



Echocardiography Program

Clinical Manual And Student Handbook

2023-2024

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Hill College Mission Statement: The People We Serve

Hill College provides high quality, comprehensive educational programs and services. The college enhances the educational, cultural, and economic development of its service area and prepares individuals for a more productive life.

Hill College Health Science Mission Statement:

The Hill College Health Science Department will provide the citizens of our service area with economic and healthcare improvements by offering the highest quality of health related education and training to members of our service that are dedicated to increasing their knowledge and skills, and to become active members of the healthcare field for a more responsible and productive life, and will further assist members of our service area to collaborate with the healthcare community, and provide current healthcare knowledge and technology to ensure that the classroom theory and evidenced based practice in the clinical setting is attained.

Statement of Purpose

Diagnostic Medical Sonography/Echocardiography has developed over the past thirty years from a rudimentary, supplemental exam to an essential diagnostic tool. As the technological capabilities have increased, so have the educational and professional requirements of the sonographer. The high quality, diagnostic ultrasound exam is entirely dependent upon the knowledge, skill and professionalism of the sonographer. The sonographer's role is complex. To perform an ultrasound exam, the sonographer must understand ultrasound physics and instrumentation and know normal and abnormal anatomy and physiology. The sonographer must be able to adjust the equipment and adapt the exam protocols to a wide range of patient and disease-state variability, making each exam individual and unique. The sonographer must organize the acquired data in the way that best communicates the patient's condition to the interpreting physician. The purpose of the Echocardiography program is to address the changes that have occurred in the field of cardiac ultrasound and to provide the educational experience the student needs to become a Registered Cardiac Sonographer.

Hill College
Health and Community Services
Essential Clinical and Technical Standard
Performance

Echocardiography

The Essential and Technical standards are based upon required abilities that are compatible with effective performance in health careers and are intended to help potential students make career decisions. Health and Community Services students unable to meet the Essential and/or Technical are responsible for discussing the possibility of reasonable accommodations with the program coordinator before starting clinical and providing medical and other documentation related to any disability and the appropriate accommodations needed to meet the standards. Reasonable accommodations for students with disability – related needs will be determined on an individual basis, taking into consideration the Essential and Technical which must be performed to meet program objectives as well as personal and client dignity and Safety.

Essential Clinical Performance Standards

1. Has **visual acuity** with corrective lenses to:
 - a. Accurately read small print on medication containers, syringes, discriminate color changes, read type at 8 font, and hand-writing on college ruled paper
 - b. See objects up to 20 inches away
 - c. Accurately read monitors and equipment calibrations
 - d. Identify call lights and unusual occurrences on a unit at a distance of 100 feet.

2. Has sufficient **auditory perception with corrective devices** to:
 - a. Hear monitor alarms, emergency signals, client's call bells, pagers, and telephone conversation
 - b. Hear client's heart sounds and lung sounds with a stethoscope
 - c. Receive and understand verbal communication from others
 - d. Distinguish sounds with background noise ranging from conversation levels to high pitched sounding alarms.

3. Has the **physical ability and stamina** to:
 - a. Stand for prolonged periods of time, 8-12 hours.
 - b. Transfer/position/lift up to 150 lbs with assistance
 - c. Lift and carry objects (up to 50lbs) without assistance
 - d. Push/pull equipment requiring force on linoleum and carpeted floor
 - e. Manipulate equipment through doorways and into close fitting areas.

4. Has **the manual dexterity including sufficient gross motor and fine motor coordination** to:
 - a. Pick up, grasp, and manipulate small objects with control
 - b. Perform electronic documentation and keyboarding.

5. Each Health Science program has required clinical clock hours which must be completed before the program completion. Clinical clock hours vary depending on the programs specific program clinical requirements.

6. Student must be able to travel up to 100 miles to satisfy clinical rotation requirements.

Technical Standards

The following standards are criteria that medical imaging professionals are required to meet in order to be gainfully employed in the imaging field and to perform the essential functions of the echocardiography education program. The standards include physical, emotional and communication criteria, among others, as stated below. They will not be used as part of the process by Hill College for selection into a medical imaging program; however, it is the applicant's responsibility to review the criteria prior to applying to any medical imaging program. Students should be aware that they must be able to meet these standards in order to successfully complete the program.

Communication

Students must be able to communicate effectively and sensitively with other students, faculty, staff, patients, family, and other professionals. He or she must express his or her ideas and feelings clearly and demonstrate a willingness and ability to give and receive feedback. The student's necessary capacity to communicate both orally and in writing must include, but is not limited to, the ability to:

- Obtain and record patient history.
- Explain or discuss procedures.
- Discuss patient consent forms.
- Provide clear verbal instructions to patients either face to face or from a distance of several feet. This includes effectively pronouncing and enunciating the instructions and explaining instructions to patients with hearing deficits.
- Read, interpret and follow instructions in timely manner.
- Communicate proficiently with colleagues and other health professionals.
- Provide directions during treatment and post-treatment.
- Process and communicate information on the patient's status with accuracy in a timely manner to members of the health care team.
- Demonstrate the ability to make a correct judgment in seeking timely supervision and consultation.

Cognitive

A candidate must be able to measure, calculate, reason, analyze, integrate and synthesize information in the context of undergraduate professional study both in the classroom and in a clinical setting, including but not limited to, a demonstrable ability to:

- Complete multistep examinations.
- Retain necessary facts of the patient's history and examination.
- Apply knowledge of pathology in order to effectively complete the examination.
- Create reports or relay diagnostic information to other healthcare professionals orally or in writing.
- Read and comprehend large amounts of written materials.

Sensory/Observational

A student must be able to acquire information presented through demonstrations and experiences in the classroom and in a professional or clinical setting. He or she must be able to observe a patient accurately and observe and appreciate non-verbal communications when performing an assessment, intervention, or providing treatment. The candidate must be capable of perceiving the signs of disease or infection when manifested during physical examination. Such information is derived through images of the body, observation of organs and tissues, and auditory information (patient voice, heart tones, bowel sounds, lung sounds, etc.). The student's necessary capacity for sensory and observational skill includes, but is not limited to, the ability to:

- See fine lines and to distinguish gradual changes in blacks, grays and whites is necessary to evaluate images in dim light.
- Read and comprehend department protocols for imaging procedures, patient's charts and/or files examination request, monitors and any written directions or orders.
- Distinguish various shades of gray (in regards to contrast and brightness).
- Visually distinguish structures of 0.5mm.
- Respond to questions, concerns and needs orally communicated by patients.
- Hear faint or muffled sounds from the patient's body or medical equipment when standing a distance of several feet from the patient or when the use of surgical mask is required.
- Monitor equipment operation or dysfunction which may be indicated by low sounding buzzers, bells, or visual signals on the equipment.
- Appreciate and interpret auditory signals from equipment, e.g. Doppler generated sounds.
- Physically manipulate machine locks and controls.
- Don surgical gloves, fill syringes, start IVs and handle sterile trays and equipment.
- Operate both mobile and stationary medical equipment.
- Move and operate equipment and patient carts and wheelchairs.
- Safely transfer and position a patient.

Behavioral/Emotional:

A candidate must possess the emotional health required for the full utilization of his or her intellectual abilities, the exercise of good judgment, the prompt completion of all responsibilities attendant to the diagnosis and care of patients and families. This includes, but is not limited to:

- Be able to maintain mature, sensitive, and effective relationships with patients, students, faculty, staff and other professionals under all circumstances, including stressful situations.
- Have the emotional stability to function effectively under stress and to adapt to an environment that may change rapidly without warning and/or in unpredictable ways.
- Be able to experience empathy for the situations and circumstances of others and effectively communicate that empathy.
- Know that his or her values, attitudes, beliefs, emotions, and experiences affect his or her perceptions and relationships with others.
- Be able and willing to examine and change his or her behavior when it interferes with productive individual or team relationships.
- Possess skills and experience necessary for effective and harmonious relationships in diverse academic and working environments.

Professional Conduct:

Candidates must demonstrate the ability to work cooperatively, efficiently, and appropriately in a professional work setting, including but not limited to:

- Possess the ability to reason morally and practice as a Medical Imaging professional in an ethical manner.
- Be willing to learn and abide by professional standards of practice Possess attributes that include compassion, empathy, altruism, integrity, honesty, responsibility and tolerance.
- Be able to engage in patient care delivery in all settings and be able to deliver care to all patient populations including but not limited to children, adolescents, adults, developmentally disabled persons, medically compromised patients, and vulnerable adults.

In the event a student is unable to meet the any of the standards described above, it may result in the inability for the student to complete programmatic coursework, including the clinical externship component of the echocardiography program. This would result in dismissal from the program.

Reasonable Accommodation for Disabilities:

Hill College is committed to ensuring that otherwise qualified students with disabilities are given equal access through reasonable accommodations to its services, programs, activities, education and employment for students with disabilities. The disabilities coordinator is the contact point for students with permanent or temporary sensory, physical or psychological disabilities interested in requesting reasonable accommodations due to the effects of a disability.

