructor and then contact the Program Director/Clinical Coordinator immediately. Should the student require medical assistance, they must go to the Emergency Room (if they are at a hospital that has an Emergency Room) at their site. If no Emergency Room is available at the site, then the student must report to Midtown Medical Center at 710 Center Street Columbus, Georgia. The student also must complete the Accident Report Form that will be provided by the Clinical Coordinator upon arriving at the Emergency Room.

Tuberculosis Information

Students will follow the hospital's policy on when it is safe to enter a patient's room with known tuberculosis. Employees must be fitted with an approved N-95 respirator mask before being allowed in a TB patient's room. However, students are not fitted for these masks through the school and are not required to enter a patient's room with known tuberculosis. Please verify with the sonographer and supervisor on the hospital's protocol before performing an exam on these patients.

Written: 12/15

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Diagnostic Medical Sonography Lab Manual

Revised 10/2016

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Diagnostic Medical Sonography

Table of Contents

Diagnostic Medical Sonography

Statement

This lab book serves to supplement lab instruction for the Diagnostic Medical Sonography program student. Scanning protocols are listed to assist the student in preparation of lab competencies. Scanning protocols are general and are subject to vary per lab instructor (just as they do from clinical site to clinical site and sonographer to the sonographer).

Objectives for lab instruction can be found within the syllabi of each DMSO course.

Refer to the Diagnostic Medical Sonography Student Handbook for an official listing of policies and procedures as they relate to student participation and expectations in the lab.

Diagnostic Medical Sonography

Guidelines for Clinical Preparation

Clinical Skills:

1. Verify the exam and reason for the exam by reviewing the physician's order.
2. Introduce yourself to the patient.
3. Verify the identity of the patient via ID bracelet for in hospital patients or by having the patient spell their last name and give their birth date for outpatients.
4. Instruct the patient in the gowning procedure or assist the patient as needed.
5. Briefly explain the examination in terms the patient can understand.
6. Assist the patient onto the exam table using safety precautions
7. Obtain the patient's history from them or the medical record chart.
8. Make the patient as comfortable as possible and cover them for the exam.
9. Handle equipment attached to the patient in a safe manner (IV's, urinary catheters, O2).
10. Give clear explanations and instructions to the patient for breathing techniques or position changes.
11. Practice universal precautions.
12. Practice isolation requirements.
13. Become familiar with sterile procedures.
    a. Never touch or walk near a sterile field.
    b. Hand the physician items as needed to maintain his/her sterility.
14. When you are finished with scanning the patient, sit the patient up slowly and stay close to make sure they are not dizzy before having them stand up.
15. Tell the patient what they are required do next such as wait until the exam is checked by the Radiologist/Physician.
16. Let the patient know their Physician will receive the report.
17. **NEVER GIVE A PATIENT A DIAGNOSIS!**
18. Wash your hands between patients.
19. Spray the transducer with disinfectant between patients.

Surveys:

The survey is the most important part of the exam!

1. Perform a thorough survey of structures in two planes prior to taking images.
2. During the survey:
    a. Determine the optimal technique to image the structures.
    b. Determine the best approach and breathing techniques to get the best presentation of the structure.
    c. Observe normal variants to anatomy.
    d. Determine normal structures verses pathology.
    e. Determine what images are required to document normal structures and pathology.

Imaging:

1. Documented structures must be represented in at least two scanning planes.
2. Document images in a logical sequence. (Example: from superior to inferior, from medial to lateral). Follow the imaging protocol for the facility.
3. Measure structures in two planes at the maximum dimensions for length, anterior-posterior and width.
4. Document pathology:
    a. In at least two planes.
    b. In a view to include the pathology in relationship to the surrounding structures.
    c. To show the characteristics of the pathology.
        1. Texture/echogenicity
        2. Wall visualization
        3. Enhancement/shadowing
        4. Internal echoes/anechoic
        5. Measure in two planes for the length, anterior-posterior and width.
        6. Use spectral Doppler, color Doppler and/or power Doppler to identify normal structures and to clarify pathology.

Equipment:

1. Select the best MHz and style transducer for the area being examined.
2. Type in patient ID.
3. Use key controls to produce the optimal images.
4. Store the images and either print or send to a storage/retrieval system for physician interpretation.
5. Use disinfectant spray on the transducer after every patient.
6. Soak endo transducers as per the manufacturer's instructions.
7. Disinfect the entire unit after performing an exam on an isolation patient.

Technique:

1. Select the best MHz and style transducer for the area being examined.
2. Adjust the field size to best visualize the area of interest.
3. Use focus to enhance visualization of the area of interest. (Single and multi)
4. Power settings should be as low as possible. Compensate with adjustments to the TGC (Time gain compensation) slope for near, mid and far gain.
5. Make sure the settings are best to delineate structures from one another and the characteristics of those structures.
6. Use spectral Doppler, color Doppler and/or power Doppler to identify normal structures and to clarify pathology.
7. Store the images and either print or send to a storage/retrieval system for physician interpretation.

****REMEMBER: NEVER GIVE OR PUT IN WRITING A CLINICAL IMPRESSION THAT INCLUDES A DIAGNOSIS! ABNORMAL FINDINGS SHOULD BE DESCRIBED ACCORDING TO LOCATION, SIZE AND COMPOSITION.**

Exam Presentation:

When presenting a case to the Radiologist/Physician:

1. State what the exam is and the reason it was requested.
2. Present the patient's history.
3. Present patient lab data and other correlative reports and/or films from other imaging exams.

4. Present the films in the sequence in which they were obtained per the site protocol.
5. Be able to discuss what is documented on the images and why.
6. Be able to discuss related anatomy and any pathology.

Scanninng Plans:

1. Longitudinal/Sagittal:
    a. Anatomic areas seen:
        1. Anterior/posterior
        2. Superior/inferior
2. Transverse:
    a. Anatomic areas seen:
        1. Anterior/posterior
        2. Right/Left
        3. Medial/Lateral
3. Coronal:
    a. Anatomic areas seen:
        1. Superior/inferior
        2. Lateral/medial

Scanning Techniques:

1. Use a couplant gel
2. Scan according to the lie of the organ (Scanning plane may be oblique)
3. Use rocking and sliding transducer movements to better evaluate a structure
4. Use different transducer positions as required (perpendicular, angled, subcostal, intercostal, rotated)
5. To accurately display and measure structures, find the long axis or longest length:
    a. Gallbladder
    b. Kidneys
    c. Liver
    d. Ovaries
    e. Uterus
    f. Pathology
6. Use different patient positions as required:
    a. Supine
    b. Prone
    c. Erect/semierect
    d. Lateral decubitus (right or left)
    e. Right posterior oblique (RPO)
    f. Left posterior oblique (LPO)

Pathology Descriptions:

1. Cystic masses:
    a. Anechoic with posterior through transmission (acoustic enhancement artifact).
    b. Can have some hemorrhage/debris
    c. Borders are usually well defined and smooth.
    d. May have thin or thick septations.
    e. Can be simple, complex, or complicated (depending on its contents)
2. Solid masses:
    a. Can have any characteristic:
        1. Homogeneous/heterogeneous

        2. Hyperechoic
        3. Hypoechoic
        4. Anechoic
        5. Isoechoic (to the parenchyma and only seen by its walls)
    b. Borders can be:
        1. Well defined
        2. Poorly defined
        3. Smooth
        4. Irregular
        5. Lobulated
3. Complex masses:
    a. Contain both cystic and solid portions with characteristics of both.
    b. Borders can be:
        1. Well defined
        2. Poorly defined
        3. Smooth
        4. Irregular
        5. Lobulated
4. Location:
    a. Inside of or adjacent to an organ
        1. Adjacent structures should be noted in relation to the pathology.
        2. Look for echogenic interfaces where fat separates adjacent structures.
        3. Document location to organ border.
5. Vascularity:
    a. Malignant masses tend to be more vascular
    b. Color Doppler/power Doppler
        1. Verification of blood flow
        2. Color Doppler: flow direction(arterial, venous, reversal of normal flow), areas of stenosis by velocity changes (color mapping).
        3. Power Doppler: no direction of flow or stenosis but will show narrowing of flow and verify presence of slow flow.
    c. Spectral analysis:
        1. Verification of blood flow
        2. Arterial verses venous flow
        3. Reversal of normal flow

Rubric: Lab Proficiency

Sonographic Study: _____

Course: _____

Instructor: _____

Student Name: _____

CATEGORY	4	3	2	1
Machine Image settings and proper usage: Focus, transducer, depth, gain, exam selection ect	Student demonstrated appropriate knowledge of sonographic equipment through use of proper image settings and selections (no errors)	Student demonstrated basic knowledge of sonographic equipment as it relates to proper image selection/settings (one error)	Student demonstrated minimal knowledge of sonographic equipment as it relates to proper image selection/settings (two errors)	Student demonstrated little to no knowledge of proper usage of US equipment as it relates to proper image selection/settings (three or more errors)
Image Annotation: e.g. TRV, SAG, Organ/Structure, RT/LT	All sonographic images were annotated correctly	There is one error in image annotation	There are two errors in image annotation	There are three or more errors in image annotation
Caliper Placement/ measurement, Spectral and/or Color Doppler where appropriate	All images requiring calipers, Color/Spectral Doppler were demonstrated appropriately	Images requiring calipers, Color/Spectral Doppler were demonstrated with one error	Images requiring calipers, Color/Spectral Doppler were demonstrated with two errors	Images requiring calipers, Color/Spectral Doppler were demonstrated with at least three errors or more
Longitudinal and Transverse Images	All structures required were accurately displayed.	Most of the structures requested were accurately displayed.	Minimal structures requested were accurately displayed.	Most or all of the structures requested were NOT accurately displayed.
Exam Time	Student completed proficiency in the time allowed	Student completed proficiency 5-10 minutes past the time allowed	Student completed proficiency 11-15 minutes past the time allowed	Student completed proficiency 16 minutes or greater beyond the time allowed

20 points = 100%
19 points = 95%
17-18 points = 88%
15-16 points = 80%
13-14 points = 75%
11-12 points = 70%
1-10 points = 50%
0 points = 0%

Due to the high performance demands and operator-dependant nature of the diagnostic medical sonography field, the DMS program must uphold a high standard in this area of student performance. Failure to achieve an 80% or greater on any Lab Proficiency will

result in failure of this course and automatic program dismissal.

Exam Times:

Complete Abdomen……45 minutes
Right Upper Quadrant……35 minutes
Renal/Bladder……25 minutes
Aorta……..25 minutes
Complete Pelvic……35 minutes
Transvaginal GYN……25 minutes
Transvaginal 1st Trimester……30 minutes
OB 2nd Trimester……25 minutes
Venous Lower Extremity……..40 minutes
Carotid……..30 minutes

All individual "Organ" exams completed in DMSO 1020 and 1070, must be completed in 20 minutes

Additional Notes:
_____
_____
_____
_____
_____
_____
_____

_____ _____
Instructor Signature Date

_____
Student Signature

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DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM
LAB CLEARANCE FORM

_____ has successfully passed the following lab competencies:
Student Name

Procedure	Date passed
BASICS	
Moving a patient from a wheelchair	
Moving a patient from bed to stretcher	
Rolling a patient	
Patient Positioning	
Imaging Planes	
Sonographic Appearance	
Basic Operation of Equipment	
Basic Operation of Doppler	
Fire Extinguisher	
Vital Signs	
VASCULAR	
Carotid Artery	
Venous Lower Extremity	
Venous Upper Extremity (optional)	
Arterial Upper Extremity (optional)	
Arterial Lower Extremity	
ABI	

Procedure	Date passed
ABDOMEN	
Abdominal Aorta and IVC	
Gallbladder	
Pancreas	
Spleen	
Liver	
Portal Venous System	
Kidneys	
Bladder	
Normal Structure Appearance	
Cross Sectional Anatomy	
INVASIVE/SMALL PARTS	
Breast	
Thyroid	
Prostate (Transpelvic)	
Scrotal	
Sterile Tray Prep/Biopsy	
OB/GYN	
NonpregnantTransabdominal Pelvis	
1stTrimester OB (phantom)	
2ndTrimester OB (phantom)	
Transvaginal (phantom)	

Revised 10/2016

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Diagnostic Medical Sonography

DMSO 1010
Foundations of Sonography

- **Scanning Protocols:**
  - **Fire Extinguisher**
  - **Scanning Planes**
  - **Rolling a Patient**
  - **Moving Patient to Stretcher**
  - **Moving Patient to Wheelchair**
  - **Patient Positioning**
  - **Vital Signs**

DMSO 1010 FOUNDATIONS OF SONOGRAPHY

LAB: Fire Safety

LAB SESSION: Instructor demonstration of fire extinguishers.

GOAL: After demonstration and practice, the student will demonstrate comprehension and proficiency through instructor observed student demonstration of the required skill listed in the instructional outline.

OBJECTIVES: After demonstration and practice, the student will demonstrate comprehension and proficiency through instructor observed student demonstration of the required skill listed in the instructional outline.

OBJECTIVES: After this lesson the student will be able to:

1. Explain what RACE means (Rescue, Alarm, Confine, Extinguish)
2. Explain what PASS means (Pull Pin, Aim At Base, Squeeze Handle, Sweep)
3. Demonstrate how to hold an extinguisher.
4. Demonstrate how to pull the pin on the extinguisher.
5. Demonstrate how to check the hose of the extinguisher.
6. Demonstrate how to aim the extinguisher at the fire.
7. Demonstrate how to sweep at the base of the fire.
8. Demonstrate backing away from the fire.

INSTRUCTIONAL OUTLINE:

Instructor demonstration of fire extinguisher use: How to hold, pull the pin, check the hose, aim, sweep and back away.

The student will have time to practice.

The student must complete these check off skills before the end of the course.

DMSO 1010 FOUNDATIONS OF SONOGRAPHY

LAB: Scanning Planes

LAB SESSION: Demonstrates of scanning planes: sagittal, transverse, coronal and intercostals. Student practice time and check off skills.

GOAL: After demonstration and practice, the student will demonstrate comprehension and proficiency through instructor observed student demonstration of the required skill listed in the instructional outline.

OBJECTIVES: After this lesson the student will be able to:

1. Demonstrate sagittal scanning plane.
2. Demonstrate transverse scanning plane.
3. Demonstrate coronal scanning plane.
4. Demonstrate intercostals scanning plane.

INSTRUCTIONAL OUTLINE:

The instructor will demonstrate sagittal, transverse, coronal and intercostals scanning planes.

The students will have time to demonstrate proficiency through check-off skills.

The student must complete the check-off of these skills before the end of the course.

DMSO 1010 FOUNDATIONS OF SONOGRAPHY

LAB: Rolling a Patient

LAB SESSION: Instructor demonstration of rolling a patient. Student practice time.

GOAL: After demonstration and practice, the student will demonstrate comprehension and proficiency through instructor observed student demonstration of the required skill listed in the instructional outline.

OBJECTIVES: After this lesson the student will be able to:

1. Demonstrate opposite side rail up.
2. Demonstrate locking the exam table.
3. Demonstrate placing the patient's arm across their chest.
4. Demonstrate bending the patient's knee.
5. Demonstrate using the draw sheet to turn patient.
6. Demonstrate appropriate patient position.

INSTRUCTIONAL OUTLINE:
Instructor demonstration of rolling a patient on to their side: putting the opposite side rail up, locking the exam table, placing the patient's opposite arm across chest, bending the patient's opposite knee, using the draw sheet to turn the patient, bend the patient's knees together, place the patient up on their shoulder.

The student will have practice time.

The student must complete the check off of these skills before the end of the course.

DMSO 1010 FOUNDATIONS OF SONOGRAPHY

LAB: Moving a Patient To and From a Stretcher

LAB SESSION: Instructor demonstrates of moving a patient to and from a stretcher.

GOAL: After demonstration and practice, the student will demonstrate comprehension and proficiency through instructor observed student demonstration of the required skill listed in the instructional outline.

OBJECTIVES: After this lesson the student will be able to:

1. Demonstrate positioning of the stretcher.
2. Demonstrate locking the wheels on the exam table and stretcher.
3. Demonstrate using the draw sheet to lift and slide the patient over.
4. Demonstrate placing a pillow under the patient's head.
5. Demonstrate lifting and lowering the side rails.

INSTRUCTIONAL OUTLINE:

The student will have practice time.

The students will have time to demonstrate proficiency through check off of skills.

The student must complete the check off of these skills before the end of the course.

DMSO 1010 FOUNDATIONS OF SONOGRAPHY

LAB: Moving a Patient In and Out of a Wheelchair

LAB SESSION: Instructor demonstration of moving a patient in and out of a wheelchair.