Students who wish to request reasonable accommodations are encouraged to contact the disabilities coordinator to start the process for documenting their disability and determining eligibility for services prior to the start of the program. While this process can be started at any time, reasonable accommodations may not be implemented retroactively so being timely in requesting your accommodations is very important. Hill College does have policies regarding the type of documentation required in order to diagnose different disabilities and a process for requesting accommodations. To learn more about the process for establishing services through these offices please contact HR Director or call 254-659-7731.

Students with disabilities will, with or without reasonable accommodation, need to adhere to the academic and technical standards requisite to admission or participation in the program. This includes performance of all the essential functions of the program, with or without reasonable accommodation. Hill College will work cooperatively with the student and the campus disability office to provide reasonable and appropriate accommodations. Please note that if the requested accommodation(s) fundamentally alters essential requirements or functions of the program, then it is not viewed as reasonable. Hill College will make every effort to work with our students with disabilities to provide reasonable accommodation for their disability-related needs and will consider each accommodation request on a case by case basis.

Accommodations for Disabilities

Hill College is committed to comply with Section 504 of the Rehabilitation Act of 1973 and with the Americans with Disabilities Act (ADA) of 1990. Therefore, we seek to ensure that qualified persons with disabilities are not denied admission or subjected to discrimination in admissions to or recruitment for any federally assisted programs.

With this in mind, the ADA coordinator for the college district strives to ensure that the admissions process is accessible to all applicants. The office offers reasonable accommodations to those applicants who forward appropriate documentation of a disability, with a request for accommodation.

If an applicant has a documented disability, and would like to request reasonable accommodations to be made during the application process, s/he may contact HR Director by phone (254) 659-7731. Any information an applicant supplies is strictly voluntary, and all information and documentation related to a request for accommodation will be regarded as confidential pursuant to Title I of the ADA.

Echocardiography Program Objectives:

1. Identify the role of the Echocardiographer as a member of the health care team.
2. Utilize theoretical knowledge base while care for patients.
3. Exhibit competence in all roles of the Echocardiographer by performing safe, skilled technical practice.
4. Utilize effective communication skills while interacting with all members of the health care team, patients and their families, faculty, and other groups in the health care setting.
5. Display legal and ethical behavior in the practice of technical skills.
6. Assume responsibility for continuing educational growth.

Program Goal

1. To prepare competent entry-level cardiovascular technologists in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains for adult echocardiography.

The Hill College Echocardiography Program is a two-year curriculum comprised 60 semester-credit hours of classroom, laboratory, and clinical learning experiences. The course of is designed to prepare individuals for careers in cardiac ultrasound.

Graduates of the Echocardiography Technology program are encouraged to take the credentialing examinations offered by Cardiovascular Credentialing International (CCI) and/or the American Registry of Diagnostic Medical Sonographers (ARDMS). To apply for the Registered Diagnostic Cardiac Sonographer (RDMS) through the ARDMS, students must complete the necessary experience as defined by the ARDMS. Registration and certification requirements for taking and passing these examinations are not controlled by Hill College but by outside agencies and are subject to change by the agency without notice.

Accreditation Statement

Hill College is accredited by the Southern Association of Colleges and Schools Commission on Colleges to award the associate degree. Contact the Southern Association of Colleges and Schools Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097 or call 404-679-4500 for questions about the accreditation of Hill College.



The Commission on Accreditation of Allied Health Education Programs (CAAHEP) is pleased to inform you of its vote on **January 21, 2016** to award **initial accreditation** to the Cardiovascular Technology - Adult Echocardiography Associate degree program at Hill College, Hillsboro, TX.

Application Requirements

The Echocardiography is a two year program. All prospective students are required to meet the admission criteria. In addition, all applicants should be free of illegal drug use, have no felony convictions, and be clear of any misdemeanor convictions other than minor traffic violations. For more information about the application process please email Darla Whitehead at dwhitehead@hillcollege.edu. All prospective students application/information sheets received will be reviewed for completion of the application requirements and must be received by the postal deadline date for possible selection in the next scheduled class.

Students need to realize that all health science programs require intensive clinical time other than class and these clinical sites may require extensive travel and other requirements. All candidates selected for admission into health science programs will be required to complete a physical and present proof of updated immunizations including Hep B, and current negative drug test.

(To be considered for acceptance the following requirements must be on file)

- Completed and/or updated Hill College Apply Texas Admissions Application. Refer to www.hillcollege.edu for the online application.
- Submit HESI test scores to the Health Sciences Office. Minimum Passing Scores: Composite scores 60%, Math 55%, and Reading 65%.
- Completed Echocardiography Program Application. Applications may be printed online or picked up in the Health Science Department.
- Submit all official college transcripts to the Hill College Health Science Department showing completion** of the following pre-requisites course with a “C” or better:

✓ BIOL 2420 Microbiology

- ✓ BIOL 2401 Anatomy and Physiology I
- ✓ BIOL 2402 Anatomy and Physiology II
- ✓ MATH 1314 College Algebra
- ✓ PSYC 2301 General Psychology

*Science courses over 5 years must have, prior to enrollment/selection, and approved waiver from the Dean of Instruction, Health and Public Service. The waiver form is currently located at <http://www.hillcollege.edu/students/healthScience/adnTransition>

** Candidates enrolled in pre-requisites may be considered for acceptance at a lower priority than candidates who have completed the pre-requisites by the application/information deadline date.

- Evidence of TSI completion or evidence of being exempt verified by the Hill College Academic Advising and Success Center.
- Official High School Transcript or High School Equivalency Certificate (See TOEFL rule below)

Students must demonstrate English proficiency as an admission requirement. This may wither be demonstrated by attending 2 high school years of one of the 50 United States and receiving a diploma/High School Equivalency Certificate and taking the Test of English as a Foreign Language (TOEFL) and scoring a minimum Internet score of 80 or a computer-based TOEFL score of 250 or a paper/pencil test score of 600. TOEFL results are only valid up to two years old. TOEFL Test score reports must be sent directly to the Health Science Department from the testing center. Information about the TOEFL may be obtained from the web site: www.ets.org/toefl or by calling 1-800-468-6335.

- Criminal Background check through Verified Credentials. Contact the Health Science department for instruction on completion of this requirement.
 - ***Any candidate with an eligibility issue related to criminal conviction **must provide documentation, PRIOR to enrollment in the Echocardiography program.** Failure to disclose an eligibility issue prior to admission into the Echocardiography program WILL result in dismissal from the Echocardiography program. ***

Failure to disclose any criminal background or positive drug test will result in immediate dismissal from the Hill College Health Science Program, no exptions.

- CPR-American Heart Association BLS Health Care Provider.
- Documentation of the following immunizations current and up-to-date.

2 MMR's, 2 varicella (Chicken Pox), Tdap, seasonal influenza, Tetanus within the last 10 years, Hep B Series OR titer showing level of immunity. Note: All students must have the Hepatitis B series completed prior to performing direct patient care; there will be no exceptions; this is now mandated by the Department of State Health Services, Title 25,

Rule 97.64 and 97.68. The Hepatitis B is a 3 shot series which takes 4-6 months to complete

- Complete Physical Examination

Other Application Considerations:

- Echocardiography Essay Questionnaire (Completed at the time of HESI A2 testing)
- Prior medical work experience documented by submitting either certification or resume.
- Cumulative GPA 2.5 of degree plan courses completed
- Higher Degree BS or MS
- Additional points awarded for completion of other degree plan courses:
 - ✓ ENGL 1301 English Composition
 - ✓ BCIS 1305 Business Computer Applications

Required After Selection:

- TB – 2 step negative TB tine or chest x-ray
- Onsite Drug Testing (10 panel)

Failure to demonstrate a clear background and/or drug screening may result in being declined for entry in to any Health Science program.

NONDISCRIMINATION

Hill College is committed to the principle of equal opportunity in education and employment. The college does not discriminate against individuals on the basis of age, race, color, religion, sex, national origin, disability, genetic information, or veteran status in the administration of its educational programs, activities, or employment policies. Retaliation against anyone involved in the complaint process is a violation of College District policy and is prohibited.

Hill College shall treat pregnancy, childbirth, false pregnancy, termination of pregnancy and recovery therefrom as a justification for a leave of absence for so long a period of time as is deemed medically necessary by the student's physician, at the conclusion of which the student shall be reinstated to the status which she held when the leave began.

Reports of discrimination, may be directed to the Title IX Coordinator. The College District designates the following person to coordinate its efforts to comply with Title IX:

Disabilities/ADA

Reports of discrimination based on disability may be directed to the ADA/Section 504 coordinator. The College District designates the following person to coordinate its efforts to comply with Title II of the Americans with Disabilities Act of 1990, as amended, which incorporates and expands the requirements of Section 504 of the Rehabilitation Act of 1973, as amended:

Name: Lizza Ross

Position: Vice President Student Services

Address: 112 Lamar Drive, Hillsboro, TX 76645

Telephone: (254) 659-7601

Students with qualified and documented disabilities may request accommodations which will enable them to participate in and benefit from educational programs and activities. Students should contact the Academic Advising and Success Center for more details at 254-659-7650 for Hill County Campus, 817-760-5650 for Johnson County Campus, or 817-295-7392 for Burleson Center.

Title IX

Reports of discrimination based on sex, including sexual harassment or gender-based harassment, may be directed to the Title IX Coordinator. The College District designates the following person to coordinate its efforts to comply with Title IX of the Education Amendments of 1972, as amended, and related state and federal laws:

Name: Adrian Riojas

Position: Dean of Students

Address: 2112 Mayfield Parkway, Cleburne, TX 76033

Telephone: 817.760.5504

Email: ariojas@hillcollege.edu

Webpage: [TitleIXcontact \(hillcollege.edu\)](http://TitleIXcontact(hillcollege.edu))

Mr. Randy Graves

Deputy Title IX Coordinator

Dean of Students

112 Lamar Drive Hillsboro, TX 76645

Phone: 254.659.7793

Email: rgraves@hillcollege.edu

Ms. Lynne Percival

Confidential Reporter
Success Coordinator
2112 Mayfield Parkway, Cleburne, TX 76033
Phone: 817.760.5655
Email: lpercival@hillcollege.edu

Statement of Nondiscrimination: The College District prohibits discrimination, including harassment, against any employee on the basis of sex. Retaliation against anyone involved in the complaint process is a violation of College District policy and is prohibited.

U.S. Department of Education Office for Civil Rights
1999 Bryan Street, Suite 1620
Dallas, Texas 75201-6810

Telephone: 214-661-9600
FAX: 214-661-9587; TDD: 800-877-8339
Email: OCR.Dallas@ed.gov

Admission

Hill College maintains an open admission policy; however, the number of Echocardiography students that can be accepted is limited by the availability of clinical instruction facilities. Since there are often more applicants for the programs than spaces, student selection will be based on a point system. Hill College reserves the right to refuse admission to the Echocardiography program to any applicant whose application is deemed unsatisfactory.

Student Responsibilities

It is the responsibility of each student to be knowledgeable of and to comply with the contents and provisions of Hill College policy, rules and regulations, which affect the student's standing with the College. The student will be accountable for his or her own actions. Due to the location of clinical sites, it may be necessary for the student to travel extensively. The student will be responsible for any expenses incurred while attending clinicals including but not limited to gas, parking fees and meals. The student will maintain a professional attitude towards fellow students, staff, instructors, physicians, and patients. The student will become an integral part of the healthcare team and as such is responsible for conducting themselves in a manner that is mature and professional at all times. The student will seek counsel for any academic and clinical problems that may arise throughout their training.

Reinstated/Transfer Students:

- A. Reinstated/Transfer students will be considered on an individual basis in accordance with standards and school policies.

B. Reinstated/Transfer students must meet the following prior to acceptance:

1. Negative Drug Test
2. Health Screening
3. Satisfy all eligibility issues
4. All immunizations complete and up to date
5. Must be within 2 years of initial entrance

C. Final decision on admission rests with the Health Science Faculty.

D. All curriculum requirements must be met before transfer students will be graduated.

Curriculum Requirements

Completion of the curriculum outlines below leads to an Associate of Applied Science in Echocardiography Technology and enables the student to take the registry examination for Cardiac Sonographers and seek employment in the field of cardiac ultrasound.

Pre-requisite		Sem. Hours
BIOL 2420	Microbiology	4
BIOL 2401	Anatomy & Physiology I	4
BIOL 2402	Anatomy & Physiology II	4
MATH1314	College Algebra	3
PSYC 2301	General Psychology	3
		18
First Semester		Sem. Hours
DSAE 1203	Introduction to Echocardiography Techniques	2
DMSO 1302	Basic Ultrasound Physics	3
DSAE 1260	Clinical-Echocardiography Technology	2
HPRS 2200	Pharmacology for Healthcare Professions	2
DSAE 1315	Principles of Adult Echocardiography	3
DSAE 1340	Diagnostic Electrocardiology	3
		15
Second Semester		Sem. Hours
ENGL 1301	English Composition	3
DSAE 2304	Echocardiography Evaluation of Pathology I	3
DSAE 2660	Clinical Echocardiography Technology	6
		12
Third Semester		Sem. Hours
BCIS 1305	Business Computer Applications	3
DSAE 2437	Echocardiology Evaluation of Pathology II	4
DSAE 2661	Clinical-Echocardiology Technology	6
DSAE 2235	Advanced Echocardiology	2
		15
Total Semester Hours		60

Grading:

1. Students will receive a copy of objectives identifying necessary competency levels for each course.
2. The evaluation system is consistent with the objective. To reliably measure achievement, the instructors use a variety of testing methods including but not limited to-multiple choice, true/false, short answer and essay. Also, the instructor may use research projects and attendance at assorted society meetings/conventions or continuing educational conferences as part of a student's academic grading.
3. Students will be given a written examination upon the completion of each course. It will be at the discretion of the instructor to test during each course.
4. Instructors maintain an attendance and grade record for each course. The Dean of Health Sciences will have access to all attendance grading records.
5. Students in the Echocardiography program must maintain an overall GPA of 2.3 on a 4.0 scale. Points can be deducted from a student's final grade due to absences. Please see Attendance Procedure.
6. The grading scale is as follows:

90-100	A	(4.0)
80-89	B	(3.0)
70-79	C	(2.3)
≥70	F	
7. The Dean of Instruction for Health and Public Service and Instructor are responsible for counseling students regarding progress of program.
8. Instructors are strongly encouraged to counsel the student whose academic performance is below acceptable standards before reporting the non-acceptable performance to the Dean of Instruction, Health and Public Service.
9. The students will be given various assignments to assess their competency levels throughout their training. Echocardiography Instructors will distribute the assignments. The student will be expected to pass with full competency in order to graduate from the program.
10. In compliance with the Family Educational Rights and Privacy Act (FERPA) 1974, as amended, the following procedure will be implemented by all Health Science faculty:
 - No grades will be posted publicly.
 - No grade will be given over the telephone to a student of any other person under any circumstances.

- No identification of grade status such as pass/fail will be given over the telephone to a student or any other person under any circumstances.

Clinical and Academic Competency:

The student will be required to maintain a grade point average of 2.3 or better on a 4.0 scale throughout the program. If a student receives a grade-point average of less than 2.3 on a 4.0 scale at the end of any semester or the courses taken in that semester, the student will be placed on academic probation. Academic probation status will require the student to either do remedial work or repeat the course at the discretion of the Dean of Health and Public Service or Course Instructor. Should the student fail to meet this requirement they may be dismissed from the program commensurate upon a decision by the Instructor and Dean of Health and Public Service. The students must maintain an overall 2.3 grade point average on a scale of 4.0 to successfully complete the program.

If a student fails one course and would like to retake the next time it is offered, the student needs to be aware that reentry will only be considered if there is an opening in the class, and the time frame for reentry falls within one year, beginning at the initial date of withdrawal or failure. A student who wants to retake a course may do so only after the Dean of Health and Public Service and Instructor have conferred and reached agreement for them to do so.

Drug Testing:

The student is required to have a pre-enrollment drug screen. If the drug screen does not come back clear, the student must have a second drug test done using the hair follicle method within 24-48 hour period. These are to be paid for at the students' expense. The first drug screen must have been done within the three months prior to enrollment. **Note:** Random drug testing can be done at any time at the Dean of Health and Public Service and Instructors discretion. If a student is randomly tested for drugs and found positive for drugs, he/she will be required to have a second drug test done using the hair follicle method within a 24-48 hour period. These are to be paid for at the students' expense. If the second test comes back positive the student will be sent to the Director of Student Life for counseling. The student will not be allowed to participate in clinical or classroom setting as long as the drug screen is not clear and/or can be dismissed from the program without chance of reinstatement if unanimously decided by the Dean of Health and Public Service and Instructor.

Scholastic Dishonesty:

Scholastic dishonesty shall include, but not be limited to, cheating, plagiarism, and collusion. If a student is found to have committed scholastic dishonesty on any course assignment or exam he/she will receive a failing grade for the work and may receive a failing grade for the course.

Ethical Conduct:

While working in the clinical arena, the student will always behave in an honest and ethical manner. Please refer to the Honesty/Ethical and Legal Behaviors section of this Handbook. Students are required to sign the Clinical Practice Student Agreement located at the end of this Handbook.

Offensive and Defensive Products

The possession of any offensive or defensive product/device is strictly prohibited in any echocardiography class, clinical site or sponsored event. This includes ANY product/device that has the potential to inflame/disrupt/damage an individual's eyes, skin, respiratory system, cardiac system, neurological system, digestive system or musculoskeletal system. This includes but is not limited to any offensive or defensive product/device designed to burn, slice/stab/pierce, produce smoke or aerosol, or conduct electrical current.

Employment:

The Echocardiography Program has no rule prohibiting outside employment while enrolled as a student. Identification with Hill College, including the school name, badge, patch, cannot be worn while performing in such capacity. Outside employment shall not conflict with theory or clinical hours.

Professional Confidentiality:

If a student discloses and hence violates confidential information discovered while scanning a patient, student, and/or volunteer, that student is subject to immediate dismissal. All students are required to keep in compliance with HIPAA, and Hill College ethic codes. Each student will be given two warnings (one verbal and one written) before being placed on probation and becoming subject to dismissal.