GOAL: After demonstration and practice, the student will demonstrate comprehension and proficiency through instructor observed student demonstration of the required skill listed in the instructional outline.

OBJECTIVES: After this lesson the student will be able to:

1. Demonstrate how to position a wheelchair.
2. Demonstrate how to lock a wheelchair.
3. Demonstrate lifting the foot/leg rests.
4. Demonstrate their placement and bending knees.
5. Demonstrate how to assist the patient up or down.
6. Demonstrate assisting the patient to turn.
7. Demonstrate getting the patient on the exam table.
8. Demonstrate getting the patient up off the exam table.
9. Demonstrate assisting the patient back into the chair.

INSTRUCTIONAL DEMONSTRATION:
Instructor demonstrate of moving a patient in and out of a wheelchair: position chair, lock wheels, lift foot/leg rests, stand in front of patient, bend knees, hold patient under arms, straighten legs to stand patient, assist the patient to turn, sitting them on the exam table and demonstrate of the reverse process to get the patient back into the wheelchair.

The student will have practice time.

The student must complete the check off of these skills before the end of the course.

DMSO 1010 FOUNDATIONS OF SONOGRAPHY

LAB: Patient Positions

LAB SESSION: Demonstration of patient positions: spine, prone, left lateral decubitus, right lateral decubitus, left posterior oblique, right posterior oblique, erect, semi-erect, Trendelenburg, reverse Trendelenburg and Modified Fowler.

GOAL: After demonstration and practice, the student will demonstrate comprehension and proficiency through instructor observed student demonstration of the required skill listed in the instructional outline.

OBJECTIVES: After this lesson the student will be able to:

1. Position the patient in the supine position.
2. Position the patient in the prone position.
3. Position the patient in the left lateral decubitus position.
4. Position the patient in the right lateral decubitus position.
5. Position the patient in the left posterior oblique position.
6. Position the patient in the right posterior oblique position.
7. Position the patient in the erect position.
8. Position the patient in the semi-erect position.
9. Position the patient in the Trendelenburg position.
10. Position the patient in the reverse Trendelenburg position.
11. Position the patient in the Modified Fowler position.

INSTRUCTIONAL OUTLINE: The instructor will demonstrate on a live subject the proper patient positioning in the following positions:

- Supine, prone, left lateral decubitus, right lateral decubitus, left posterior oblique (LPO), right posterior oblique (RPO), erect, semi-erect, Trendelenburg, reverse Trendelenburg and Modified Fowler.

The students will then practice patient positioning on each other.

The student must complete these check offs before the end of the course.

DMSO 1010 FOUNDATIONS OF SONOGRAPHY

LAB: Measuring Blood Pressure

LAB SESSION: Instructor demonstration of how to obtain a patient's blood pressure.

GOAL: After demonstration and practice, the student will demonstrate comprehension and proficiency through instructor observed student demonstration of the required skill of accurately measuring blood pressure in adults and older children.

OBJECTIVES: After this lesson the student will be able to:

1. Gather the equipment needed and wash hands.
2. Identify the patient and introduce yourself.
3. Explain the procedure to the patient.
4. Have the patient role up long sleeve shirts or change into a gown.
5. Have the patient rest their bare arm on a flat surface so that the midpoint of the upper arm is level with the heart.
6. Select the appropriate size cuff for the patients arm.
7. Wrap the cuff firmly around the upper arm about 1 inch above the elbow.
8. Locate the brachial artery in the antecubital space (bend of the elbow)
9. Place the stethoscope over the point of strongest pulsation.
10. Close the valve of the pressure bulb until it is finger tight.
11. Inflate the cuff 180 to 200 mmHg or until flow has been shut off in the artery.
12. Slowly loosen the valve to deflate the cuff while listening to the brachial artery with the stethoscope.
13. Watching the mercury column or the needle gauge, listening for the first heart beat (systolic pressure)
14. Deflate the cuff 2 to 3 mmHg per heartbeat until all sounds have stopped (diastolic pressure).
15. Once all sounds have stopped, quickly and completely deflate the cuff.
16. Do NOT reinflate the cuff during the reading.
17. Record the numbers in the patient's chart.

INSTRUCTIONAL OUTLINE: The instructor will demonstrate proper procedure for obtaining the patient's blood pressure.

The students will then practice patient measuring blood pressure on each other.

The student must complete these check offs before the end of the course.

DMSO 1010 FOUNDATIONS OF SONOGRAPHY

LAB: Measuring Pulse and Respirations

LAB SESSION: Instructor demonstration of how to obtain a patient's pulse and respiration.

GOAL: After demonstration and practice, the student will demonstrate comprehension and proficiency through instructor observed student demonstration of obtaining the patients pulse and respiration.

OBJECTIVES: After this lesson the student will be able to:

1. Gather equipment (watch with a second hand) and wash hands.
2. Introduce yourself and identify patient.
3. Explain to the patient you will be taking their pulse.
   *Do not let the patient know you will be counting the respirations.
4. Place the patient's arm in a comfortable, resting position.
5. Position yourself so you can observe the chest wall movements.
6. Place two or three fingers over the radial pulse.
7. Count the beats for 30 seconds starting with zero and then multiply by 2.
8. Without letting go of the wrist count the respirations for 1 full minute.
9. Document results with the date and time.
10. Pulse: Note any irregularities, such as if it was too fast or too slow.
11. Respiration: Note any irregular rate or rhythms.

INSTRUCTIONAL OUTLINE: The instructor will demonstrate on a live subject the proper technique for measuring pulse and respiration.

The students will then practice measuring pulse and respiration.

The student must complete these check offs before the end of the course.

COLUMBUS TECHNICAL COLLEGE
DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

LAB SESSION EVALUATION FORM

Student Name: _____ DMSO_____

Student should request a check-off when he/she feels ready. Each attempt will be recorded as Pass or Fail. If the student fails an attempt, the instructor will provide feedback on what was lacking and suggest ways to improve.

All lab proficiencies for this course must be complete prior to the end of the assigned semester. If a student fails to pass a lab check-off, it is an indication that he/she lacks the skills required for the clinical aspect in the sonography field, and may not be permitted to continue in the DMS Program.

Measuring Blood Pressure:

Procedure	Pass	Fail
Gather the correct equipment: Stethoscope and Blood Pressure Cuff with Mercury/Aneroid Manometer		
Have patient roll up their sleeve or put on a gown		
Have the patient seated with arm resting on a flat surface or laying down so the arm is level with the heart.		
Select the appropriate size cuff		
Wrap the cuff firmly around the patients arm 1 inch above the elbow		
Locate the pulse in the artery at the bend of the elbow and place the stethoscope directly over the strongest pulsation.		
Close the valve in the bulb		
Inflate the cuff to 180 to 200 mmHg		
Slowly loosen the valve to deflate the cuff while listening for the first heartbeat (systolic pressure)		
Continue to deflate the cuff 2 to 3 mmHg per heartbeat until all sounds have stopped (diastolic pressure).		
Deflate the cuff quickly and completely once all sounds have stopped		
Record the numbers obtained during exam		

☐ **FAIL** ☐ **PASS** **DATE**_____

FEEDBACK:_____
_____
_____
_____

Evaluator's Signature: _____
Student's Signature: _____

COLUMBUS TECHNICAL COLLEGE
DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM
LAB SESSION EVALUATION FORM

Student Name: _____ DMSO_____

The following lab procedures are required to complete this course. Each attempt will be recorded as Pass or Fail. If the student fails an attempt, the instructor will provide feedback on what was lacking and suggest ways to improve. All lab proficiencies for this course must be complete prior to the end of the assigned semester. **If a student fails to pass a lab check-off, it is an indication that he/she lacks the skills required for the clinical aspect in the sonography field, and may not be permitted to continue in the DMS Program.**

Measuring Patients Pulse and Respiration:

Procedure:	**Pass**	**Fail**	**Procedure:**	**Pass**	**Fail**
Taking a Patient's Pulse:			**Counting the Patients Respiration:**		
▪ Gather the appropriate equipment (Watch with a second hand).			▪ Respiration is counted after the patient's pulse has been measured.		
▪ Place patient's arm in a relaxed, comfortable position			▪ Do not let the patient know that you are counting respirations.		
▪ Use 2 to 3 fingers to press on the radial artery at the wrist.			▪ Leave the patient in a relaxed sitting position and continue holding the patients wrist.		
▪ Count the beats for 30 seconds and multiply by 2.			▪ Count the rise of the chest wall for 1 full minute.		
▪ Document results and note any irregularities (too fast/too slow)			▪ Document results and note and irregularities (irregular rate or rhythm.		

☐ **FAIL** ☐ **PASS** **DATE**_____

FEEDBACK:_____
_____
_____
_____

Evaluator's Signature: _____

Student's Signature: _____

COLUMBUS TECHNICAL COLLEGE
DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

LAB SESSION EVALUATION FORM

Student Name: _____ DMSO_____

Student should request a check-off when he/she feels ready. Each attempt will be recorded as Pass or Fail. If the student fails an attempt, the instructor will provide feedback on what was lacking and suggest ways to improve.

All lab proficiencies for this course must be complete prior to the end of the assigned semester. If a student fails to pass a lab check-off, it is an indication that he/she lacks the skills required for the clinical aspect in the sonography field, and may not be permitted to continue in the DMS Program.

FIRE EXTINGUISHER:

Procedure	Pass	Fail
What does RACE mean?		
What does PASS mean?		
How to hold fire extinguisher		
Pull Pin		
Check hose		
Aim		
Sweep base of fire		
Back away		

☐ **FAIL** ☐ **PASS** **DATE**_____

FEEDBACK:_____
_____
_____
_____

Evaluator's Signature: _____

Student's Signature: _____

COLUMBUS TECHNICAL COLLEGE
DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM
LAB SESSION EVALUATION FORM

Student Name: _____ DMSO_____

The following lab procedures are required to complete this course. Each attempt will be recorded as Pass or Fail. If the student fails an attempt, the instructor will provide feedback on what was lacking and suggest ways to improve. All lab proficiencies for this course must be complete prior to the end of the assigned semester.
If a student fails to pass a lab check-off, it is an indication that he/she lacks the skills required for the clinical aspect in the sonography field, and may not be permitted to continue in the DMS Program.

Patient Care and Body Mechanics:

Procedure:	Pass	Fail	Procedure:	Pass	Fail
Rolling a Patient:			**Patient Positioning:**		
▪ Table Locked			▪ Supine		
▪ Opposite side rail up			▪ Prone		
▪ Patient hand over chest			▪ Left Lateral Decubitus		
▪ Bend patient knees slightly placing one leg over the other			▪ Right Lateral Decubitus		
▪ Use draw sheet to turn away			▪ Left Posterior Oblique (LPO)		
Move Patient in/out of Wheelchair:			▪ Right Posterior Oblique (RPO)		
			▪ Erect		
			▪ Semi-erect		
▪ Position chair			▪ Trendelenburg		
▪ Lock wheels			▪ Reverse Trendelenburg		
▪ Lift foot/leg rests			▪ Modified Fowler		
▪ Stand in front of pt with knees bent			**Moving Patient from Bed to Stretcher:**		
▪ Hold patient under arms					
▪ Straighten legs to stand					
▪ Assist patient to turn					
▪ Sit patient on exam table			▪ Position stretcher		
▪ Reverse to seat patient in WC			▪ Lock wheels		
			▪ Use sheet as draw sheet		
			▪ Lift and slide patient		
			▪ Pillow under head		
			▪ Side rails up		

☐ **FAIL** ☐ **PASS** **DATE**_____

FEEDBACK:_____
_____
_____

Evaluator's Signature: _____
Student's Signature: _____

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Diagnostic Medical Sonography

DMSO 1020
Sectional Anatomy
&
Normal Sonographic Appearance

○ Scanning Protocol:

- ○ **Aorta (AO)**
- ○ **Inferior Vena Cava (IVC)**
- ○ **Portal Vein (PV)**
- ○ **Liver (LIV)**
- ○ **Gallbladder (GB)**
- ○ **Pancreas (PANC)**
- ○ **Spleen (SPLN)**
- ○ **Kidneys (KID)**
- ○ **Thyroid (THY)**

Abdominal Aorta:

Survey:
Longitudinal: Entire length of the abdominal aorta
Transverse: Entire length of the abdominal aorta
Images:
Longitudinal:
1. Proximal aorta with AP measurement
LABEL: AO LONG PROX (or aorta sag prox)

2. Mid aorta with AP measurement
LABEL: AO LONG MID (or aorta sag mid)

3. Distal aorta with AP measurement (just superior to bifurcation)
LABEL: AO LONG DIST (or aorta sag dist)

Transverse:
1. Proximal aorta with AP and width measurements
LABEL: AO TRV PROX

2. Mid aorta with AP and width measurements
LABEL: AO TRV MID

3. Distal aorta with AP and width measurements
(immediately superior to bifurcation)
LABEL: AO TRV DIST

IVC:
Survey:
Longitudinal: Entire length of the IVC
Transverse: Entire length of the IVC
(usually only proximal/mid are visualized during evaluation of the liver)
Images:
Longitudinal:
1. Proximal IVC
LABEL: IVC SAG
2. Mid IVC
LABEL: IVC SAG

Transverse:
1. Proximal IVC with hepatic veins
LABEL: IVC TRV
2. Mid IVC
LABEL: IVC TRV

Main Portal Vein:
Images:
Longitudinal
1. (LLD) Elongate Portal vein at the porta hepatis
(Include the CBD in image) LABEL: PV
2. (LLD) Measure Portal vein at the porta hepatis
(Include the CBD in image) LABEL: PV
3. (Coronal) Duplex Doppler on Portal vein at the portal hepatis

Liver:

Survey:

Longitudinal:

1. From medial left lobe through lateral left lobe border
2. From medial aspect of right lobe through lateral aspect of right lobe
3. Scan intercostally (right side) to scan remaining right lobe

Transverse:

1. At the level of the xyphoid process, scan left lobe of the liver from above the superior border to below the inferior border. (Obliquely angle towards patients left shoulder if needed)
2. Rotate towards patient's right shoulder (obliquely) to image right lobe. Scan from superior to inferior, rotating transducer to cover entire right lobe.

Images:

Longitudinal

1. Left lobe (most lateral tip)
   LABEL: LT LIV SAG
2. Left lobe (more medial prior to scanning the aorta)
   LABEL: LT LIV SAG
2. Left lobe of liver/aorta
   LABEL: LT LIV SAG
2. Left lobe/ IVC
   LABEL: LT LIV SAG
3. Right lobe/ probe at epigastric region, scanning alongside anterior, inferior rib cage
   LABEL: RT LIV SAG

(Several images are taken of the right lobe, be sure to include diaphragm in all liver images)

Move probe intercostally

5. Right lobe/ Portal vein with & without color Doppler
   LABEL: RT LIV SAG/PV – Hepatopedal or Hepatofugal
6. Right lobe/ Right kidney
   LABEL: RT LIV SAG/RK
7. Right lobe length: mid clavicular line
   LABEL: RT LIV SAG

Transverse:

1. Left lobe (3-4 images from most superior to inferior border, angling toward patient's left shoulder)
   LABEL: LT LIV TRV
2. Left lobe/caudate lobe (demonstrate ligamentum of venosum)
   LABEL: LT LIV TRV
2. Left/Right lobe/ Hepatics
   LABEL: LT LIV TRV
3. Right lobe
   LABEL: RT LIV TRV
4. Right lobe/ GB
   LABEL: RT LIV TRV

Move probe intercostally

5. Right lobe 1-2 parenchymal images intercostally
6. Right lobe (inferior) / Right kidney & gallbladder
   LABEL: RT LIV TRV/RK/GB

NOTE*: Remember diaphragm should be imaged/visualized in liver images indicating that you have imaged the entire liver in that particular scan plane.*

NOTE: *Use color Doppler to identify vessels versus dilated hepatic ducts when necessary.*

Gallbladder:

Survey:

Longitudinal:

1. Survey through the liver for dilated ducts.
2. Scan through GB medial to lateral

Transverse:

1. Survey through the liver for dilated ducts.
2. Scan through GB superior to inferior

NOTE: Complete survey of GB in both supine & LLD prior to storing images.