Accommodations

Hill College is committed to maintaining an accessible campus community and providing reasonable accommodations to qualified students, faculty, staff and visitors. Section 504 of the Rehabilitation Act of 1973 (117 kB) and the Americans with Disabilities Act (ADA) of 1990 (117 kB) prohibit discrimination in the recruitment, admission, and treatment of students with disabilities. Students with qualified and documented disabilities may request accommodations which will enable them to participate in and benefit from educational programs and activities. Students must provide appropriate documentation of the disability, complete an Accommodation Request Form for special accommodation/modification, and schedule and participate in an interview with a Hill College academic advisor or success coordinator. For additional information or to apply, students should contact the Academic Advising and Success Center or visit the website at <http://www.hillcollege.edu/students/Advising/ada.html>.

Infectious Communicable Disease Exposure

The student is to understand that in the role as an Echocardiography student they may be exposed to infectious/communicable diseases. The student will be taught Standard Precautions (formerly known as Universal Precautions or Body Substance Isolation) as recommended by Centers of Communicable Diseases (CDC) and OSHA. Knowledge regarding Standard Precaution procedures will be implemented when caring for all patients regardless of their infectious status. Applying the knowledge of Standard Precautions and Transmission – Based Precautions reduce the potential for transmitting blood born pathogens and those from moist body substances and fluid.

The Standard Precautions are followed whenever there is potential for contact with:

- Blood
- All bodily fluids, secretions, and excretions of regardless of whether the contain visible blood
- Non intact skin
- Mucous membranes

Hill College Health Science STUDENT CONFIDENTIALITY AGREEMENT

I understand that while I am participating in an educational program at Hill College and affiliated clinical sites, I may have access to Confidential Information. Confidential Information is valuable and sensitive and is protected by law and by Hill College. The intent of federal and state privacy laws and Hill College policies is to assure that Confidential Information will remain confidential and will be used only by those with appropriate authority as necessary to accomplish the organization's mission.

Confidential Information is information about patients, Hill College students, and Hill College faculty and laboratory volunteers. I may learn of or have access to some or all of this Confidential Information orally, through a computer system, through skills practice, or through documents. Students in Health Science programs at Hill College may come upon medical knowledge regarding the health status of a fellow student or volunteer during skills practice in the classroom or laboratory.

If I need access to computerized information I will be assigned a unique logon ID and password, as well as other access control devices such as cards or tokens. These logon IDs, passwords, and other access control devices assigned for any purpose will be kept secure and confidential. The unique logon ID and password are equivalent to a legal signature. I will be held accountable for any access utilizing my unique logon ID. Access cards and other facility security devices will be kept secure.

Access to Confidential Information is permitted only as authorized and as required for legitimate purposes in the performance of my student role.

I understand that patient information will be available for educational purposes to authorized students enrolled in educational programs at Hill College and affiliated clinical facilities for use within the department maintaining those records. Removal of any part of the patient's medical record or information that identifies a patient is prohibited. Students are not to discuss any findings of their skills practice with anyone other than their instructor.

Requests for access for formal research purposes require a waiver from the facilities involved. In order to access and compile data for educational studies, I understand I must present a written request and consent of my instructor. If I need to prepare a report for a quality improvement project, the clinical affiliation representative should be contacted to approve the scope of the data access.

I understand that all issues related to my mid-term and final evaluation grades are to be kept confidential and are not to be shared with any student in the Hill College Health Science Programs.

Students are prohibited from removing information that identifies a patient from the school or clinical facility.

I understand the above requirements and I agree to abide by these requirements.

Printed Student's Name

Student's Signature

Date

By my signature, I agree to be responsible for compliance by my son/daughter under the age of 18, with the terms above.

Signature and printed name of student's parent, if student is under 18.

Clinical Rules:

In an effort to maintain a professional image, students are required to abide by the following dress and personal appearance/hygiene codes in the clinical settings. *However, where a clinical facilities code differs, the student will always conform to the clinical facilities policy.*

1. Students must report “in” and “out” to your preceptor each day of clinical experience.
2. Identify and abide by rules and regulations of each clinical affiliate for specific circumstances.
3. All clothing worn to the clinical facilities is to be clean and neat. Shorts and jeans are not acceptable in the clinical setting.
4. Universal Precautions/CDC recommendations for handling of all body fluids must be adhered to for all procedures.
5. Safety devices must be worn at appropriate times. The items to be worn include but are not limited to the following:
 - a. Protective eyewear at all times while scrubbed on or cleaning up after any surgical procedure
 - b. Lead aprons and thyroid shielding during x-ray procedures
 - c. Protective goggles during LASER procedures
 - d. Other safety devices required by the clinical site
7. All hair must be kept clean and neat at all times.
8. Moderation must be used in the application of make-up, perfume, hair spray, after-shave lotions, and nail polish. Any type of artificial nails, hair piece, and/or eye lashes should be applied with extreme caution and certain clinical facilities may prohibit their use. Chipped nail polish should be removed immediately. The clinical facilities procedure must always be observed.
9. No smoking allowed during clinical hours or while in uniform.
10. Breaks are allowed when the work schedule permits and relief coverage is available.
11. If the student is absent, he/she will notify the clinical facility (the echo lab supervisor or preceptor) at least one-half hour prior to the assigned arrival time. The student will also notify the college clinical instructor to whom he/she is assigned before 7:30 a.m.
12. If the student is tardy, he/she will notify the clinical facility as quickly as possible and include the estimated time of arrival.
13. Leaving early must be approved by the clinical preceptor or his/her designate. The student must notify the clinical instructor prior to leaving early.
14. Any unethical, disruptive or argumentative behavior in the clinical setting will result in the student’s being dismissed with disciplinary action taken and accrual of a clinical absence for

the day. Repetitive inappropriate behavior will lead to dismissal from the program and the student receiving a grade of “F” for clinical.

15. It is inappropriate for any student to participate in a practical joke at any clinical facility (i.e., no “horseplay” during clinicals)
16. The students are responsible for notifying their preceptor/supervisor when leaving the patient care area. If a student cannot be found by the hospital staff within fifteen (15) minutes, the student’s actions will be considered abandonment of a patient.
17. In case of procedure cancellation or delay, it is the student’s responsibility to find a new case in which to participate or other relevant learning activities.
18. No beepers or portable phones are allowed in the clinical areas.
19. Under no circumstances is it acceptable for a student to be sleeping or “napping” during clinical hours. The student will earn a failing grade for their clinical course in this scenario.
20. Students should actively participate in all clinical facility activities and only study during clinical hours if there is **absolutely no other** patient care or learning activity ongoing

Students in violation of the dress code or clinical rules will be counseled according to the following sequence.

- The first violation will result in a written warning.
- The second violation will result in a formal contract being written.
- Failure to meet the formal contract requirements and/or a third violation will result in a failing grade for the appropriate ECHO course. In the event a student is in violation of more than one code or rule at a time, the ECHO Instructor and Program Director/Coordinator has the option of placing the student on contract at the Director/Coordinator’s discretion.

Covid 19 precautions will vary based on clinical facilities requirements. Students must follow clinical requirements or unexcused absence will result. Every facility has different requirements for their facility, students must meet the requirements of the facility.

Attendance:

Students are required to regularly attend all lecture and laboratory periods. Each instructor will determine how attendance affects the student’s progress in the course/program and the student’s final grade. Attendance requirements are in the syllabi of each course.

A student who is absent from classes for the observance of a religious holy day will be allowed to make up all work provided that proper advance notification is given to the instructor.

A student who is called to active military service will be allowed to make up all work provided the student follows the proper advance notification procedure. An instructor may appropriately

respond if the student fails to satisfactorily complete the assignment or examination within a reasonable time after the absence.

Class Room-

Absences always result in work being missed and that usually means grades will suffer. Regular and punctual attendance is expected and required. If the student is 1-30 minutes late for class, this will constitute one tardy. Students must return promptly from all breaks. Three (3) tardies will constitute one absence. Correct time is based on the instructor's watch. If a student is greater than thirty minutes late, he/she will be given an absence for that day.

Activity/assignment for the day will be at the instructor's discretion. Students missing 2 or more class periods will receive counseling. Warnings will be issued before a student is dropped. If a student misses more than 15% of class meetings the student may be dropped with a grade of "F".

Clinical-

The student is allowed to miss up to 2 clinical days with 5 points off for each 8 hours missed. If the student misses more than 16 hours the student will need to go before an absence review committee (which will consist of the Dean of Health Sciences, EMS director, 1 academic faculty, 1 nursing faculty, and the echo instructor). If the review committee excuses the absence, the absence will result in another 10 points off of the clinical grade for each absence over the initial 16 hours and could result in a failure in clinical. No student will be allowed to miss more than 32 hours in clinical per semester for any reason.

Clinical tardies: Three (3) clinical tardies will constitute one absence. If the student is 1-30 minutes late for clinical, this will constitute one tardy. Correct time is based on the instructor's watch.

If the student is greater than thirty minutes late for clinical, he/she will be given a "0" on all paperwork that day. Activity/assignment for the day will be at the instructor's discretion.

If required clinical paperwork is not prepared and turned in to the instructor during a clinical visit, the student will receive a failing grade on their clinical evaluation. Only one (1) failing evaluation is allowed per semester. Any student who fails more than one clinical evaluation will receive an "F" for the entire clinical course. A minimum of 3 evaluations will be completed by the instructor/preceptor.