Images:

Supine:

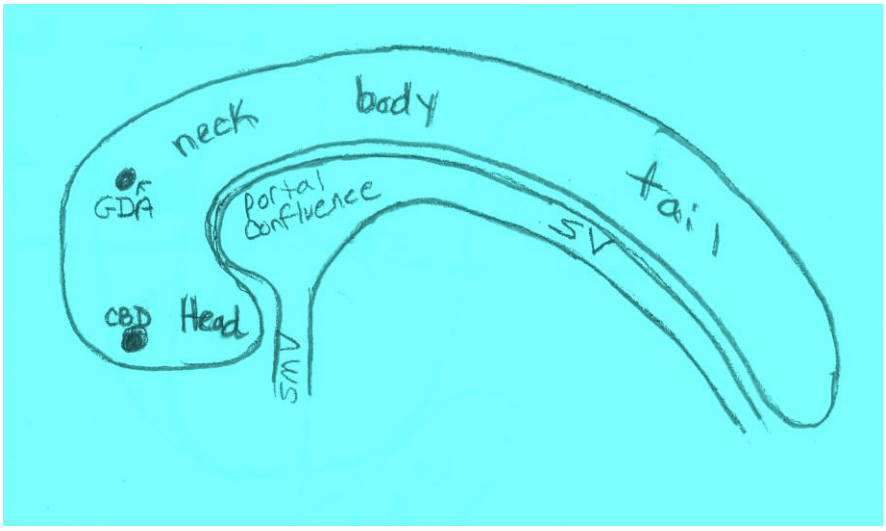
1. GB in longitudinal X 2 (Unfreeze between all 2 images)
   LABEL: GB SUP SAG (or long)
2. GB in transverse X 1
   LABEL: GB SUP TRV

Note*: Turn patient LLD wait ~30seconds and repeat survey through GB*

LLD:

1. GB in longitudinal X 2 (Unfreeze between all 2 images)
   LABEL: GB LLD SAG (or long)
2. GB in transverse X 2
   (One trv GB image in transverse with a wall measurement & 1 without)
   LABEL: GB LLD TRV
3. CBD elongated (2 images)
   (1 with color and measurement & 1 without color)

Pancreas



Survey:

Transverse: Find long axis then survey from above the superior border to below the inferior border, rotating from head to tail.

Images:

Transverse:

1. Pancreas long axis (may have to take 2-3 images to view entire organ)
   LABEL: TRV PANC

2. Pancreas head with AP measurement
LABEL: TRV PANC
2. Pancreas body with AP measurement
LABEL: TRV PANC
3. Pancreas tail with AP measurement
LABEL: TRV PANC

Spleen:

Survey:

Longitudinal: From beyond the medial border through the lateral border

Transverse: From above the superior border through the inferior border.

Images:

Longitudinal:

1. Spleen longitudinal X 2 (with and without length & medial to lateral measurements)
LABEL: SAG SPLEEN

Transverse:

2. Spleen transverse X 2 (with and without AP measurement)
Measure AP
LABEL: TRV SPLEEN

Kidneys:

Survey:

Longitudinal: Find the long axis of the kidney then move out beyond the medial border and survey beyond the lateral border.

Transverse: Find the right angle to the long axis of the kidney then move beyond the superior border and survey beyond the inferior border.

Images:

Longitudinal:

1. Right/left kidney midline X 3 (measure length, AP & cortex in 1 of 3 images)
LABEL: Sag Rt/Lt kid mid
2. Right/left kidney medial
LABEL: Sag Rt/Lt kid med
3. Right/left kidney lateral
LABEL: Sag Rt/Lt kid lat

Transverse:

1. Right/left kidney superior
LABEL: Trv Rt/Lt kid upp
2. Right/left kidney mid X 2 (with and without width measurement)
LABEL: Trv Rt/Lt kid mid
6. Right/left kidney inferior
LABEL: Trv Rt/Lt kid low

Bladder:

Survey:

Longitudinally scan through bladder from lateral border to opposing lateral border

Transversely scan through bladder from superior to inferior borders

Images:

Use Dual Screen and "Volume package"

1. Take one image in longitudinal and the other in transverse
2. Measure length and AP in longitudinal and width in transverse
3. Label each dual screen image Sag/Trv bladder perspectively.

4. Optional: Let the patient empty bladder and complete a “post-void” image in longitudinal and transverse with volume measurements.

Thyroid:

- Technique:
  - High resolution transducer: 7.5-12.0 MHz Linear probe
  - Patient supine with pillow under shoulders to slightly tip head back if patient can tolerate
- Survey:
  - In longitudinal & transverse through right/left lobe and isthmus
- Imaging:
  - Transverse:
    - Isthmus containing parenchyma of both lobes X 3 (with color Doppler, without color Doppler& one with measurement of isthmus
  - Transverse:
    - Right lobe:
      - Superior
      - Mid x 2 (Color Doppler & width measurement)
      - Inferior
    - Left lobe:
      - Superior
      - Mid x 2 (Color Doppler & width measurement)
      - Inferior
  - Longitudinal:
    - Right lobe:
      - Medial
      - Mid x 2 (Color Doppler & length & AP measurement)
      - Lateral
    - Left lobe:
      - Medial
      - Mid x 2 (Color Doppler & length & AP measurement)
      - Lateral

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Diagnostic Medical Sonography

DMSO 1040
Sonographic Physics and Instrumentation

- **Scanning Protocols:**
  - **Basic Equipment Operation**
  - **Basic Equipment - Doppler**
  - **Ultrasound Image Appearance**
  - **Scanning Planes**

DMSO 1040 SONOGRAPHIC PHYSICS
Basic Equipment Operation

Transducer Format Description

LINEAR ARRAY: A linear transducer has a medium to large footprint that uses parallel ultrasound scan lines that are perpendicular to the face of the transducer to produce a rectangular image. Linear transducers usually have a large footprint, thus they typically produce a wide near field of view.

VECTOR WIDE VIEW ARRAY: Vector is Siemens's trademark for its proprietary omni-steerable, omni-originating image formation technology. A Vector wide view array transducer forms ultrasound scan lines that can originate from any point on the transducer face and can be steered in any directions. A Vector wide view array transducer has a small footprint for imaging when access is difficult; however the near field image width is almost as wide as the transducer footprint.

CURVED ARRAY: A high-performance curved array transducer forms ultrasound scan lines that are perpendicular to the face of the transducer. Because the face of the transducer is curved, it produces an image with a wider far field than near field.

KNOBOLOGY

PRESETS: Presets store image and format parameters for specific exam types. Use Presets to quickly recall optimum parameters for particular exam type, image type, or imaging mode.

TRANSDUCERS/PROBE: Selects different transducers/probes

FREQUENCY: Selects imaging frequency based on patient anatomy and type of exam.

CINE: Cine memory stores and displays ultrasound information with no loss of signal quality. Cine memory is constantly updated during image or strip acquisition. Cine function gives you increased options for viewing the information in Cine memory. You can scroll through available information and play a continuous loop.

DEPTH: Adjusts the field of view to the penetration selection.

DUAL: When you display dual images, you split the screen to view two images at once. Displaying dual images lets you compare anatomy of different planes, compare different structures or pathologies, and display a wider field of view. When you display two images, only one appears in real-time. The other image is frozen. You can change the real-time display from one image to the other or you can freeze both images.

IMAGE WIDTH: Adjusts the image width to show just an area of interest.

DGC (TGC) SLIDERS: Each slider adjusts gain at an area of interest.

2D GAIN: Increases or decreases the overall gain.

B COLOR: Selects a mapping between different colors or hues of a color and echo amplitude.

MULTI HZ: Multiple frequency imaging.

FOCUS/FOCAL ZONE: Controls beam focusing in image.

INVERT: Reverses the image display- Right/Left or Top/Bottom.

PRINT: Prints images on photo paper or film

AQUIRE/CAPTURE: Stores the image memory.

TRACKBALL: Scroll through images frozen on screen. Guides the cursor on the screen. In Doppler: positions the Doppler sampling area. Changes the scan area for sector size and color box for color Doppler.

CALIBERS: Measures distance (length, width, depth)

TRACE: Outlines an area of interest.

ELLIPSE: Measures area and circumference

DOPPLER

CW: Continuous Wave Doppler displays flow profile and velocities all along the Doppler cursor.

PW: Pulsed Wave Doppler displays the flow profile and velocities at a specific point with the 2-D image.

SPECTRAL DOPPLER: Graphs both direction and velocity of blood flow within chambers and vessels on a spectral display.

POWER DOPPLER/ANGIO: Use for low/slow flow. Displays presence of flow, but does not indicate direction of velocities.

GATE: Increases or decreases the size of Doppler gate.

ANGLE: Adjusts the incident angle to flow.

BASELINE: Displays a larger range of signals below or above the baseline, respectively. The scale values change proportionally, but the total range does not.

SCALE: Changes the velocity range and displays higher or lower velocity signals.

INVERT: Changes how Doppler signals or colors are displayed.

COLOR: Turns on Color Doppler.

CURSOR: Activates the cursor line.

SWEEP: Adjusts the sweep speed of the strip.

UPDATE: Switches between simultaneous and interval update imaging.

VOLUME: Controls the volume of the speakers.

DGAIN: Increases or decreases the amount of Doppler gain.

FILTER: Higher filter settings eliminate lower Doppler frequency shifts.

Name_____ Date_____

DMS 1040 SONOGRAPHIC PHYSICS

	Acuson	GE	MindRay	Effect on Image / Comments
GENERAL				
On/Off				
Freeze				
Pt. Info (new patient)				
Focus/Transmit Zone				
Depth				
TGCs (receiver gain)				
Transmit Power (Gain)				
Calibers				
Trace				
Ellipse				
Cine (loop)				
Applications/Presets				
Dual Image				
Invert				
B Color (colorization)				
Annotate (Text)				
Clear				
Home				
Transducer				
Data Field				
Zoom / Res				
Cursor				
Multi / Frequency				
DOPPLER				
Doppler CW /PW				
Scale				
Gate				
Angle Correct				
Doppler Gain				
Color Doppler				
Baseline				

DMSO 1040 – SONGRAPHIC PHYSICS
Basic Equipment - Doppler

Factors affecting blood velocity waveforms and color Doppler Controls that affect waveforms and color Doppler.

1. **Obtain a baseline**:
    a. Locate the common carotid artery.
    b. Place the sample gate parallel to the vessel walls
    c. Adjust the sample volume to 1.5 mm in the center of the lumen
    d. Adjust angle to 60 degrees
    e. Set the wall filter to low
    f. Turn on the pulsed wave Doppler and freeze the image (you should have several waveforms on the display)
    g. Place the calipers on the tip of the waveform and make note of the peak systolic velocity (PSV) and the (EDV).
2. **Positioning the sample gate**:
    a. Move the sample gate from the center lumen toward the vessel wall
    b. If the flow is parabolic, the velocities near the wall will be much slower and will appear less bright with more spectral broadening.
3. **Adjusting the sample volume size:**
    a. Increase the sample volume size from 1.5 to 2 mm. (there should be little to no difference in the Doppler waveform profiles or velocities
    b. Increase the sample volume to 2.5 mm (you should begin to notice some spectral broadening and slight increase in the PSV
    c. As the sample volume increases, there will be more spectral broadening
    d. As you increase the sample volume to 4 or 5 mm you may begin to see wall thump below the baseline.
    e. Continue increasing the sample volume to just inside the vessel wall, then to the outside of the vessel walls.
4. **Adjusting the angle of insonation**
    a. With the sample volume in the center of the lumen, adjust the angle to 60 degrees and maneuver the transducer so the angle correct bar is parallel to the vessel walls. Note the PSV and EDV.
    b. Change the angel to 70 degrees (angle will not be parallel to vessel walls)
    c. Freeze the screen and note the PSV and EDV. The velocities should have increased. (This 10 degree error can result in a 47% error in velocities).
    d. Change the angle to 50 degrees and note the velocity changes. (The changes should be less than those at 70 degrees)
5. **Adjusting the wall filters**
    a. Adjust the wall filter from low to high. Setting the wall filter to its lowest setting prevents diastolic flow from being accidentally eliminated (important for low "trickle" flow)
    b. Increasing the wall filters can improve the visual appearance of the peak of the waveform.

<u>Other Doppler Controls</u>

6. **Adjusting the Doppler Gain**
    a. Adjust the Doppler gain to maximum
    b. Slowly decrease the gain. Note the reduction of noise on the display. Attempt to clear the waveform window.

c. Continue to decrease the gain.

7. **Adjusting the Doppler Scale**
    a. Increase the Doppler scale with the toggle. Note, as the velocity scale increase, the waveform become smaller. (Small spectrums can cause errors in measurements-particularly the EDV, and may eliminate hemodynamic changes such as respiratory phasicity in the venous flow)
8. **Adjusting the Sweep Speed**
    a. Increasing the sweep speed "stretches out" the waveform which allows more accurate measurements (acceleration time).
    b. Slower sweep speed allows more waveforms (cardiac cycles) to be displayed.

<u>Color Doppler</u>

1. Establish a baseline.
    a. Using the color velocity bar, move the "baseline" (black area between red and blue) to the center of the scale.
    b. Place red on the top of the scale (moving toward the transducer) and blue on the bottom (moving away from the transducer).
    c. Set the color velocity scale between 10 and 20 cm/sec (PRF)
        1. The vessel should fill with color (red) during systole. Freeze the image and use the cine loop if necessary.
    d. Adjust the color scale down if vessel is not filling properly, or up if you see aliasing (mosaic colors) where there is no plaque or narrowing of the vessel.
    e. Adjust the color gain so there is no bleeding of color into the tissue outside of the vessel wall.
        1. If the color gain is too high, the vessel may not fill with color, or the color may be absent.
        2. If the color gain is too low, aliasing will occur even if there is no narrowing or tortuosity.
    f. Optimize the beam-to-vessel angle.
        1. Angle controls vary depending on the equipment. The best angle is less than 60 degrees.

<u>Other Color Controls</u>

1. There may be times when the **B mode gain** can affect the color appearance.
    a. Go into B mode and turn the gain down. Put the color on and see if the color in the vessel is enhanced. This technique is best used to detect the weak color flow signals.
    b. In B mode, turn the gain up. See how this may affect the image.
2. **Persistance** – is the percent of new information that persists over multiple subsequent frames. It can help "fill in" small or tortuous vessels that would otherwise be difficult to view.
3. **Color wall filters** – increasing the filter will eliminated slow or low velocities which can cause misdiagnosis of things such as thrombus along the vessel wall.
4. **Frame rate** – Color flow and power angio decrease frame rate which may reduce the ability to visualize or Doppler deep vessels.
    a. Go to a shallower depth
    b. Decrease the sector or color box
    c. Decrease the gray scale image

DMSO 1040 SONOGRAPHIC PHYSICS
PULSED WAVE INSTRUMENTATION

Output – describe the image when output (voltage) is high
Does the change affect the entire image?
Compare the image when you reduce output
Adjust the signal-to-noise ratio

Pulse Repetition Period - Change the depth and notice what happens to the PRP

Receiver – Find the amplification control.
Adjust it up and down. How do the images compare?
Does the change affect the entire image?
Locate the decibels changing on the data field

Compensation – Adjust the TGCs
Does the entire image change?
Can you make the entire image uniformly bright from top to bottom?

Compression – Adjust the compression and watch as the grayscale change

Reject – Look for the control (reject, threshold, suppression)
What happens to the low level signals on the image?
Do adjustments affect the both the low-level signals and the brightness?

Make your entire image too bright. Notice any changes to the strength of the signal in the data field. (power)
Is the image crisp and clear?
Turn down the output power. How does the image compare? Is there better detail?
Make your entire image too dark. Adjust your TGCs to make the image brighter from top to bottom. What happens to the power?

Chapter 15
Find the Contrast and brightness control. Adjust one at a time and notice what happens to the images.
Freeze an image. Can you change the TGCs. Can you magnify? Can you invert or colorize?
Unfreeze the image. Now magnify. Are the pixels larger?
Look for controls for persistence, frame averaging, edge enhancement, smoothing. Make note of which can be changed before freeze, and while frozen.

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DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

LAB SESSION EVALUATION FORM

Student Name: _____ DMSO_____

Student should request a check-off when he/she feels ready. Each attempt will be recorded as Pass or Fail. If the student fails an attempt, the instructor will provide feedback on what was lacking and suggest ways to improve.

All lab proficiencies for this course must be complete prior to the end of the assigned semester. If a student fails to pass a lab check-off, it is an indication that he/she lacks the skills required for the clinical aspect in the sonography field, and may not be permitted to continue in the DMS Program.

Student demonstrates a basic understanding of the following:
BASIC EQUIPMENT OPERATION

Procedure	Yes	No
Safely moving equipment		
Selecting appropriate transducer		
Connecting transducer to system		
Care of transducers		
Use of multiple frequency transducer		
Understanding the image display		
Entering patient data		
Adjusting gain settings/TGCs		
Adjusting focal zone		
Adjusting depth		
Changing 2D image size		
Inverting image orientation		
Displaying dual images		
Use of B-color		
Use of zoom		
Calipers		

☐ **FAIL** ☐ **PASS** **DATE**_____

FEEDBACK:_____
_____
_____
_____

Evaluator's Signature: _____

Student's Signature:_____

COLUMBUS TECHNICAL COLLEGE
DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

LAB SESSION EVALUATION FORM

Student Name: _____ DMSO_____

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All lab proficiencies for this course must be complete prior to the end of the assigned semester. If a student fails to pass a lab check-off, it is an indication that he/she lacks the skills required for the clinical aspect in the sonography field, and may not be permitted to continue in the DMS Program.

Student demonstrates a basic understanding of the following Doppler instrumentation:
BASIC EQUIPMENT - DOPPLER

Procedure	Yes	No
Doppler modes (spectral, CW, PW, Color, Power)		
Use of duplex		
Spectral Doppler display		
Positioning Doppler cursor		
Adjusting sample gate		
Adjusting Doppler angle		
Adjusting Doppler gain		
Adjusting baseline		
Wall filter		
Adjusting Doppler scale, inverting spectral display		
Adjusting size of Doppler display		
Adjusting sweep speed		
Color Doppler		
Adjusting color box position, size and angle		
Understanding color maps		
Adjusting velocity scale		
Shifting baseline		
Inverting color bar and display		
Using triplex function		
Power Doppler		

☐ **FAIL** ☐ **PASS** **DATE**_____

FEEDBACK:_____
_____
_____
_____

Evaluator's Signature: _____

Student's Signature: _____

COLUMBUS TECHNICAL COLLEGE
DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

LAB SESSION EVALUATION FORM

Student Name: _____ DMSO_____

Student should request a check-off when he/she feels ready. Each attempt will be recorded as Pass or Fail. If the student fails an attempt, the instructor will provide feedback on what was lacking and suggest ways to improve.

All lab proficiencies for this course must be complete prior to the end of the assigned semester. If a student fails to pass a lab check-off, it is an indication that he/she lacks the skills required for the clinical aspect in the sonography field, and may not be permitted to continue in the DMS Program.

MAKEUP OF AN ULTRASOUND IMAGE (BLACK, WHITE, GRAY):

Procedure	Pass	Fail
Visualize black appearing structures		
Visualize white appearing structures		
Visualize various shades of gray (low level, mid level, high level)		

SONOGRAPHIC APPEARANCE (CYST, SOLID, TISSUE, BONE, GAS):

Procedure	Pass	Fail
Identify a cyst		
Identify solid		
Identify tissue		
Identify bone		
Identify gas		

☐ **FAIL** ☐ **PASS** **DATE**_____

FEEDBACK:_____
_____
_____
_____
_____

Evaluator's Signature: _____

Student's Signature: _____

COLUMBUS TECHNICAL COLLEGE
DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

LAB SESSION EVALUATION FORM

Student Name: _____ DMSO_____

Student should request a check-off when he/she feels ready. Each attempt will be recorded as Pass or Fail. If the student fails an attempt, the instructor will provide feedback on what was lacking and suggest ways to improve.

All lab proficiencies for this course must be complete prior to the end of the assigned semester. If a student fails to pass a lab check-off, it is an indication that he/she lacks the skills required for the clinical aspect in the sonography field, and may not be permitted to continue in the DMS Program.

SCANNING PLANES:

Procedure	Pass	Fail
Longitudinal		
Transverse		
Coronal		
Intercostal		
Subcostal		
Perpendicular		
Angled		
Oblique		

☐ **FAIL** ☐ **PASS** **DATE**_____

FEEDBACK:_____
_____
_____
_____

Evaluator's Signature: _____

Student's Signature: _____

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Diagnostic Medical Sonography

DMSO 1050
Abdominal Sonography

- **Scanning Exam Protocols:**
  - **Aorta Exam**
  - **Right Upper Quadrant (RUQ)**
  - **Renal Exam**
  - **Complete Abdomen Exam**

Abdominal Aorta:

SURVEY:

Longitudinal & transverse: Entire length of the abdominal aorta

IMAGES:

Longitudinal:

1. Proximal aorta with AP measurement
   LABEL: Aorta Long Prox (or Aorta Sag Prox)
2. Mid aorta with AP measurement
   LABEL: Aorta Long Mid (or Aorta Sag Mid)
3. Distal aorta with AP measurement (just superior to bifurcation)
   LABEL: Aortal Long Dist (or Aorta Sag Dist)

4 & 5. Right and Left common iliac artery with AP measurement
LABEL: Rt/Lt Iliac Long (Sag) Prox

Transverse:

1. Proximal aorta with AP and width measurements
   LABEL: Aorta Trans Prox
2. Mid aorta with AP and width measurements
   LABEL: Aorta Trans Mid
3. Distal aorta with AP and width measurements
   (immediately superior to bifurcation)
   LABEL: Aorta Trans Dist

5 & 6. Right and left common iliac artery with AP and width measurements
LABEL: Rt/Lt Iliac Trans Prox

Right Upper Quadrant (RUQ) Study:

SURVEY:

Survey each organ prior to storing an image.

<u>PANCREAS IMAGES</u>:

Transverse:

1. Pancreas long axis (may have to take 2-3 images to view entire organ)
   LABEL: TRV PANC
2. Pancreas head with AP measurement
   LABEL: TRV PANC
2. Pancreas body with AP measurement
   LABEL: TRV PANC
3. Pancreas tail with AP measurement
   LABEL: Trv PANC

LIVER IMAGES:

Longitudinal

1. Left lobe (most lateral tip)
   LABEL: LT LIV SAG
2. Left lobe (more medial prior to scanning the aorta)
   LABEL: LT LIV SAG
2. Left lobe of liver/aorta
   LABEL: LT LIV SAG
2. Left lobe/ IVC
   LABEL: LT LIV SAG
3. Right lobe/ probe at epigastric region, scanning alongside anterior, inferior rib cage
   LABEL: RT LIV SAG

(Several images are taken of the right lobe, be sure to include diaphragm in all liver images)

Move probe intercostally

5. Right lobe/ Portal vein with & without color Doppler
   LABEL: RT LIV SA/ PV – Hepatopedal or Hepatofugal
6. Right lobe/ Right kidney
   LABEL: RT LIV SAG/RK
7. Right lobe length: mid clavicular line
   LABEL: RT LIV SAG

Transverse:

1. Left lobe (3-4 images from most superior to inferior border, angling toward patient's left shoulder)
   LABEL: LT LIV TRV
2. Left lobe/caudate lobe (demonstrate ligamentum of venosum)
   LABEL: LT LIV TRV
2. Left/Right lobe/ Hepatics
   LABEL: LT LIV TRV
3. Right lobe
   LABEL: RT LIV TRV
4. Right lobe/ GB
   LABEL: RT LIV TRV

Move probe intercostally

5. Right lobe 1-2 parenchymal images intercostally
6. Right lobe (inferior) / Right kidney & gallbladder
   LABEL: RT LIV TRV/RK/GB

NOTE*: Remember diaphragm should be imaged/visualized in liver images indicating that you have imaged the entire liver in that particular scan plane.*

NOTE*: Use color Doppler to identify vessels versus dilated hepatic ducts when necessary.*

GALLBLADDER IMAGES**:**

Supine:

1. GB in longitudinal X 2 (Unfreeze between all 2 images)
   LABEL: GB SUP SAG (or long)
2. GB in transverse X 2
   LABEL: GB SUP TRV

Note*: Turn patient LLD wait ~30seconds and repeat survey through GB*

LLD:

1. GB in longitudinal X 2 (Unfreeze between all 2 images)
   LABEL: GB SUP SAG (or long)
2. GB in transverse X 2
   (One trv GB image in transverse with a wall measurement & 1 without)
   LABEL: GB SUP TRV
3. CBD elongated (2 images)
   (1 with color and measurement & 1 without color)

RT. KIDNEY IMAGES**:**

Longitudinal:

-Survey Right kidney
-Right Kidney long w/o measurement
(RT KID SAG)
-Right kidney long with length and A/P measurement
(Label: RT KID SAG)
-Right kidney long medial
(Label: RT KID SAG MED)
-Right kidney long lateral
(Label: RT KID SAG LAT)

Transverse:

-Right kidney transverse upper pole
(Label: RT KID TRV UPP)
-Right kidney transverse middle w/ width measurement
(Label: RT KID TRV MID)
-Right kidney transverse lower pole
(Label: RT KID TRV LOW)

Renal Study:

Images:

Longitudinal:

-Survey Right kidney
-Right Kidney long w/o measurement
(RT KID SAG)
-Right kidney long with length and A/P measurement
(Label: RT KID SAG)
-Right kidney long medial
(Label: RT KID SAG MED)
-Right kidney long lateral
(Label: RT KID SAG LAT)

Transverse:

-Right kidney transverse upper pole
(Label: RT KID TRV UPP)
-Right kidney transverse middle w/ width measurement
(Label: RT KID TRV MID)
-Right kidney transverse lower pole
(Label: RT KID TRV LOW)

Right Kidney

Longitudinal:
- -Survey Left kidney
- -Left Kidney long w/o measurement
  (LT KID SAG)
- -Left kidney long with length and A/P measurement
  (Label: LT KID SAG)
- -Left kidney long medial
  (Label: LT KID SAG MED)
- -Left kidney long lateral
  (Label: LT KID SAG LAT)

Transverse:
- -Left kidney transverse upper pole
  (Label: LT KID TRV UPP)
- -Left kidney transverse middle w/ width measurement
  (Label: LT KID TRV MID)
- -Left kidney transverse lower pole
  (Label: LT KID TRV LOW)

Left Kidney

Bladder:
- -Survey Bladder
- -Bladder long (Label: BL SAG)
- -Bladder transverse (Label: BL TRV)

Bladder

Complete Abdomen Exam:

*****The Complete Abdomen exam will include all of the images from the previous exams to include the Spleen and Inferior Vena Cave in the following order:

- Aorta
- Proximal IVC
- Pancreas
- Liver
- Gallbladder/CBD
- Rt. and Lt. Kidneys
- Spleen

Spleen Images:

- Survey spleen in longitudinal and transverse
- Spleen longitudinal X 2 (with and without measurement)
- Spleen transverse X 2 (with and without measurement)

IVC Images:

SURVEY:
- Survey in longitudinal the Proximal IVC as it passes through the diaphragm.
- 1 Proximal Image of the Proximal IVC (Label: Prox IVC)

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Diagnostic Medical Sonography

DMSO 1070
Pelvic Sonography
&
First Trimester Obstetrics

- **Scanning Protocals:**
  - **Transabdominal Pelvic**
    - **Uterus**
    - **Ovaries**
  - **Transvaginal Pelvic**
  - **First Trimester OB**

DMSO 1070 – Pelvic Sonography and First Trimester

Transabdominal & Transvaginal (Non-OB) Pelvic Sonogram:

Survey uterus in long and transverse

Long:

-Uterus midline with length measurement
(Label: UT SAG)

-Endometrium with measurement
(Label: ENDO SAG)

-Right lateral uterus
(Label: UT RT LAT SAG)

-Left lateral uterus
(Label: UT LT LAT SAG)

Transverse:

-Vagina (Label: TRV VAG)

-Cervix (Label: TRV CX)

-Uterine body with A/P and width measurement
(Label: UT TRV)

-Fundus (Label: FUNDUS TRV)

Uterus

Survey right ovary and adnexa region in long and transverse

Long:

-Right ovary long with length and A/P measurements
(Label: RT OV SAG)

Transverse:

-Right ovary transverse with width measurement
(Label: RT OV TRV)

RT Ovary

Survey left ovary and adnexa region in long and transverse

Long:

-Left ovary long with length and A/P measurements
(Label: LT OV SAG)

Transverse:

-Left ovary transverse with width measurement
(Label: LT OV TRV)

LT Ovary

-
- ***NOTE:*** *Transvaginal Sonogram will be the same for check offs minus "Transverse vagina image". Transvaginal lab testing will be completed on phantom*

Transvaginal IUP Phantom (First Trimester)

1. Identify decidual reaction containing fetal pole (increase depth to visualize uterus to its entirety
   LABEL: Uterus long IUP
2. M-mode to assess fetal heart tones (simulate measuring FHR)
   NO LABEL NEEDED
3. Identify yolk sac w/ and w/o measurements (inner to inner)
   LABEL: YS
4. Crown-Rump Length measurement **Repeat measurement X 3 (3 separate images)**
   LABEL: CRL or FP (fetal pole)
5. Identify and image both ovaries with measurement in long and transverse
   LABEL: RT or LT OV SAG or TRV

Note: *If ever you see a gestational sac without a fetal pole, than gestational sac measurements (in three dimensions) are needed to estimate gestational age. The only other time a gestational sac measurement is needed is in the event the sac appears to be abnormal, e.g. too small when compared to embryo*

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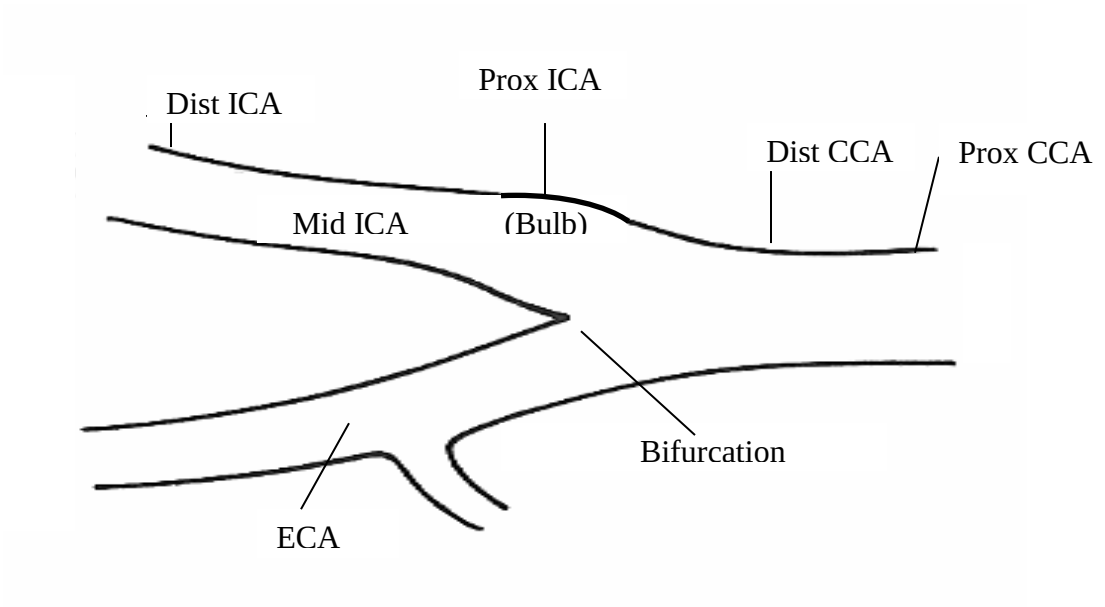
Diagnostic Medical Sonography

DMSO 1090
Introduction to Vascular Sonography

- **Scanning Protocols:**
  - **Carotid**
  - **Venous Lower Extremity**
  - **Venous Upper Extremity**
  - **Ankle Brachial Index**

DMSO 1090 – INTRODUCTION TO VASCULAR

CAROTID ARTERY LAB



1. Survey carotid arteries in transverse plane to identify the location of the bifurcation and/or plaque.

2. Longitudinal plane of vessel
   a. Proximal common carotid artery:
      1. Obtain B-mode image without color
      2. Obtain color image
      3. Obtain spectral analysis with angle correct bar aligned parallel to the vessel walls maintaining an angle of 60 degrees or less. Measure peak systolic and end diastolic velocities.
         LABEL: Rt/Lt Prox CCA

   b. Distal common carotid artery:
      1. Obtain B-mode image without color
      2. Obtain color image
      3. Obtain spectral analysis with angle correct bar aligned parallel to the vessel walls maintaining an angle of 60 degrees or less. Measure peak systolic and end diastolic velocities.
         LABEL: Rt/Lt Dist CCA

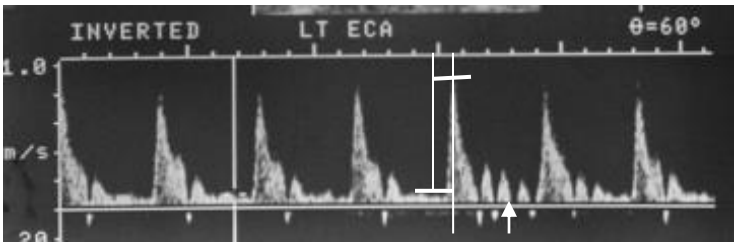
   c. Bifurcation
      1. If possible, obtain image of the bifurcation and annotate ICA/ECA.
      2. If pathology is present take images in transverse and longitudinal in both B-mode and color.
      3. Obtain spectral analysis with angle correct bar aligned parallel to any flow disturbance. Measure peak systolic and end diastolic velocities. LABEL: Rt/Lt Bifurcation

** The order of obtaining the following vessels is not a priority for check-offs. Concentrate on clearly demonstrating each vessel and obtianing the highest velocity waveforms.*

d. External carotid artery: (Include superior thyroid branch if possible.)