Definitions:

Tardy: 1-30 minutes later than assigned time of arrival

Absence: Any time greater than 30 minutes past assigned time of arrival.

Absence Call-In:

Students who are going to be absent on clinical days **MUST** notify the clinical facility **AND** the clinical instructor before the beginning of the assigned shift. For the student's protection, it is

wise to record the name of the person at the facility who takes the message in case the message is not relayed to the instructor.

Unsafe Students:

Maintaining client safety is the overriding principle in clinical practice. Health Science faculty have the responsibility to ensure that students are providing safe care. Echocardiography students must function at the expected clinical level as stated in the course objectives and clinical evaluation forms. Unsafe behavior is the failure to perform in the manner that any student, at the same level of preparation, would perform in a particular clinical situation. Health Science faculty have the responsibility to identify student conduct and performance in the academic and/or clinical area that are unsafe, unethical, and/or unprofessional, take immediate corrective action, and provide remediation contracts, if appropriate. Any faculty that perceives a student is unsafe will take immediate corrective action, document the incident fully, and refer the student to the Incident Review Committee (which will consist of: 1 faculty member from the VN program, Echo instructor, 1 academic faculty, Dean of Health and Public Service, and Director of EMS services) for evaluation. The incident review committee will then review all documentation, including student's comments, to make a determination on possible remediation contract or dismissal from the echocardiography program.

Unsafe behavior includes, but is not limited to:

- Being under the influence of drugs or alcohol.
- Failure to use Standard precautions at all times.
- Failure to apply basic safety rules, such as leaving side rails down on beds and cribs.
- Failing to report an abnormal finding.
- Being unable to make sound judgments due to adversely affected thought processes and decision-making.
- Attending clinical with a possibly communicable infectious disease process.
- Failure to follow the patient's rights.
- And any other action or failure to act that would jeopardize client safety.

Health Science Educational Programs have the duty to report:

- Impairment or likely impairment of the student's practice by chemical dependency.
- Impairment or likely impairment of the student's practice by mental illness.
- Information related to criminal convictions.

Dress Code:

1. **Aftershave/perfume:** Aftershave, cologne, perfume, or scented lotion should not be worn in patients care areas. They may be worn in non-patient care areas provided the scent is light and used in moderation. **Heavy scents are prohibited.**
2. **Buttons/Pins:** Wear only insignias that have been approved by the Health Science Department.

3. **Clothing:** Students must wear clean scrub attire. Any and all dress policies of the clinical affiliate must be adhered to. Gray scrubs with the Hill College Echo Program insignia sewn on the left upper arm sleeve, white athletic shoes, and a Hill College Photo ID are required to be worn at all times.
4. **Deodorant:** Due to close contact with others, all students must wear deodorants or an antiperspirant.
5. **Grooming/Hygiene:** Daily bathing is required by all students, and hair must be shampooed regularly to promote a neat and clean appearance. Daily oral hygiene is required.
6. **Gum:** Chewing gum is not permitted. Breath mints or breath sprays are allowed.
7. **Name Badges:** All students must wear an identification badge worn on the shoulder area or on identification necklace in an upright, readable position with photo visible at all times.
8. **Sunglasses:** Students do not wear sunglasses indoors.
9. **Tattoos:** Conspicuous tattoos are not considered to be in the best interest of the Health Science Department or Echocardiography Program and are therefore unacceptable. A tattoo can be considered conspicuous when it is visible. THE ONLY ACCEPTABLE COVERING IS CLOTHING.

DRESS CODE FOR WOMEN:

1. **Undergarments:** Students are required to wear appropriate undergarments, such as underwear, and a bra at all times. A white black or gray undershirt that isn't baggy may be worn under the scrubs. **It is unacceptable for the student to wear undergarments that are visible, or visible through the outer garments.**
2. **Shoes:** Shoes are polished and kept in good repair. Shoelaces are of the same color as the shoes and are tied for safety. Athletic-type or nursing shoes must be worn, unless other specific footwear is required due to the nature of the job.
3. **Hosiery/Socks:** White colored Hosiery or socks are required to be worn at all times. No ankle socks
4. **Rings:** Limited to one small band on any finger.
5. **Watches:** Wear only one watch.
6. **Jewelry:** No bracelets. A single chain necklace not exceeding 20 inches, including a small pendant not to exceed the size of a quarter may be worn inside the neckline of the

uniform. A matching small pair of earrings may be worn-only one set. Nose rings, or other body piercing jewelry is not acceptable at any time. Includes tongue and eyebrow.

7. **Hair:** A neat, natural hairstyle is an essential part of a well-groomed appearance. Students must select styles that will not fall forward over the face while performing job duties. Teasing for body or shape is kept to a minimum. Extreme fashion statements such as shaving the head, radical haircuts or tinting hair in unnatural colors - blue, green, pink etc. are not acceptable. No hats are allowed.
8. **Hair accessories:** Hair accessories may be worn for the purpose of preventing hair from falling forward on the face. Appropriate hair confinement is worn in areas required by law. Barrettes, combs, and hairbands of any color that coordinates with hair coloring may be worn.
9. **Make-up:**
 - A. **Foundation:** If foundation or bases are worn, students should select shades complementary to natural coloring. Application is light and well blended in order to avoid stains on clothing.
 - B. **Blush:** Minimal blush may be worn.
 - C. **Eye make-up:** Eye shadow, eye liner and mascara may be used to highlight the eyes in complimentary shades.
10. **Fingernails:** kept clean and well groomed and do not exceed one-eighth of an inch beyond the fingertip. If polish is worn, Students should select clear or cream enamels in moderate, subdued colors. **Acrylic or Artificial nails may not be worn.**

DRESS CODE FOR MEN:

1. **Undergarments:** Students are required to wear appropriate undergarments at all times. It is unacceptable for the student to wear undergarments that are visible, or visible through the outer garments. A white, black, or gray undershirt that is not baggy may be worn under scrubs.
2. **Shoes:** Shoes are polished and kept in good repair. Shoelaces are of the same color as the shoes and are tied for safety. Athletic-type or nursing shoes must be worn, unless other specific footwear is required due to the nature of the job.
3. **Hosiery/Socks:** White colored Hosiery or socks are required to be worn at all times. No ankle socks.
11. **Rings:** Limited to one small band on any finger.
12. **Watches:** Wear only one watch.

13. **Jewelry:** No bracelets. A single chain necklace not exceeding 20 inches, including a small pendant not to exceed the size of a quarter may be worn inside the neckline of the uniform. No earrings allowed. Nose rings, or other body piercing jewelry is not acceptable at any time. Includes tongue and eyebrow.
14. **Hair:** A neat, natural hairstyle is an essential part of a well-groomed appearance. Students must select styles that will not fall forward over the face while performing job duties. Extreme fashion statements such as shaving the head, radical haircuts or tinting hair in unnatural colors - blue, green, pink etc. are not acceptable. No hats are allowed.
15. **Fingernails:** kept clean and well groomed and do not exceed one-eighth of an inch beyond the fingertip.

****Students in violation of the dress code or clinical rules will be counseled according to the following sequence:**

- **The first violation will result in a written warning.**
- **The second violation will result in a formal contract being written.**
- **Failure to meet the formal contract requirements and/or a third violation will result in a failing grade for the appropriate ECHO course. In the event a student is in violation of more than one code or rule at a time, the ECHO Instructor and Program Director/Coordinator has the option of placing the student on contract at the Director/Coordinator's discretion.**

Disruptive Behavior:

The student may be dismissed from a class in progress or a clinical setting for disruptive behavior, at the discretion of the preceptor/instructor.

Clinical Transfer:

There are times when for various reasons a student may be placed in a clinical environment in which the student does not perform to the best of his/her capabilities. To assure that the individual student's needs are met and our clinical relations are not jeopardized, it may be necessary to transfer the student to a new clinical area.

Conditions of transfer may include the following:

1. Clinical request
2. Student request
3. Instructor recommendations

Should a transfer be recommended or requested by any of the above, the following steps will be followed:

1. Assessment of the conditions will be addressed to the faculty.
2. The Clinical Instructor and concerned clinical preceptor will meet with the student and address the situation. The Program Director/Coordinator may also be present at that meeting as necessary.
3. Should it be determined that a transfer is to the student's best interest, the following procedure will be followed:
 - a. The clinical instructor will meet with the student for personal assessment. This meeting will be documented and becomes a part of the student's file. The Program Director/Coordinator may also be present at that meeting as necessary.
 - b. The student may be required to interview with the Director/Supervisor of the clinical facility to which transfer is recommended.
 - c. The final decision of transfer will be made upon the results of these interviews and will be coordinated by the Clinical Instructor.
 - d. Space at an alternate clinical site must also be available for the transfer to occur.

Radiation Protection and Fluoroscopic Procedures:

1. Introduction

This method is intended to serve as a guide to good practice in medical radiation protection. The Hill College Echocardiography program subscribes to the National Council on Radiation Protection (NCRP) practice in dealing with the subject. The following policies contain a number of recommendations and specific guidelines concerning medical radiation-producing equipment and the manner in which students are protected. It is not specifically written for literal adoption as legal regulations. It must be emphasized that it is desirable to keep radiation exposures to students as low as practical with due consideration to medical objectives, feasibility, and efficiency of operation.