1. Obtain B-mode image without color
2. Obtain color image
3. Obtain spectral analysis with angle correct bar aligned parallel to the vessel walls maintaining an angle of 60 degrees or less. Measure peak systolic and end diastolic velocities

   LABEL: Rt/Lt ECA

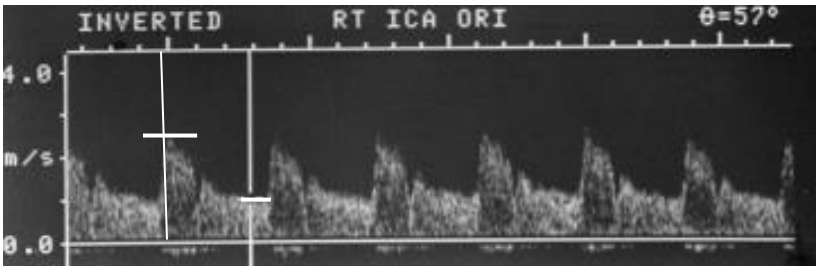


Temporal Tap

e. Proximal internal carotid artery (bulb):

1. Obtain B-mode image without color
2. Obtain color image
3. Obtain spectral analysis with angle correct bar aligned parallel to the vessel walls maintaining an angle of 60 degrees or less. Measure peak systolic and end diastolic velocities

   LABEL: Rt/Lt Prox ICA



f. Mid internal carotid artery:

1. Obtain B-mode image without color
2. Obtain color image
3. Obtain spectral analysis with angle correct bar aligned parallel to the vessel walls maintaining an angle of 60 degrees or less. Measure peak systolic and end diastolic velocities

   LABEL: Rt/Lt Mid ICA

g. Dist internal carotid artery:

1. Obtain B-mode image without color
2. Obtain color image
3. Obtain spectral analysis with angle correct bar aligned parallel to the vessel walls maintaining an angle of 60 degrees or less. Measure peak systolic and end diastolic velocities

   LABEL: Dist ICA Rt/Lt

h. Vertebral artery

1. Obtain color image. Demonstrate that the vertebral flow is (or is not) moving in the same direction as the CCA.
2. Obtain spectral analysis with angle correct bar aligned parallel to the vessel walls maintaining an angle of 60 degrees or less. Measure peak systolic and end diastolic velocities

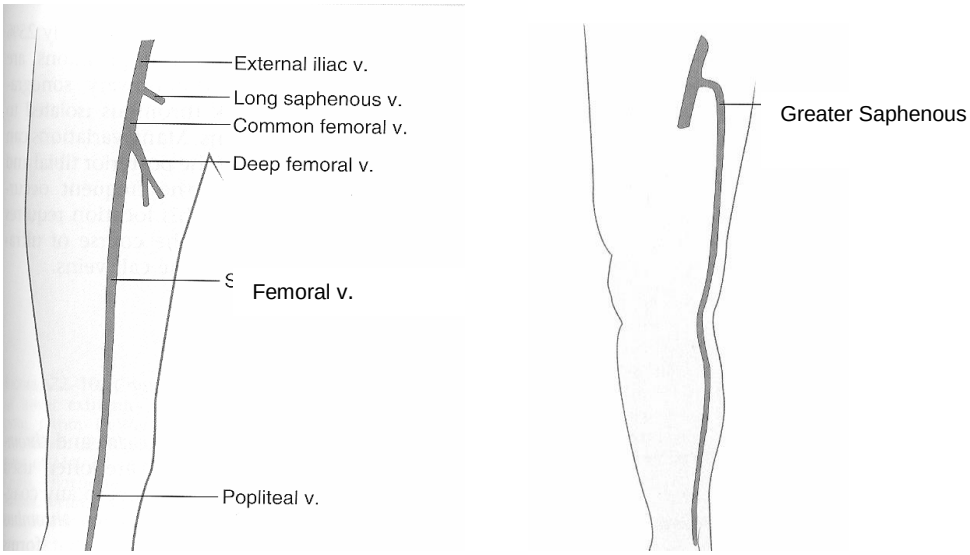
LABEL: Rt/Lt Vertebral Artery; Antegrade or Retrograde flow

Note: *Doppler measurements should always be taken in the narrowest part of the vessel and in the vessel immediately before and after the stenosis*

Transverse images are not required for check off, but may be included in the protocol at your clinical site. In this case, B-mode and color images would be obtained at any stenotic area to document the amount of lumen narrowing.

DMSO 1090 – INTRODUCTION TO VASCULAR

VENOUS LOWER EXTREMITY LAB



<u>NOTE: Place patient in a reverse trendelenburg position</u>.

1. Survey common femoral, femoral, and popliteal vein in transverse with and without compression

2. Common femoral vein:
    1. Obtain B-mode split screen image with and without compression in transverse LABEL: Comp
    2. Obtain color image in longitudinal
    3. Obtain spectral analysis with distal augmentation (label the augment)
    4. Have patient perform Valsalva maneuver and document with spectral analysis (label Valsalva)

    LABEL ALL: CFV Rt/Lt

3. Saphenofemoral junction
    1. Obtain B-mode split screen image with and without compression in transverse LABEL: Comp
    2. Obtain color image in longitudinal

    LABEL: SF junction Rt/Lt

4. Deep femoral bifurcation
    1. Obtain B-mode split screen image with and without compression in transverse. LABLE: Bif LABEL: Comp
    2. Obtain color image in longitudinal. LABLE: Bif
    3. Obtain spectral analysis of deep femoral vein with distal augmentation (label the augment)

    LABEL: DFV Rt/Lt

5. Proximal femoral vein:
    1. Obtain B-mode split screen image with and without compression in transverse LABEL: Comp
    2. Obtain color image in longitudinal
    3. Obtain spectral analysis with distal augmentation (label the augment)

LABEL: Prox FV Rt/Lt

6. Mid femoral vein:
    1. Obtain B-mode split screen image with and without compression in transverse LABEL: Comp
    2. Obtain color image in longitudinal
    3. Obtain spectral analysis with distal augmentation (label the augment)

    LABEL: Mid FV Rt/Lt

7. Distal femoral vein:
    1. Obtain B-mode split screen image with and without compression in transverse LABEL: Comp
    2. Obtain color image in longitudinal
    3. Obtain spectral analysis with distal augmentation (label the augment)

    LABEL: Dist FV Rt/Lt

8. Popliteal vein:
    1. Obtain B-mode split screen image with and without compression in transverse LABEL: Comp
    2. Obtain color image in longitudinal
    3. Obtain spectral analysis with distal augmentation (label the augment)

    LABEL: Pop V. Rt/Lt

9. Posterior tibial veins (at the ankle):
    1. Obtain B-mode split screen image with and without compression in transverse LABEL: Comp
    2. Obtain color image in longitudinal. Demonstrate the 3 vessels (2 tibial veins, one on each side of the tibial artery)
    3. Obtain spectral analysis with distal augmentation (label the augment)

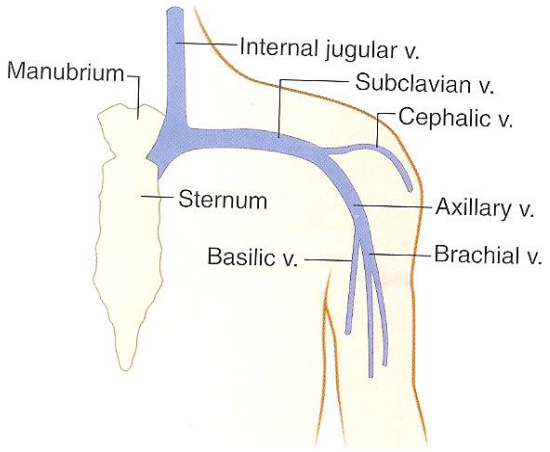
    LABEL: PT V. Rt/Lt

NOTE: Some labs recommend the following protocol.

1. Following the initial survey, begin at the groin, and perform compressions of the veins at all levels in transverse. Use split screen images with and without compression, label accordingly.
2. Return to the groin and demonstrate color flow at all levels, label accordingly.
3. Return to the groin. Using spectral Doppler, demonstrate augmentation at all levels. In addition, have patient perform a valsalva maneuver while at the CFV and proximal FV. Demonstrate cessation of flow. Label accordingly.

DMSO 1090 – INTRODUCTION TO VASCULAR

VENOUS UPPER EXTREMITY LAB



1. Survey jugular through brachial vein in transverse with and without compression

2. Jugular vein.
   a. Obtain B-mode split screen image with and without compression in transverse
   b. Obtain color image in longitudinal
   c. Obtain spectral analysis to document respiratory changes
      LABLE: Jugular V

3. Proximal subclavian vein:
   a. Obtain B-mode split screen image with and without contraction in transverse. (To demonstrate contraction, have the patient sniff multiple times)
   b. Obtain color image in longitudinal
   c. Obtain spectral analysis to document respiratory changes. Have the patient perform a Val-salva maneuver; there should be cessation of flow or flow reversal in the normal vein.
      LABEL: Prox Subclavian V Rt/Lt

   b. Distal subclavian vein:
      1. Obtain B-mode split screen image with and without contraction in transverse. (To demonstrate contraction, have the patient sniff multiple times)
      2. Obtain color image in longitudinal
      3. Obtain spectral analysis to document respiratory changes. Have the patient perform a Val-salva maneuver; there should be cessation of flow or flow reversal in the normal vein.
         LABEL: Dist Subclavian V Rt/Lt

4. Axillary vein:
    a. Obtain B-mode split screen image with and without compression in transverse
    b. Obtain color image in longitudinal
    c. Obtain spectral analysis with distal augmentation (label the augment)
        LABEL: Axillary V Rt/Lt

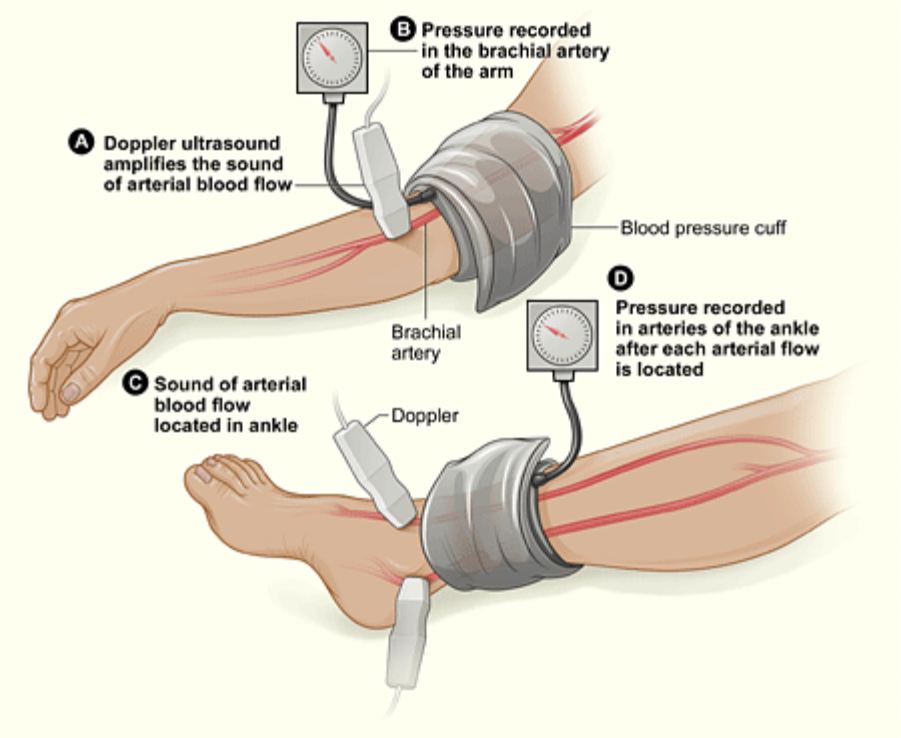
5. Proximal brachial vein:
    a. Obtain B-mode split screen image with and without compression in transverse
    b. Obtain color image in longitudinal
    c. Obtain spectral analysis with distal augmentation (label the augment)
        LABEL: Prox Brachial V Rt/Lt

6. Mid brachial vein:
    Obtain B-mode split screen image with and without compression in transverse
    2. Obtain color image in longitudinal
    3. Obtain spectral analysis with distal augmentation (label the augment)
        LABEL: Mid Brachial V Rt/Lt

7. Distal brachial vein:
    Obtain B-mode split screen image with and without compression in transverse
    2. Obtain color image in longitudinal
    3. Obtain spectral analysis with distal augmentation (label the augment)
        LABEL: Dist Brachial V Rt/Lt

DMSO 1090 – INTRODUCTION TO VASCULAR

ANKLE BRACHIAL INDEX LAB



1. Place the blood pressure cuff above the elbow on the left arm. Obtain blood pressure from the brachial artery. Repeat on right arm.

1. Place cuff two fingers above the left ankle.

2. With continuous wave Doppler locate a Doppler signal from the posterior tibial artery. Obtain pressure. Repeat for dorsalis pedis artery.

3. Obtain ankle pressures from the posterior tibial and dorsalis pedis arteries on the right side.

4. Calculate ABI using the highest brachial pressure and the highest ankle pressure on each side.

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Diagnostic Medical Sonography

DMSO 2010
Second & Third Trimester OB

• Scanning Protocals:

- **Transabdominal Pelvic**
- **Transvaginal Pelvic**
- **First Trimester OB**
- **Second and Third Trimester (Limited OB)**

DMSO 2010 – SECOND AND THRID TRIMESTER OB

Transabdominal & Transvaginal (Non-OB) Pelvic Sonogram:

Survey uterus in long and transverse

Long:

-Uterus midline with length measurement
(Label: UT SAG)

-Endometrium with measurement
(Label: ENDO SAG)

-Right lateral uterus
(Label: UT RT LAT SAG)

-Left lateral uterus
(Label: UT LT LAT SAG)

Transverse:

-Vagina (Label: TRV VAG)

-Cervix (Label: TRV CX)

-Uterine body with A/P and width measurement
(Label: UT TRV)

-Fundus (Label: FUNDUS TRV)

Uterus

Survey right ovary and adnexa region in long and transverse

Long:

-Right ovary long with length and A/P measurements
(Label: RT OV SAG)

Transverse:

-Right ovary transverse with width measurement
(Label: RT OV TRV)

RT Ovary

Survey left ovary and adnexa region in long and transverse

Long:

-Left ovary long with length and A/P measurements
(Label: LT OV SAG)

Transverse:

-Left ovary transverse with width measurement
(Label: LT OV TRV)

LT Ovary

- ***NOTE:*** *Transvaginal Sonogram will be the same for check offs minus "Transverse vagina image". Transvaginal lab testing will be completed on phantom*

Transvaginal IUP Phantom

1. Identify decidual reaction containing fetal pole (increase depth to visualize uterus to its entirety
   LABEL: Uterus long IUP
2. M-mode to assess fetal heart tones (simulate measuring FHR)
   NO LABEL NEEDED
3. Identify yolk sac w/ and w/o measurements (inner to inner)
   LABEL: YS
4. Crown-Rump Length measurement **Repeat measurement X 3 (3 separate images)**

LABEL: CRL or FP (fetal pole)

5. Identify and image both ovaries with measurement in long and transverse
   LABEL: RT or LT OV SAG or TRV

Note: *If ever you see a gestational sac without a fetal pole, than gestational sac measurements (in three dimensions) are needed to estimate gestational age. The only other time a gestational sac measurement is needed is in the event the sac appears to be abnormal, e.g. too small when compared to embryo*

Second Trimester (Limited OB) Fetal Phantom:

1. Identify fetal presentation and lie
   LABEL: Cephalic or Breech or Transverse Breech
2. BPD measurement
3. Head circumference measurement
4. Abdominal circumference measurement
5. Femur length measurement
   LABEL: Femur length
6. Longitudinal views of all the extremities
   LABEL: Rt/Lt upp or low ext
7. LVP: Largest Vertical (fluid) Pocket w/ calipers
   LABEL: LPV

PROTOCOL FOR FIRST TRIMESTER PREGNANCY LAB EVALUATION:

ENDOVAGINAL PHANTOM:

1. Maternal uterus:
   a. Longitudinal
      1. Midline
         LABEL: Uterus Long ML
      2. Image to the right
         LABEL: Uterus Long Right
      3. Image at right uterus border
         LABEL: Uterus Long Right
      4. Midline (make sure to identify the gestational sac in relation to its position in the uterus
         LABEL: Uterus Long ML
      5. Image to the left
         LABEL: Uterus Long Left
      6. Image at the left uterus border
         LABEL: Uterus Long Left
   b. Transverse
      1. Vagina
         LABEL: Vag Trans
      2. Cervix
         LABEL: Cerv Trans
      3. Lower uterus
         LABEL: Uterus lower Trans
      4. Uterine body
         LABEL: Uterus body Trans
      5. Uterine fundus

LABEL: Uterus fundus Trans

2. Maternal ovaries:
    a. Longitudinal
        1. Medial
            LABEL: Rt/Lt ovary Long Med
        2. Mid
            LABEL: RT/Lt ovary Long Mid
        3. Lateral
            LABEL: RT/Lt ovary Long Lat

    b. Transverse
        1. Inferior
            LABEL: Rt/Lt ovary Trans Inf
        2. Mid
            LABEL: Rt/Lt ovary Trans Mid
        3. Superior
            LABEL: Rt/Lt ovary Trans Sup

3. Pregnancy:
    1. Image of decidual reaction longitudinal
        LABEL: Uterus Long Midline

    2. Gestational sac longitudinal measurement (Decrease in depth for closer image)
        LABEL: Gestational sac Long

    3. Crown-Rump length measurement
        LABEL: CRL

    4. Assessment for fetal heart beat.
        LABEL: Fetal heart

DMSO 2010 – SECOND AND THRID TRIMESTER OB

PROTOCOL FOR SECOND AND THIRD TRIMESTER LAB EVALUATION

FETAL PHANTOM:

1. Identify fetal presentation and lie

2. BPD measurement
   LABEL: BPD

3. Head circumference measurement
   LABEL: Head Circumference

4. Thoracic circumference
   LABEL: Thoracic Circumference

5. Abdominal circumference measurement
   LABEL: Abdominal Circumference

6. Identify fetal stomach
   LABEL: Fetal stomach

7. Longitudinal views of all the extremities
   LABEL: Rt/Lt Arm/Leg

8. Femur length measurement
   LABEL: Rt/Lt Femur length

9. Longitudinal views of spine: Cervical, Thoracic and Lumbar/sacral
   LABEL: Cervical/Thoracic/ Lumbar spine Long

Diagnostic Medical Sonography

DMSO 2020
Specialized Sonographic Procedures

- **Scanning Protocols:**
  - **Sterile Tray**
  - **Opening Sterile Packet**
  - **Passing Sterile Packet**
  - **Donning Gloves**
  - **Filling Syringe**
  - **Breast Biopsy**
  - **Thyroid**
  - **Scrotum**
  - **Prostate**

SETTING UP A STERILE TRAY:


www.nhspurchasing.com/brochome.asp?OrgCode=12...

ROOM ARRANGEMENT BEFORE SETTING UP THE TRAY:
Arrange room furniture so that the draped table is no closer than 18 inches from a nonsterile surface.

Gather needed diagnostic images and have them hanging for the physician to see.

Place any monitoring equipment within reach but out the area of the sterile tray.


www.firstaid.com.au/.../product31052

TRAY SET UP:

1. **Once the items are on the sterile tray, they will have to be arranged in a logical sequence and solutions drawn up.**
2. **Lock an 18 ga needle onto a syringe to fill the anesthetic. Remove the needle and place the needle size the physician will start with which could be a 22 ga for superficial anesthetic. He might move up to the 18 ga so keep that on the tray.**
3. **Keep in mind the sequence of the procedure and place your items from left to right:**
    1. **Sponges or sterile gauze for the skin prep**
    2. **The container of the cleaning solution for the skin prep**
    3. **Sterile drape for placing on the patient.**
    4. **Loaded syringe with the anesthetic and needle attached. If the physician changes the needle for a second injection at a deeper depth, have that needle right next to the syringe on the right.**

5. **Scapel or knive handle with blade attached for skin nick.**
6. **Introducer needle or biopsy/aspiration needle**
7. **Larger syringes for aspiration (the vacuum bottles are not sterile and would not be placed on the field)**
8. **Tubing for attaching the syringe**
9. **Sterile gauze for swabbing blood from site during the procedure.**
10. **Bandage for wound dressing.**
11. **Additional items for specific physicians would be placed according to their use.**

4. **Do not open items that potentially will not be used. They can be opened at the time they are needed so they are not wasted.**
5. **Once the items are placed on the tray avoid shifting items around from one place to another which increases the chance of contamination**


www.ecureme.com/eshopping/Image_Down/4804.jpg

TOPIC – OPENING STERILE SUPPLIES/PASSING STERILE PACKET


http://www.lasoutdoors.com/first-aid

DISPOSABLE PACKAGING:
The packaging should be pealed back at one corner and pulling it toward you so you do not put your arm over the open part. Do not touch the interior of the package.

To Pass Sterile Packet:

1. If a sterile person is available. Hold the packaging back so the sterile person can grasp the item and remove without touching the outside of the package or your hand.

2. If second person not available: carefully drop the item onto a sterile field without letting the packaging touch the sterile field or the item to roll or fall off the sterile field. Once all the sterile supplies are dropped onto the sterile field, then the person can apply sterile gloves and arrange the tray.


http://www.pharmaceutical-technology.com

RESTERILIZED PACKAGING:
These items are double wrapped. The outside wrap is not sterile but the next wrap down is. So you would remove the plastic/paper overlying packaging and grasp the item by one side of the outside wrap. Carefully fold down the other three sides by folded edge without touching the inside wrap.

To transfer:

1 If a sterile person is available. Hold the packaging back so the sterile person can grasp the item and remove without touching the outside of the package or your hand.

2 If second person not available: carefully drop the item onto a sterile field without letting the packaging touch the sterile field or the item to roll or fall off the sterile field. Once all the sterile supplies are dropped onto the sterile field, then the person can apply sterile gloves and arrange the tray.


http://www.efhss.com/html/educ

Packaging materials

A wide range of materials used for packaging of sterile supplies are available.

Traditionally, packaging materials for sterile supplies were reusable, such as sterilizing drums and cotton ware. Due to their inadequate microbial barrier, most of these traditional materials do not meet the requirements for primary sterile packaging anymore. They may still play a role as mechanical protection or additional dust protection layer. At the moment non-wovens, laminated film pouches, paper bags and containers are used as primary packaging materials. The following is an overview of packaging materials in use in sterile supply:

Soft/flexible packaging materials

Packaging in cotton still being used in health facilities with limited resources

Textile sheets: cotton or linen

Use: Inner wrapping of instrument sets or outer dust protection

Textile alone is not suitable as primary packaging!

Cotton sheets have long been the standard packaging material for sterile goods. It has some major advantages

- Textile always has been a very common and well known hospital commodity
- Strong
- Well drapable and convenient in use
- Can be reused.

The openings between the threads however are larger then most micro-organisms and thus the fabric does not provide an adequate microbial barrier. It therefore does not meet the requirements anymore as primary packaging for sterile goods. They however are still often used as an inner wrapping for protection or as an outer dust cover.

Whenever textile is used, it should contain its natural humidity. (It should be conditioned). If textile is too dry it may cause overheating of the steam and thus cause a failing sterilization.

Paper sheets available in many sizes and strengths

Paper sheets

Use: Primary packaging for wrapping of textile packs and instrument sets in trays. Also used as inner packaging in containers

Paper was the first alternative that replaced textile. It has a smaller pore size then textile. And thus can be used as primary packaging. Smooth papers are used for inner packaging, whereas crepe paper is stronger and is rough. Crepe paper can be used for inner and outer packaging.

During sterilization, steam penetrates through the packaging. When paper is wet, it looses much of its original strength. Therefore stress in paper should be prevented. Wrapping should not be too tight, but also not too loose. It is essential that drying is adequate.

Paper sheets are for single use only.

Paper sterilization bags

Paper sterilization bags

Use: For packaging of individual instruments or small sets used in nursing stations and wards.

Closing is usually done in a sealing device.

Disadvantages:

- They are not very strong
- Opening is not convenient: tearing or cutting
- They do not facilitate aseptic opening.
- You cannot see what is inside

Aseptic presentation can be improved by putting instruments in the bag with the handle at the opening end. It is not convenient to take out instruments from the bag. Its use has decreased with the introduction of laminated film pouches.

Paper sterilization bags are for single use only

Non-woven wrapper

Non-wovens are water-repellent

Packaging an instrument set in a non-woven sheet using the parcel fold

Non-woven sheets

Use: Primary packaging for wrapping of textile packs and instrument sets in trays. Also used as inner packaging in containers

Non-wovens contain a certain amount of synthetic fibers. Added may be inorganic, textile, cellulose or other kind of synthetic fibers. These fibers of different materials are joined together, by for example pressing and heating. This means that the fibers are not woven together, but sealed together. For sterilization special non-wovens have been developed to meet the requirements for the primary packaging of sterile goods. They combine the good characteristics of other packaging materials:

- Very strong
- Well drapable
- Allow air removal and penetration of the sterilizing agent
- Very small pores, thus efficient microbial barrier
- Virtually lint-free; free of particles and loose fibers
- They repel liquids (hydrophobic) Fluids are not absorbed into the fabric.
- Various non-woven materials are available for a range of applications in the sterilization department: extra softness, extra strong, etc.

Non-woven sheets are for single-use only

Typical laminated film pouch

Laminated film pouches

Use: Primary packaging for individual instruments or small instrument sets.

They were the follow up of paper sterilization bags. The pouches consist of a sheet of paper or non-woven and a sheet of laminated transparent plastic, which are sealed together. The film cannot be penetrated by steam or air. Removal of air and penetration of steam is through the paper/non-woven. The pouch is opened by peeling back the laminated sheet from the paper sheets, like opening a banana.

Laminated film pouches in various sizes and on roll

Sealing device for pouches

Pouches are available in many sizes. The open end of the pouch is closed with a sealing device. It is essential that the sealing temperature and pressure are adjusted well in order to get an adequate seal.

Also laminated film packaging is available on roll. The user can cut pouches to any size needed. In that case both sides need to be sealed by the user.

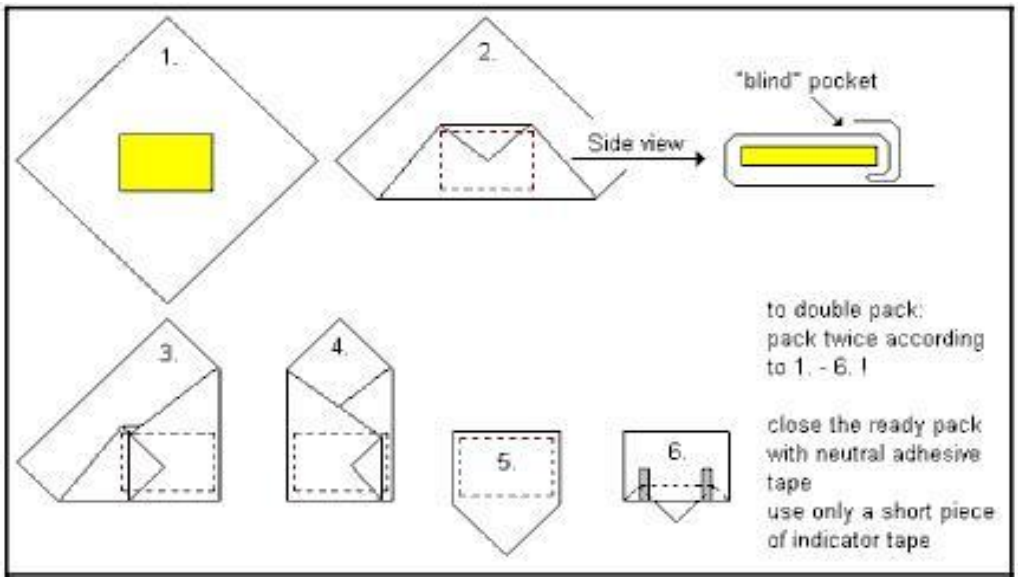
Remarks

- The peel-open system assures dust-free aseptic opening an presentation.
- The pouch should be such that when peeling it open, not the paper nor the laminate will tear. It should open neatly along the seals.
- It should not release fibers or fluffs.
- The content is clearly visible.
- It should not be possible to reseal the pouch, when opening by mistake.
- A sterilizer indicator should be on the pouch indicating whether a product was processed.
- The content should not be tightly surrounded by the packaging material; it should be able to move freely inside the pouch.
- Sterilization pouches should be put upright in a grid basket or container and not too tight together, such that a hand can slide in between them.
- Laminated film pouches are for single use only.
- When packaging in dual laminated pouches, make sure that the paper of both packages are on the same side. The inner pouch should fit freely in the outer pouch!

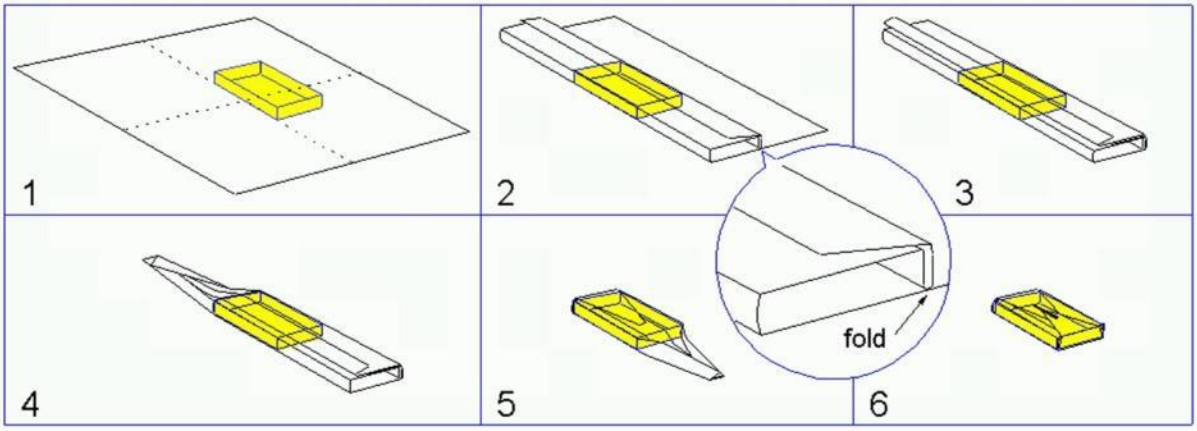
http://www.efhss.com/html/educ/sbasics

Wrapping techniques for packaging using sheets

When opening a pack containing sterile materials, it is essential that, due to the act of opening, the content is not contaminated. Wrapping techniques for packs and sets have been developed which assures this aseptic opening. The most common wrapping techniques that are applied for packaging of textile packs and instrument sets are the envelope fold and the parcel fold. The unfolded wrapper covers the instrument table and thus provides a sterile field. The techniques can be used for sheets of textile, paper and non-wovens.



Envelope fold: *For smaller objects and instrument sets.*



Parcel fold: *Used for bigger packages such as instrument trays, textile packs etc.*
http://www.efhss.com/html/educ/sbasics/sbasics0104_en.php

TOPIC- STERILE GLOVES

Setting up for a sterile procedure, performing the skin preparation and assisting during the procedure requires the use of sterile gloves.

You should wash your hands prior to gloving.

GLOVING PROCEDURE (DEMO):

The following is the procedure to follow for open gloving:

1. Open the glove wrapper and expose the gloves. They are always packaged folded down at the cuff to avoid contaminating the sterile surface while putting them on.

2. Glove your dominant hand first. If that is the right hand, pick up the right glove with the left hand at the folded cuff and slide the right hand into the glove. Leaving the cuff of the glove folded down. Do not turn the cuff down over the sleeve yet.

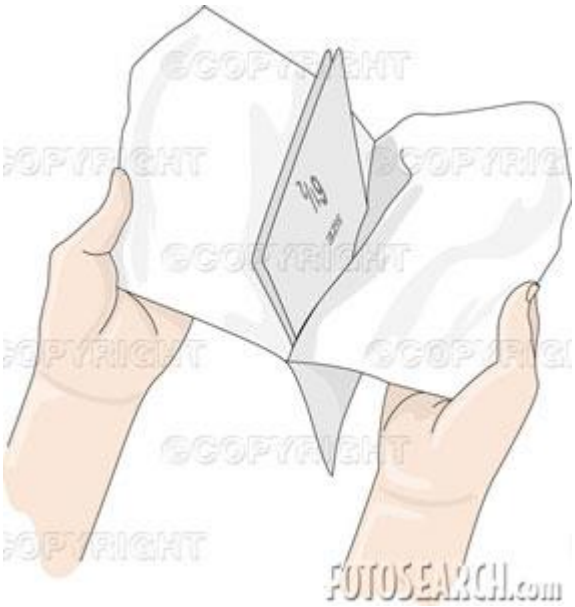
3. Pick up the left glove with your sterile gloved right hand under the fold. Pull the glove over your hand and over the cuff of the sterile gown (if worn) in one motion.

4. Place the fingers of your sterile gloved left hand under the cuff of the right glove and pull it over the cuff of the sterile gown.

5. After the cuffs of the gloves cover the cuffs of the sterile gown, they can be adjusted.

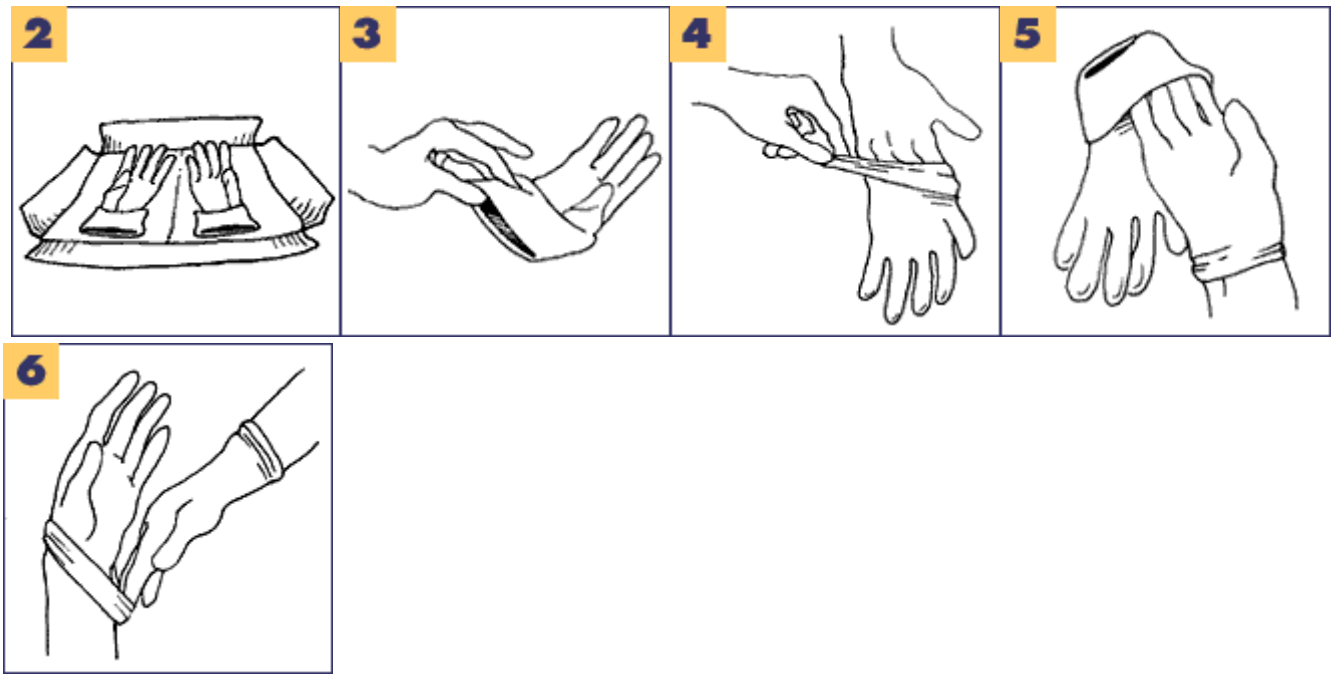
6. If contamination occurs during either glove procedure, both gown and gloves must be discarded and new gown and gloves must be put on.

7. When removing gloves after a procedure is finished, the gloves are removed after the gown is removed inside out, using glove-to-glove, then skin-to-skin technique.



Two hands shown peeling back outer layer of package of sterile gloves

www.fotosearch.com/comp/lif/lif141/two-hands-...



ww.engenderhealth.org/.../suimages/su-8e.gif

SPECIALIZED SONOGRAPHIC PROCEDURES
DMSO 2020 LAB SESSION

TOPIC – WASHING HANDS

GOAL: Remove dirt and microorganisms from under the fingernails and from the surface of the skin, hair follicles, and oil glands.

METHOD:

1. Remove all jewelry (plain wedding bands may be left on and scrubbed)
2. Turn on faucets and adjust the water temperature to moderately warm.
3. Wet your hands and apply liquid soap. (There is less available area for dirt to accumulate on a liquid soap dispenser than on bar of soap)
4. Work soap into a lather, making sure that all of both hands are lathered.
    - Rub vigorously in a circular motion for 2 minutes.
    - Keep your hands lower than your forearms so that dirty water flows into the sink instead of back onto your arms.
    - Your finger tips should be pointing down.
    - Interlace your fingers to clean between them, and use the palm of one hand to clean the back of the other.
    - It is important that you wash every surface of your hands.
5. Use a nail brush or orange stick to dislodge dirt around your nails and cuticles.
6. Rinse your hands well, keeping the hands lower than your forearms and not touching the sink or faucets.
7. With the water still running, dry your hands thoroughly with clean, dry paper towels and then turn off the faucets using a clean, dry paper towel. Discard the towels.

TOPIC – FILLING A SYRINGE

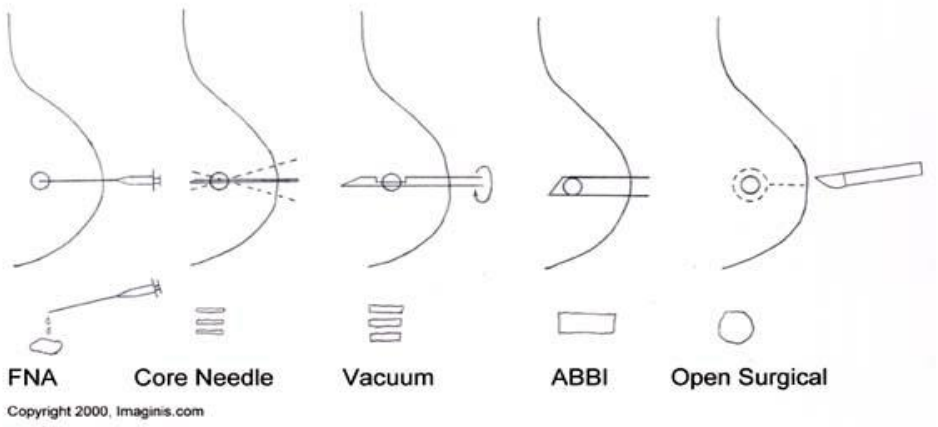
1. The first most important thing is to check the type of fluid you will be drawing to make sure it is the correct type needed and check the expiration date.
2. Apply an 18 gauge needle to the syringe.
3. Determine the amount of fluid you will need to withdraw and pull back on the stopper to fill the syringe with that amount of air.
4. Wipe the top of the vial with an alcohol wipe.
5. Insert the needle into the vial and inject the air.
6. Turn the vial upside down and draw the fluid out until you have taken out the required amount.
7. Hold the syringe upright and push out any air until fluid is expelled from the needle tip.

NOTE:

1. You may reuse the same vial during the procedure if you do not redraw with a dirty needle. Once a dirty needle is inserted, the vial must be discarded.
2. If you have a break away glass single use vial, then you do not need to draw up air for injection, you can just insert the needle into the open vial and withdraw the solution. The same applies if the vials are opened and poured into a sterile container and drawn up from there.
3. Make SURE you know what the syringe holds and where placed if multiple syringes are used. When handing to the physician, state what you are handing them. Put a piece of tape from the sterile package on one to identify.

TOPIC – BREAST BIOPSY

BREAST BIOPSY METHODS:



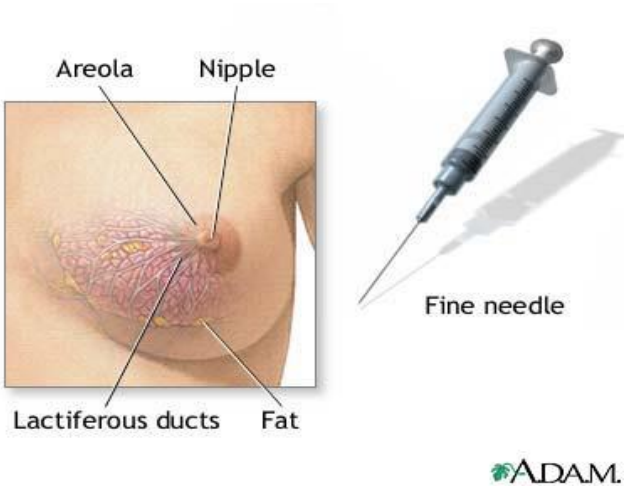
Summary of Breast Biopsy Methods					
Type	**Used For**	**Needle/ Sample size**	**Anesthesia**	*Pros*	*Cons*
Fine Needle Aspiration (FNA)	Cysts; sometimes also used to sample cells from masses with or without calcifications	22 or 25 gauge needle; several (5-6) samples of fluids and/or cells are removed	Local or none	Fastest and easiest method; results rapidly available; no stitches or scar; excellent for cysts	Small sample size may cause incomplete assessment or misdiagnosis; multiple needle insertions; operator dependent
Core Needle	Sample tissue from solid mass or calcium deposits	10, 11, or 14 gauge needle; several (5-6) samples are removed	Local	Larger sample than FNA can lead to more accurate diagnosis; no stitches or internal scar	Multiple needle insertions; limited sample size may underestimate more serious diagnosis

Vacuum-Assisted (Mammotome or MIBB)	Primarily used for calcifications	11 or 14 gauge needle. Requires 0.25 inch incision (approx. 0.6 cm); several (8-10) samples are removed	Local	Excellent for calcium deposits; removes several large samples with one needle insertion; no stitches; minimal scar	May be less accurate than surgical biopsy which removes entire lesion; not ideal for hard-to-reach lesions (i.e., near chest wall); operator dependent
Large Core Surgical (ABBI)	Primarily used for nonpalpable (unable to feel) masses and/or calcifications	5mm-20mm cylinder of breast tissue is removed (approx. size and shape of wine cork)	Local	Provides large sample without heavy sedation (as with surgical biopsy)	Removes large amount of normal tissue before reaching lesion, may not remove adequate margin of tissue around lesion; requires stitches; scar
Open Surgical	Masses, hard-to-reach lesions, (i.e. near chest wall) multiple lesions; masses with micro-calcifications	Requires 1.5 to 2 inch incision (approx. 4.0 to 5.0 cm); golf ball size area of tissue or more is removed	Heavy sedation; sometimes general anesthesia	Yields largest tissue sample; most accurate method of diagnosis (near 100%)	Causes permanent scar that may make future mammograms difficult to read; possible breast disfigurement; requires stitches and longer recovery

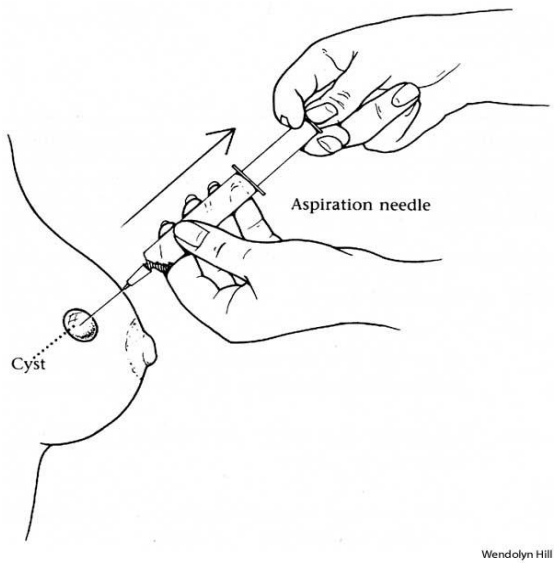
www.imaginis.com/.../biopsy/benefits_print.asp

HANDHELD BIOPSY AND ASPIRATION:

The procedure is performed like any other biopsy or aspiration in the body. See previous notes.



www.nlm.nih.gov/.../ency/imagepages/8626.htm



content.answers.com/.../img/medTest/f026003.jpg

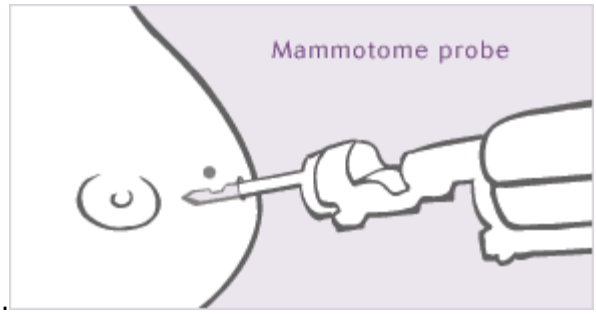
BREAST BIOPSY SYSTEM: (MAMMOTOME):

The patient is positioned supine with her arm above her head. A small sponge or linen may be used to roll the patient away from the affected side if needed to maintain flatness to the breast.

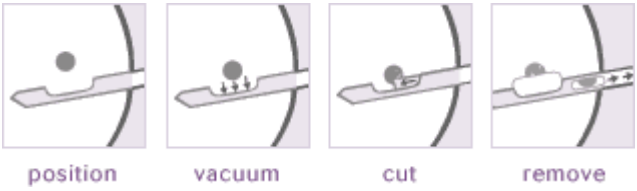
Ultrasound is used to identify the mass that is to be biopsied. Local anesthesia is administered to assure maximum comfort during the procedure.

A small incision is made to allow passage of the vacuum operated needle into the breast.

Ultrasound is used to monitor the advanced of the needle into the mass with the bowl of the needle positioned for best access. The chest wall should always be identified so that the needle does not puncture into the pleura.



Once the needle is seen to be in the breast mass, vacuum-assisted biopsies are taken. Anywhere from one to twelve samples are taken.



At the end of the procedure, a tiny surgical clip (about the size of a sesame seed) can be placed at the biopsy site to mark the location that tissue was taken from. The clip itself is small enough that a woman cannot feel it in her breast tissue. This clip is visible on mammography and will be used to monitor the area over time. A mammogram is also performed at the end of the procedure to confirm the position of the clip marker and document the appearance of the breast post procedure.

Pressure is held over the needle site until bleeding ceases. Surgical glue or steristrips may be used to hold the wound closed.

The patient will be instructed to put ice on and off the site to reduce swelling and bruising. They are also instructed not to do anything heavy with that arm fro 24 hours.

Benefits VS risks:

Benefits

- Usually requires only a 1/4" skin incision.
- Generally is performed in less than one hour under a local anesthetic.
- Minimizes discomfort.
- Tissue samples are sent to a laboratory for analysis and pathologic results.
- Procedure requires no stitches.
- Capable of sampling a variety of breast abnormalities, such as microcalcifications, asymmetric densities, solid masses or nodules.

Risks

Complications are rare, but patients may experience bleeding from the puncture site or develop a post procedure infection.

Small chance that the biopsy will not be adequate for diagnosis. Small chance that the samples are outside of the lesion.

www.imagenorth.org/images/hh_procedure.jpg

X-Ray Stereotactic Core Breast Biopsy

A stereotactic breast biopsy is most useful when a mass, a cluster of microcalcifications (tiny calcium deposits that are closely grouped together), or an area of abnormal tissue change shows up on a woman's mammogram, though no lump can be felt during a clinical breast exam.

PROCEDURE:

The patient lies prone on the imaging table with her breast falling through a hole in the table. The procedure is actually done below the table after raising it to gain access to the breast. The technology team and the radiologist then work together to ensure that the abnormality to be biopsied is in the field of view and, once achieved, the breast is prepared with betadyne wash. A local anesthetic is then applied to take away any painful sensation. Most of our patients have commented that they were surprised at how little discomfort they experienced during the procedure. However, the radiologist is always willing to give more medicine if necessary and works closely with each patient during the procedure to keep her comfortable.

Imaging is obtained at multiple steps during the procedure to confirm that the correct area is still within the biopsy field. Once the anesthetic is administered, an incision is made and the biopsy needle is advanced into the breast tissue. After confirming positioning, the needle is further advanced into the biopsy site. Then samples are taken. Anywhere from one to twelve samples are taken.

At the end of the procedure, a tiny surgical clip (about the size of a sesame seed) is placed at the biopsy site to mark the location that tissue was taken from. The clip itself is small enough that a woman cannot feel it in her breast tissue. A mammogram is also performed at the end of the procedure to confirm the position of the clip marker and document the appearance of the breast.

www.rsna.org/Media/briefings/2004/images/CAD

www.lahey.org/Medical/Radiology/DRadiology_Im...