- 1.1 The purpose of this method is to indicate the protection required in various circumstances and to describe one or more methods by which the required protection may be achieved.
- 1.2 Terms used in this method are defined here:
 - (a) Shall indicate a recommendation that is necessary or essential to meet the currently accepted standards of protection.
 - (b) Should is recommended, is advisable, indicates an advisory recommendation that is to be applied when practicable.

2. Radiation Protection Rule

- 2.1 When a patient must be held in position for radiography, mechanical supporting or restraining devices should be used. If not available, a person not habitually exposed to ionizing radiation should hold patients.
- 2.2 The ECHO student shall stand behind the barrier provided for his protection during radiographic exposure.
- 2.3. The ECHO student shall wear appropriate personnel-monitoring devices if required in radiologic procedures.
- 2.4. Deliberate exposure of an ECHO student to the useful beam for training or demonstration purposes shall not be permitted unless there is a medical indication for the exposure and the exposure is prescribed by a physician.
- 2.5. No students are to hold patients during a radiographic procedure.

3. Fluoroscopic Rule

- 3.1 ECHO students shall not perform unsupervised fluoroscopic procedures.
- 3.2 Medical fluoroscopy should be performed only by or under the immediate supervision of physicians properly trained in fluoroscopic procedures. The State of Texas, by law, permits only licensed physicians, radiologic technologists, and RCVT graduates from

an accredited ICVT program with a State of Texas limited radiologic licensure to perform medical fluoroscopy and cine. ICVT students may perform fluoroscopy under direct supervision. ECHO students are not to apply ionizing radiation to patients.

3.3 ECHO students should wear protective aprons of at least 0.25 mm lead equivalent in the fluoroscopy room.

3.4 The hand of the student should not be placed in the primary beam unless the beam is attenuated by the patient and a protective glove of at least 0.25 mm lead equivalent is used.

Accidents and/or Injury:

1. A student who is injured in the clinical setting should immediately notify his/her clinical preceptor and the clinical instructor. If the clinical instructor cannot be reached by beeper, the student should phone the clinical instructor's voicemail. If the student is unable to reach the clinical instructor, the ECHO program Director/Coordinator must be contacted.
2. A written summary (see below) of the occurrence and care rendered will be submitted by the student to the clinical instructor. After investigation, the clinical instructor will submit the summary to the Program Director/Coordinator, who will in turn submit it to the Dean of Health and Public Service at Hill College.
3. All clinical affiliates by contractual agreement must provide access to acute emergency care in the event of accident or injury to a student.
4. The student is responsible for **all expenses** charged by the clinical affiliate in rendering medical care.
5. Hill College and the clinical affiliate are not responsible for any claims for expenses that result from an action of a student in the clinical setting.
6. Students in Health Occupation programs are strongly urged to carry personal health insurance. Some clinical facilities require this.
7. If an injury prohibits the student from participating in the clinical setting, the student may receive an unsatisfactory clinical grade. We will make reasonable accommodations with a physician's note BUT the student will still be required to meet clinical objectives.

Incident Reports:

Incident reports are utilized in the clinical setting when an error or accident has occurred (e.g., medication error, injury involving student, patient, staff, visitor, etc.).

In the event that an accident or error occurs, the student will first notify the clinical preceptor and clinical instructor. The appropriate hospital/clinic personnel will then be notified (i.e., echo lab supervisor/director, physician, etc.) according to clinical affiliate protocol.

The student is responsible for writing the incident report on the institution's form and placing it in the proper place in accordance with the institution's policy. If within hospital policy, the student will forward a photocopy to the clinical instructor who will include the form in the student's file.

If the incident is a medication error, the student will also complete the Hill College Incident Report for Medications and schedule a conference with the ECHO program director/coordinator and the clinical instructor within one week after the error. The purpose of the conference is problem-solving to prevent further medication error occurrences.

A Hill College accident/incident form must also be initiated by the student and given to the clinical instructor. The clinical instructor or ECHO program Director/Coordinator will provide the triplicate form to the student. The situation will be investigated and documented by the clinical instructor and given to the Program Director, who will process the form and give it to the Dean of Health and Public Service.

If warranted, the student may be counseled by the clinical instructor and/or Program Director/Coordinator and placed upon a student contract.

**HILL COLLEGE
ECHOCARDIOGRAPHY
ACCIDENT/INCIDENT REPORT FORM**

PART A

Student's Name _____ Student ID# _____
Course _____ Date of Incident _____
Clinical Affiliate _____
Faculty _____

Summary of Incident:

Student's Signature

FOLLOW-UP OF INCIDENT

PART B

Clinical Instructor's Signature/Date

PART C

Program Director's Signature/Date

Student Paperwork Responsibilities:

The student has a number of forms and evaluations for which he/she is responsible. All the forms and evaluations are included in this Handbook. *The student is responsible for making copies, completing all documents as instructed below and returning completed paperwork to the coordinator as instructed.*

1. Make copies of Logs:

A. Daily Log

Description: Detailed record of activities the student participated in each day.

Data is used by the clinical preceptor, clinical instructor and student to ensure that the student is completing all components of their clinical education and to meet requirements of accreditation of the ECHO program.

Due: Complete and sign-off daily, the coordinator will designate a time at the end of the semester when all daily logs must be submitted.

Penalty: *One letter grade will be deducted for each daily log form not turned in to the instructor.*

B. Total of Procedures and Activities Log

Description: Detailed log of the number of specific activities the student participated in during the ECHO program. Data is used by the instructor to ensure that the student is completing different types of procedures and receiving adequate training in procedures. This may also be used to demonstrate increasing competence. The student may use the information about the types and numbers of procedures when applying for a job.

Due: The coordinator will designate a time at the end of each semester when the complete set of forms (all pages) are due.

Penalty: *One letter grade will be deducted for each activity log form not turned in to the instructor.*

C. Total Procedures and Activities Log Summary

Description: Summary of the total number of Procedure Types and Procedures Count for the entire ECHO program. Data is used by the Program Director/Coordinator in records for the Accreditation of the ECHO program. Students may use the information when interviewing for a job.

Due: The coordinator will designate a time at the end of each semester when the complete set of forms (all pages) are due.

Penalty: *One letter grade will be deducted if a completed form is not submitted.*

2. Clinical site evaluation form:

Description: Student's evaluation of the quality of the clinical experience provided by each clinical affiliate. This information is used to continuously improve the quality of the ECHO student's experiences at each clinical affiliate.

Due: Students will complete these at end of each semester – surveys will be made available on or during finals week

3. Complete Honesty/Ethical Signature Sheet

Description: Documents student possession of the ECHO Student Handbook and course syllabi. This sheet documents the student's acceptance and understanding of all Hill College and ECHO program policies and procedures.

Due: By second week of each semester

Penalty: Failure to submit this completed form will reflect non-compliance with program rules.

4. Complete master check-off list as you progress through the ECHO program.

Description: List of skills and knowledge to be mastered by the student as he/she progresses through the ECHO program. Students are responsible for being checked-off by the clinical preceptors as they master each item.

Due: At end of all clinical rotations

Penalty: Failure to complete and return check-off list by the final week of the end of clinical rotations will result in an unsatisfactory clinical grade and failure to graduate.

5. Review weekly goals/objectives daily.

Description: Suggested guidelines for the clinical learning experience. By meeting these objectives the students will be able to complete the master check-off list.

Due: For student's guidelines only. Daily review will help the student meet their responsibility of completing all the necessary skills and knowledge necessary to perform at an entry-level Echocardiographer.

Penalty: No direct penalty. Form is for student's benefit.

6. Accident/Incident Report Form

Description: Form to be completed by student after any accident or injury occurring in the clinical/lab setting.

Due: Immediately upon the occurrence.

Penalty: Disciplinary action for failure to complete form as specified in the Student Handbook.

7. Course Evaluation Forms

Description: Student evaluation of each course per establish procedure.

Due: At the end of each semester.

8. Print and complete the Student Daily Time sheet

Description: This form is used to create a clinical attendance record. It is the student's responsibility to make copies of this form and log their attendance on a

daily basis. In order for this document to pass as an official record the preceptor will sign off on the students daily hours and any changes made on this time sheet must be initialed by the preceptor. This record will be reviewed by the instructor at each clinical visit

Due: Finals week

Penalty: Without proof of a comprehensive attendance record, a grade cannot be given.

*Note: this time sheet must reflect the actual hours that the student was actively involved in clinical training; therefore, **any falsification** of this record will result in the student earning a failing grade for their clinical course*

9. Print and sign the Clinical Practice Student Agreement

Description: This form must be signed to acknowledge that the student will maintain ethical, moral, legal and professional behavior in the clinical affiliates at all times. Certain hospitals may also require an additional form for that particular institution to be signed.

Due: On first day of class, prior to entering the clinical affiliates

Penalty: Refusal to sign indicates a possible unwillingness to observe these behaviors and the student will not be allowed into the clinical affiliate. This will result in the student being recorded as absent for each day missed and will potentially result in a failing grade for the course.