THE BREAST:

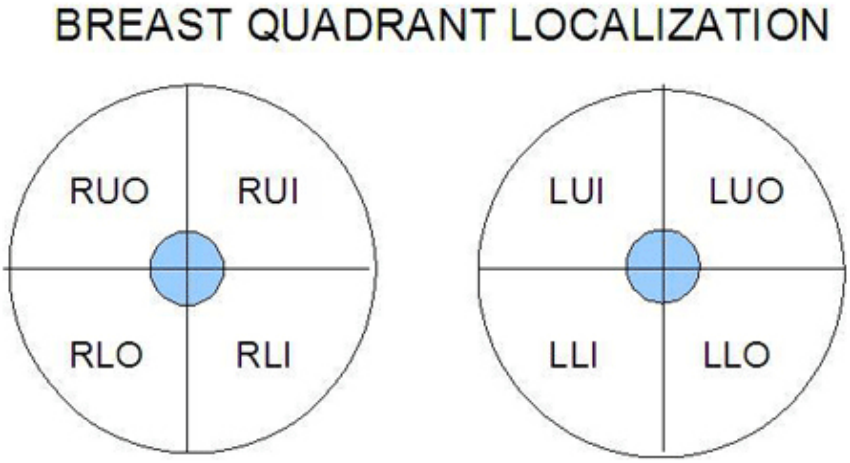


DIAGRAM 1A

Designed by Kellie Callahan-Mallett

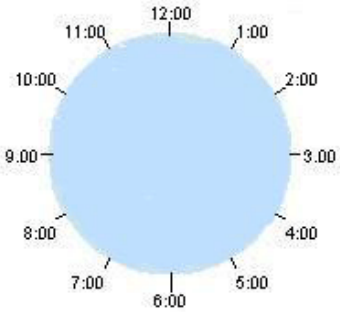


Diagram 2A

Designed by Kellie Callahan-Mallett

RIGHT BREAST

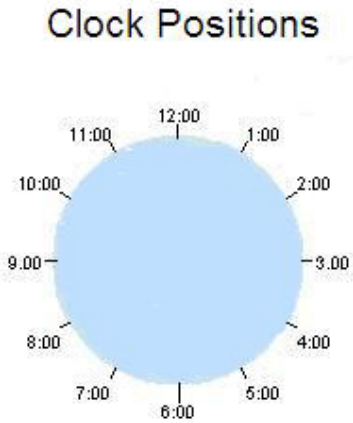
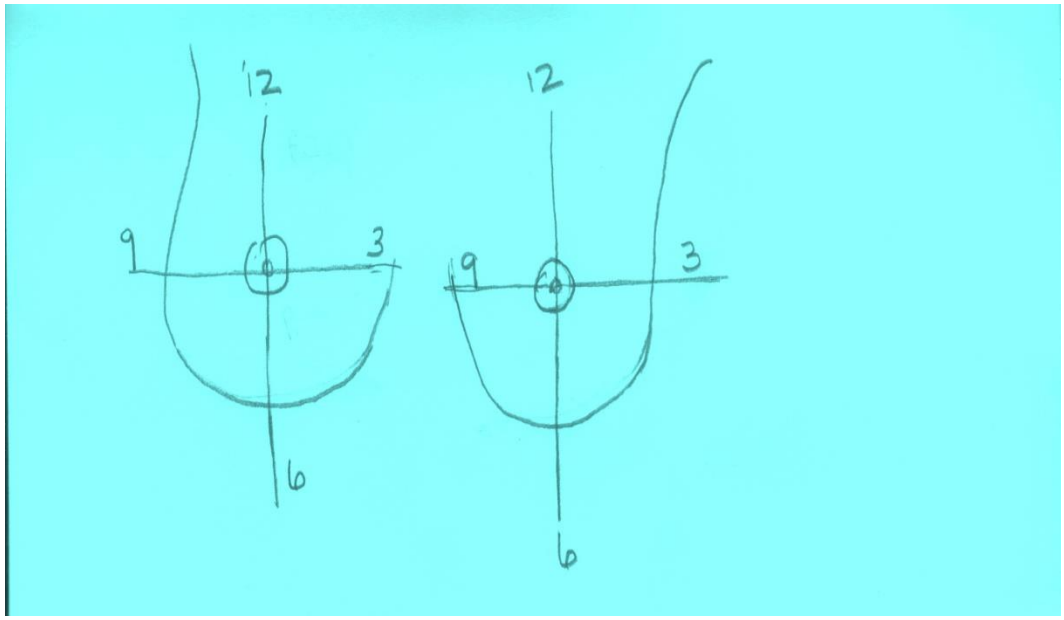


Diagram 2A

Designed by Kellie Callahan-Mallett

LEFT BREAST

www.imagingce.info/tests/IMCE001/



PREP: High resolution transducer: 7.5-12.0 MHz
Patient supine with hand and arm of indicated side above head. Patient adjusted to have the breast in an AP position.

IMAGING:
All images should be labeled: Radial or antiradial, right/left breast, o'clock position
Required images: For the check off, the student will be required to demonstrate the instructor requested o'clock position in the appropriate breast in both the radial and antiradial planes.

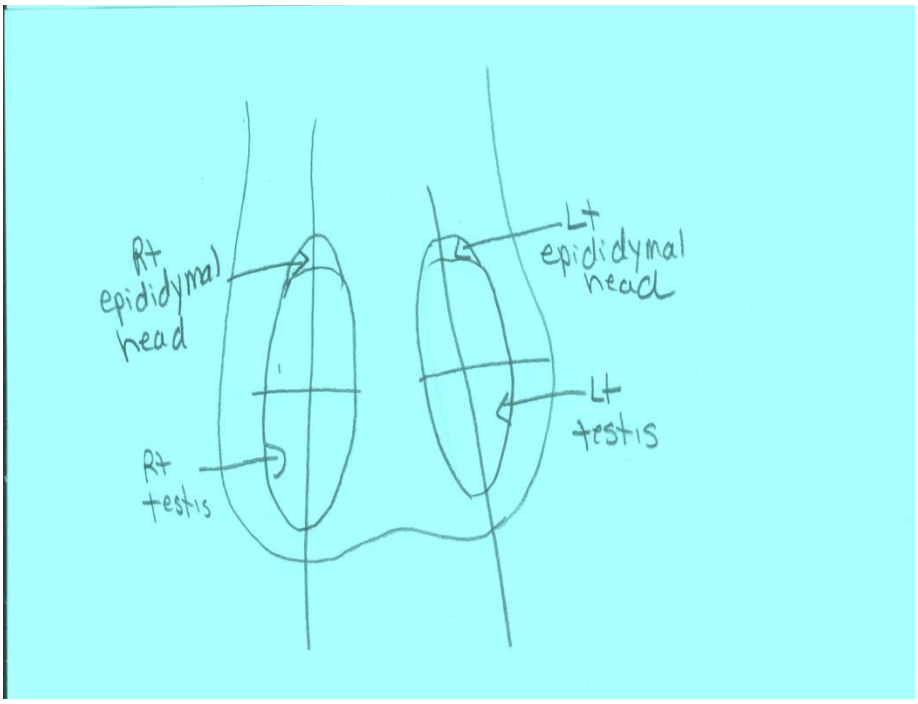
Thyroid:

- Survey thyroid in SAG and TRV
- Transverse isthmus X 3
    - One with measurement
    - One w/o calipers showing echo texture of both lobes
    - One with color of both lobes
- Transverse right lobe X 5
    - Upper pole (LABEL: RT THY TRV UPP)
    - Mid with measurement (LABEL: RT THY TRV MID)
    - Mid w/o calipers or color (LABEL: RT THY TRV MID)
    - Mid with color (LABEL: RT THY TRV MID)
    - Lower pole (LABEL: RT THY TRV LOW)
- Longitudinal right lobe X 5
    - Midline with measurement (LABEL: RT THY SAG MID)
    - Midline without measurement (LABEL: RT THY SAG MID)
    - Midline with color Doppler (LABEL: RT THY SAG MID)
    - Medial right lobe (LABEL: RT THY SAG MED)
    - Lateral right lobe (LABEL: RT THY SAG LAT)
- **Repeat for left lobe of thyroid**
- **Picture with both Lobes**

Prostate (Phantom):

- Survey bladder in longitudinal and transverse
- Survey prostate in longitudinal and transverse
- Image: longitudinal prostate X 2
    - With and without calipers
- Image: Transverse prostate X 2
    - With and without calipers

THE SCROTUM:



PREP: High resolution transducer: 7.5-12.0 MHz
Patient supine with towels or rolled up sheets adjusted to have a secure surface for the scrotum to lie on and bring them parallel to each other. The penis should be taped up out of the way if necessary.

IMAGING:
All images should be labeled: Longitudinal or transverse, right/left testicle and location (medial, mid, lateral, inferior, mid, or superior)

Required images:

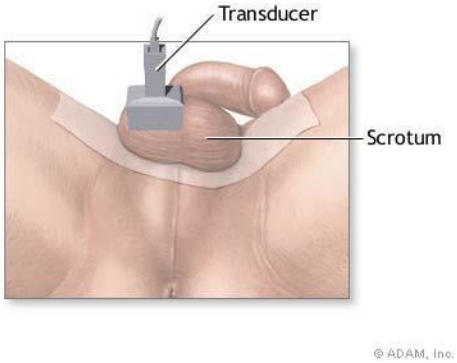
Longitudinal and transverse survey

Longitudinal imaging:
- Right testicle:
  - Medial
  - Mid: measurement length
  - Mid: color flow
  - Lateral

Transverse imaging:
- Right testicle:
  - Inferior
  - Mid: measurement AP and width
  - Mid: color flow
  - Superior

Longitudinal imaging:
- Left testicle:
  - Medial
  - Mid: measurement length

Mid: color flow
Lateral
Transverse imaging:
Left testicle:
Inferior
Mid: measurement AP and width
Mid: color flow
Superior
Epididymis: Sag Mid with measurement and color



www.nytimes.com/imagepages/2007/08/01/health

Prostate (Phantom):

- Survey bladder in longitudinal and transverse
- Survey prostate in longitudinal and transverse
- Image: longitudinal prostate X 2
    - With and without calipers
- Image: Transverse prostate X 2

With and without calipers

COLUMBUS TECHNICAL COLLEGE
DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

LAB SESSION EVALUATION FORM

Student Name: _____ DMSO_____

Student should request a check-off when he/she feels ready. Each attempt will be recorded as Pass or Fail. If the student fails an attempt, the instructor will provide feedback on what was lacking and suggest ways to improve.

All lab proficiencies for this course must be complete prior to the end of the assigned semester. If a student fails to pass a lab check-off, it is an indication that he/she lacks the skills required for the clinical aspect in the sonography field, and may not be permitted to continue in the DMS Program.

STERILE TRAY SET UP AND BIOPSY:

Procedure	Pass	Fail
Create a sterile field (open sterile tray)		
Open a sterile packet onto a sterile field		
Don sterile gloves		
Open sterile packet to sterile person		
Demonstrate filling a sterile syringe (5 cc)		
Identify needle placement on scan		
Position needle to biopsy		

☐ **FAIL** ☐ **PASS** **DATE**_____

FEEDBACK:_____
_____
_____
_____
_____

Evaluator's Signature: _____

Student's Signature: _____

DMSO 2020
SPECIALIZED SONOGRAPHIC PROCEDURES

CREATE A STERILE FIELD

STUDENT NAME: _____

Student Assessment Objectives	Open a sterile tray and arrange items on the tray without a break in sterile technique
Skills Assessment Requirements	Observe demonstration Practice technique
Supplies and Equipment	Sterile tray, sterile gloves, flat surface

ASSESSMENT CRITERIA	PASS	FAIL
1. Check the sterile tray expiration date and condition of package for sterility		
2. Open the outer packaging of the tray and place on the surface where the sterile field is being set up		
3. Fold open the four sides of the sterile wrapping to expose the tray in such a manner as to not break sterile technique		
4. Don sterile gloves		
5. Arrange items on the tray as you would for a procedure		
INSTRUCTOR OVERALL RATING	**PASS**	**FAIL**

Instructor Signature: _____ DATE: _____

COMMENTS: _____

_____

_____

Student's Signature: _____

DMSO 2020
SPECIALIZED SONOGRAPHIC PROCEDURES

OPEN STERILE PACKET ONTO STERILE FIELD

STUDENT NAME: _____

Student Assessment Objectives	Open a sterile packet and drop it into a sterile field without a break in sterile technique
Skills Assessment Requirements	Observe demonstration Practice technique
Supplies and Equipment	Sterile packet, sterile field

ASSESSMENT CRITERIA	PASS	FAIL
1. Check the sterile package expiration date and condition of package for sterility		
2. Open sterile package by grasping edge and slowly pulling down without touching the inside sterile surface or sterile item.		
3. Drop sterile item onto a sterile field without a break in sterile technique		
INSTRUCTOR OVERALL RATING	**PASS**	**FAIL**

Instructor Signature: _____ DATE: _____

COMMENTS: _____

_____

_____

Student's Signature: _____

DMSO 2020
SPECIALIZED SONOGRAPHIC PROCEDURES

DON STERILE GLOVES

STUDENT NAME: _____

Student Assessment Objectives	To don sterile gloves without compromising surgical asepsis of the glove or sterile field
Skills Assessment Requirements	Observe demonstration Practice technique
Supplies and Equipment	Sink, sterile gloves, package

ASSESSMENT CRITERIA	PASS	FAIL
1. Check the condition of the package to assure sterility		
2. Open the outside wrapper and place the inside pack on a flat surface with the cuffed end of gloves toward you.		
3. Pull the inner wrapper edges outward, without touching the inside of the pack.		
4. Pick up the right glove with the left hand at the folded cuff and slide your right hand into the glove. Do not pull cuff down.		
5. Place the fingers of sterile gloved hand beneath the turned up cuff of the left glove on the sterile area of the glove and pull the glove over your left hand.		
6. Place the fingers of your sterile gloved left hand under the turned up cuff on the sterile portion and pull the cuff over the sterile gown.		
INSTRUCTOR OVERALL RATING	**PASS**	**FAIL**

Instructor Signature: _____ DATE: _____

COMMENTS: _____

_____

_____

Student's Signature: _____

DMSO 2020
SPECIALIZED SONOGRAPHIC PROCEDURES

OPEN STERILE PACKET TO STERILE PERSON

STUDENT NAME: _____

Student Assessment Objectives	Open a sterile packet and hand off to a sterile person without a break in sterile technique
Skills Assessment Requirements	Observe demonstration Practice technique
Supplies and Equipment	Sterile packet, sterile field

ASSESSMENT CRITERIA	PASS	FAIL
1. Check the sterile package expiration date and condition of package for sterility		
2. Open sterile package by grasping edge and slowly pulling down without touching the inside sterile surface or sterile item.		
3. Hold package open with item exposed for a sterile person to be able to remove from the package without a break in sterile technique		
INSTRUCTOR OVERALL RATING	**PASS**	**FAIL**

Instructor Signature: _____ DATE: _____

COMMENTS: _____

_____

_____

Student's Signature: _____

DMSO 2020
SPECIALIZED SONOGRAPHIC PROCEDURES

FILL STERILE SYRINGE

STUDENT NAME: _____

Student Assessment Objectives	Fill sterile syringe/needle with 5 ml solution under sterile conditions with a second person handing supplies and solution
Skills Assessment Requirements	Watch demonstration Practice technique
Supplies and Equipment	Sterile gloves, sterile syringe, sterile needle, demo dose solution vial

ASSESSMENT CRITERIA	PASS	FAIL
1. Don sterile gloves		
2. Take supplies from second person without breaking sterile technique		
3. Pull back air to the exact designated 5 ml requirement		
4. Insert needle into vial and inject air without a break in sterile technique		
5. Draw back 5 ml solution into the syringe		
6. Remove air from syringe/needle		
INSTRUCTOR OVERALL RATING	**PASS**	**FAIL**

Instructor Signature: _____ DATE: _____

COMMENTS: _____

_____

_____

Student's Signature: _____

COLUMBUS TECHNICAL COLLEGE
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Circle One:

BREAST **SCROTAL** **THYROID**

Procedure	Pass	Fail
Correct transducer selection		
Correct imaging technique		
Correct imaging focus		
Perform survey in longitudinal and transverse		
Demonstrate specific anatomy in longitudinal		
Demonstrate specific anatomy in transverse		
Correct labeling of each image		
Correct measurements where required		
Use of color and spectral Doppler where required		

☐ **FAIL** ☐ **PASS** **DATE**_____

FEEDBACK:_____
_____
_____
_____
_____

Evaluator's Signature: _____

Student's Signature: _____