10. Print and acquire signatures for the Clinical Preceptor Signature Verification Sheet

Description: This form is used to verify preceptor signatures/initials on clinical paperwork

Due: each student must have this form completed at each new clinical rotation. Students must have a new signature verification sheet completed at each new site, and a new form must be completed even when the student is returning to a clinical facility for a second rotation at the same facility.

Penalty: each semester's clinical paperwork must be accompanied by a current Preceptor Signature Verification Sheet, or the student's paperwork cannot be accepted for grading

**Hill College
Echocardiography Program
Student Evaluation of Clinical Facility**

Name: _____ Clinical Site: _____

Clinical Supervisor: _____ Dates of Clinical Experience: _____ to _____

Please use this worksheet to evaluate the effectiveness of your clinical experience. The information *will be held in strict confidence* and is designed to provide input for planning future clinical experience by the Echo staff.

I. ACADEMIC PREPARATION: Based on your clinical experience at this facility, do you feel your on-campus classroom and laboratory instruction was adequate to prepare you to perform in the clinical environment at a beginning level? (Circle one).

A. Classroom and laboratory work provided adequate preparation.

B. Classroom and laboratory work was not adequate to prepare me to function in a clinical environment.

C. List subject areas or topics that you feel should have been presented or presented in greater detail prior to beginning clinical experience. Be as specific as possible.

1. _____

2. _____

3. _____

Hill College Echocardiography Student evaluation of clinical facility
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II. CLINICAL SUPERVISION

Do you feel that the clinical staff at this facility provided adequate direction/orientation with regard to:

	Yes	No
1. Department orientation	_____	_____
2. Generous hands-on experience	_____	_____
3. Feedback on performance	_____	_____
4. Made to feel welcome	_____	_____
5. Good learning experience overall	_____	_____

Comments:

III. ADEQUACY OF CLINICAL SUPPORT FACILITIES:

Please evaluate the following as appropriate:

	Adequate	Inadequate	Not Applicable
1. Equipment	_____	_____	_____
2. Supervising personnel	_____	_____	_____
3. Patient load	_____	_____	_____
4. Library facilities	_____	_____	_____
5. Food service	_____	_____	_____
6. Parking	_____	_____	_____
7. Other - specify :	_____	_____	_____

Comments:

**HILL COLLEGE
ECHOCARDIOGRAPHY PROGRAM
CLINICAL PRACTICE STUDENT AGREEMENT**

I understand and acknowledge that if my actions as a student during clinicals becomes immoral, unethical, illegal, or any other unprofessional behavior, the clinical affiliate and/or Hill College has the right to remove me from that clinical site without further placement into another clinical site.

I _____ have read, understand and agree to abide by this clinical practice student agreement.

Signature _____

Date _____

**HILL COLLEGE
ECHOCARDIOGRAPHY PROGRAM
HONESTY/ETHICAL SIGNATURE SHEET**

Initial

I have read, understand, and will comply with all the policies and procedures of the Hill College Echocardiography Program as written in the Handbook, Syllabi, Student Manual and classroom policies.

I understand that non-compliance on my part with ANY of the policies and procedures governing the Hill College Echocardiography Program could result in a failing grade for any course.

I understand that I must sign below at the time I enter the appropriate course and have reviewed the course syllabus, Handbook, Clinical Manual and classroom policies.

I understand it is my responsibility to read, clarify if necessary, and comply with the course information and the policies/procedures as written in the classroom policies, Handbook, Student Clinical Manual and all of the following course syllabi:

Student Name:

_____ Print Name

DSAE 1260

_____ Student's Signature

DSAE 2200

_____ Student's Signature

DSAE 1340

_____ Student's Signature

DMSO 1302

_____ Student's Signature

DSAE 1203

_____ Student's Signature

DSAE 1315:

_____ Student's Signature

Student Handbook/Clinical Manual:

_____ Student's Signature

DATE: _____

Description of Student Daily Log Form:

The next page contains the Student Daily Log. The student is responsible for completing these forms daily for each case in which they participate. The student returns the all completed forms to the clinical instructor at the end of each semester.

The student must complete all parts of the form. Most parts of the form are self-explanatory. This form will be useful in helping to complete the Total Procedures and Activities Log form also.

Date, Time and Physician information are necessary to track the case if it becomes necessary to do so.

The Findings: what the scan revealed e.g., structural or pathological findings

Tech Comments: additional remarks, e.g., “Patient coded and resuscitated (and how the student participated in the extra activity)” or “technically difficult study”

Check off the appropriate procedure(s) and indicate the level of participation (observed, performed with assistance, or performed independently. Naturally, as the student progresses through the program, the level of participation will become increasing independent. Fetal and pediatric echoes, if available, are not expected to be performed independently as they required a much high level of skill than students are expected to acquire.

Other: list other activities that are not listed in the check-offs.

Additional comments about participation may be written on backside of form. The preceptor may also use this space for further comments.

The preceptor will verify the completed form by signature.

The student is responsible for making sufficient copies of this form to properly document all procedures.

**Hill College
Echocardiography
Student daily log**

Student Name _____

Hospital _____

DATE:	TIME:	PHYSICIAN:	
Indication for study:	Observed	Performed with Assistance	Performed Independently
Findings:	<input type="checkbox"/> Patient Prep <input type="checkbox"/> PLAX <input type="checkbox"/> PSAX <input type="checkbox"/> Apical 4, <input type="checkbox"/> Apical 5 <input type="checkbox"/> Ap 2-Ch, <input type="checkbox"/> Ap 3-Ch <input type="checkbox"/> Subcostal 4 <input type="checkbox"/> SSAX <input type="checkbox"/> Supra LAX <input type="checkbox"/> Supra SAX <input type="checkbox"/> M-mode	<input type="checkbox"/> Patient Prep <input type="checkbox"/> PLAX <input type="checkbox"/> PSAX <input type="checkbox"/> Apical 4, <input type="checkbox"/> Apical 5 <input type="checkbox"/> Ap 2-Ch, <input type="checkbox"/> Ap 3-Ch <input type="checkbox"/> Subcostal 4 <input type="checkbox"/> SSAX <input type="checkbox"/> Supra LAX <input type="checkbox"/> Supra SAX <input type="checkbox"/> M-mode	<input type="checkbox"/> Patient Prep <input type="checkbox"/> PLAX <input type="checkbox"/> PSAX <input type="checkbox"/> Apical 4, <input type="checkbox"/> Apical 5 <input type="checkbox"/> Ap 2-Ch, <input type="checkbox"/> Ap 3-Ch <input type="checkbox"/> Subcostal 4 <input type="checkbox"/> SSAX <input type="checkbox"/> Supra LAX <input type="checkbox"/> Supra SAX <input type="checkbox"/> M-mode
	Tech Comments:	<input type="checkbox"/> Doppler <input type="checkbox"/> Pedoff <input type="checkbox"/> Stress Echo <input type="checkbox"/> TEE	<input type="checkbox"/> Doppler <input type="checkbox"/> Pedoff <input type="checkbox"/> Stress Echo <input type="checkbox"/> TEE
	Other:	Other:	Other:

DATE:	TIME:	PHYSICIAN:	
Indication for study:	Observed	Performed with Assistance	Performed Independently
Findings:	<input type="checkbox"/> Patient Prep <input type="checkbox"/> PLAX <input type="checkbox"/> PSAX <input type="checkbox"/> Apical 4, <input type="checkbox"/> Apical 5 <input type="checkbox"/> Ap 2-Ch, <input type="checkbox"/> Ap 3-Ch <input type="checkbox"/> Subcostal 4 <input type="checkbox"/> SSAX <input type="checkbox"/> Supra LAX <input type="checkbox"/> Supra SAX <input type="checkbox"/> M-mode	<input type="checkbox"/> Patient Prep <input type="checkbox"/> PLAX <input type="checkbox"/> PSAX <input type="checkbox"/> Apical 4, <input type="checkbox"/> Apical 5 <input type="checkbox"/> Ap 2-Ch, <input type="checkbox"/> Ap 3-Ch <input type="checkbox"/> Subcostal 4 <input type="checkbox"/> SSAX <input type="checkbox"/> Supra LAX <input type="checkbox"/> Supra SAX <input type="checkbox"/> M-mode	<input type="checkbox"/> Patient Prep <input type="checkbox"/> PLAX <input type="checkbox"/> PSAX <input type="checkbox"/> Apical 4, <input type="checkbox"/> Apical 5 <input type="checkbox"/> Ap 2-Ch, <input type="checkbox"/> Ap 3-Ch <input type="checkbox"/> Subcostal 4 <input type="checkbox"/> SSAX <input type="checkbox"/> Supra LAX <input type="checkbox"/> Supra SAX <input type="checkbox"/> M-mode
	Tech Comments:	<input type="checkbox"/> Doppler <input type="checkbox"/> Pedoff <input type="checkbox"/> Stress Echo <input type="checkbox"/> TEE	<input type="checkbox"/> Doppler <input type="checkbox"/> Pedoff <input type="checkbox"/> Stress Echo <input type="checkbox"/> TEE
	Other:	Other:	Other:

(Additional comments and/or learning opportunities listed on the back of this form)

Preceptor Signature: _____

Total Procedure Log Instructions for Completing Form:

Become familiar with the Key and keep a copy with you in the clinical area. Make sure you understand how to complete the form. Ask the instructor for further clarification as needed.

Page: since this is a running record, keep track of the page number as you complete additional sheets.

Date: Date procedure/activity was completed.

Procedure: Refer to Key. This will be ADULT, PEDS, TEE, STRESS, FETAL, or OTHER. This is a running total of the number of procedures of each type you have been active in.

KEY to Types of Procedures:

ADULT = Adult Echo
PEDS = Pediatric Echoes
TEE = Transesophageal Echo
STRESS = Stress Echo
FETAL = Fetal Echo
OTHER = Not specified as one of the above - use comments or back of form to indicate the activity

Level of Activity: *Running total* of each level of participation of each procedure.

Hospital: Clinical affiliate where the activity occurred. You may use abbreviations.

Preceptor: First name of person working with you to teach you the skill.

These forms will be placed into each student's file. The student must take a second copy for his/her records. You will need these copies to keep your type and procedure counts accurate. Do not lose these copies.

The last week of class complete the Total Procedure Log summary. Here you will record the final totals for all procedure counts and activity level counts for the entire semester of the ECHO program. You are required to submit this log summary at the end of each semester and you are encouraged to keep a copy for your records. You will find this information useful when interviewing for a job. When applying to take Board Certification, this information and documentation may be of use.

**Hill College
Echocardiography Program
Total Procedures & Activities Log Summary**

NAME: _____

DATE: _____

PROCEDURES/ACTIVITIES	TOTAL COUNT
ADULT ECHO	
Observed	
Performed with Assistance (participated)	
Independent	
TOTAL	
PEDIATRIC ECHO	
Observed	
Performed with Assistance (participated)	
Independent	
TOTAL	
TRANSESOPHAGEAL ECHOS	
Observed	
Performed with Assistance (participated)	
Independent	
TOTAL	
STRESS ECHOS	
Observed	
Performed with Assistance (participated)	
Independent	
TOTAL	
FETAL ECHOS	
Observed	
Performed with Assistance (participated)	
Independent	
TOTAL	

**Hill College
Echocardiography Program
Student Clinical Evaluation**

This system is to be used for student clinical evaluations in the Echocardiography Program. Using the twenty (20) categories of student clinical attributes and characteristics listed, clinical evaluation of students will be conducted at regular intervals in the clinical portions of the courses in the program.

All occurrences of “2” or less will require detailed documentation, as well as written counseling forms, as needed. This information will establish the objective basis upon which the “2” or less score will be verified. Clinical activities for clinical courses will be assessed of each student minimum of (2) times during a semester, depending upon the semester and the clinical activities assigned for that course. More frequent (e.g. weekly) evaluations may be performed on individual students when behavioral issues demand critical attention.

In addition to the regularly scheduled clinical evaluation activities, documentation of a “critical incident” (CI) is required any time one occurs. A critical incident is a clinical incident which is critical in nature, unusual in occurrence, and clearly outside accepted clinical practice. CI’s may be noted in three (3) categories: a) unsafe practice, b) general conduct, and c) harmful practice. An “unsafe practice” is a clinical event in which the student performs in a manner that is potentially unsafe for the patient, although for which no harmful consequences are observed. A “harmful practice,” on the other hand, is an unsafe practice incident in which harm to the patient is documented. A “general conduct” CI involves any other occurrence which is of an unusual, critical nature, other than those described as a) or c) above. In each CI noted, detailed documentation of the event will be necessary to verify that a critical incident has, indeed, occurred. All critical incident occurrences must be reviewed by the Clinical Instructor and/or Program Director/Coordinator, who will assess and verify the event as a critical incident, verify adequate documentation, and indicate appropriate action. A student who has two (2) verified critical incident occurrences from the categories “unsafe practice” and/or “general conduct” OR one (1) verified critical incident in the “harmful practice” category will be placed on a clinical contract. This clinical contract will indicate that any one (1) additional occurrence of a critical incident, regardless of category, will result in removal of the student from clinical activities, followed by a conference with the Program Director/Coordinator and the Clinical Instructor. Upon verification of the critical incident, a failing grade in the clinical portion of that course for the semester will be earned by the student. If a student is barred from a clinical facility or any department in a clinical facility or is asked to be removed from a clinical facility for behavioral or any other issues, then that student will earn a failing grade for their clinical course

**Hill College
Echocardiography Program
Student Clinical Evaluation**

Evaluation Process:

The ECHO Clinical Instructor and/or Program Director/Coordinator will meet with the student's preceptor to complete each evaluation and discuss the need for any action goals for the student.

Following completion of the evaluation the ECHO Clinical Instructor and/or Program Director/Coordinator will then meet with the student to review the evaluation and set a timeline for any action goals that may arise for the student out of this evaluation.

The ECHO Clinical Instructor and/or Program Director/Coordinator is responsible for determining the student evaluation if cooperation of the clinical preceptor(s) cannot be obtained.

The ECHO Clinical Instructor and/or Program Director/Coordinator can over-ride the opinion of the clinical preceptor if there is evidence of student progress, or lack of progress, not considered by the preceptor. This will occur only under unusual circumstances, as it is the clinical preceptor who has daily contact and observation of the student.

The frequency/number of evaluations performed for each student per semester may vary and is determined by individual student performance at the discretion of the ECHO Clinical Instructor and/or Program Director/Coordinator

Evaluation Grading Procedure:

- Evaluation grades are a Pass/Fail grade that will not figure in the final course score, however students **must pass** the evaluations for each clinical course in order to pass the course
- If a student successfully passes the evaluation process for the course, final course score/grade will be assessed using student scores achieved on course activities *e.g. scanning assignments, scan check-offs, practicums, assignments etc

Note: not all of the above listed activities* will be performed by the student in each clinical course, the instructor provides details of specific activities on an ongoing basis throughout each course

Hill College Echocardiography Program
Preceptor Evaluation of the student

Student's Name	Rotation Date:
Clinical Site	Preceptor

The student will not be expected to perform a complete sonographic examination until they have received appropriate instruction for that examination. N/A is Not Applicable or Not Observed and is not used in grade calculations.

Evaluate each area of performance (Poor = 0, below average = 1, Fair = 2, Good = 3, Excellent = 4) For scores of 1 or 0 instructor should identify the item by number and give a brief explanation to help the student improve on that item. Student and Clinical Instructor are to sign form at the space provided.

	Affective Domain	0	1	2	3	4	N/A
1	Student is effective in communication with the staff						
2	Student can relate sonograms to other modalities						
3	Student has an understanding of sonographic anatomy						
4	Student's actions in patient care were appropriate						
5	Student had a professional appearance						
6	Student was prompt						
7	Student was attentive when patient exams were in progress						
8	Student was cooperative with the clinical staff						
9	Student completed tasks in a time fashion						
10	Student was professional in his/her clinical conduct						
	Psychomotor Domain	0	1	2	3	4	N/A
11	Student can turn on equipment and perform laboratory start up						
12	Student identified patients properly						
13	Student kept medical records according to the clinic's protocol						
14	Student can prepare the exam room						
15	Student understands imaging procedures for the clinic						
16	Student performs appropriate in the clinical setting						
17	Student can select appropriate transducers for a given examination						
18	Student uses appropriate medical vocabulary						
19	Student understands artifacts as they relate to sonographic imaging						

20	Student can turn off equipment and perform laboratory shut down						
	Cognitive Domain	0	1	2	3	4	N/A
21	Student can locate assigned anatomy with a transducer						
22	Student is on axis for Parasternal long axis views						
23	Student is able to get Parasternal short axis						
24	Student uses transducer appropriately to display anatomy						
25	Student cleans transducer after use						
	Total Points for Affective						
	Total Points for Psychomotor						
	Total points for Cognitive						
	Total all points						
	Percentage Grade = (accumulated points/ possible points X 100						

Clinical Preceptor's Evaluation of the Student

To help the student improve on deficient skills the clinical instructor should identify any items having a score of 0, 1 or 2 and make a brief comment about the nature of the deficiency.

Preceptor Comments

-

Student Comments

Student Signature and Date

Preceptor Signature and Date

Program Coordinator Signature and Date

**Echocardiography Student Clinical Site Progress Report
Hill College**

This evaluation is a requirement that must be completed periodically by the clinical coordinator in order for our institution to meet CAAHEP Standards. This evaluation must be obtained in an honest and objective manner.

Student: _____ **Semester:** _____

Date: _____ **Clinical Site:** _____

Evaluation:

Recommendations:

Follow-up if needed:

Student Name

Student Signature

Preceptor Name

Preceptor Signature

Clinical Coordinator Name

Clinical Coordinator Signature

**Hill College
Echocardiography Program
Student Clinical Evaluation Contract**

Student Name: _____

Date: _____

Student ID#: _____

Semester and Year: _____

Clinical Instructor: _____

Rotation: _____

This contract is initiated because the above named student received an evaluation of “2” or less on at least one (1) category on the Student Clinical Evaluation. The category or categories in which a “2” or less was received is/are listed below:

The Program Director/Coordinator and/or Clinical Instructor have reviewed the evaluation and accompanying documentation and verify the evaluation. The student and instructor should discuss potential techniques to improve performance in the category or categories in question.

Student Comments:

These signatures indicate that these topics were discussed.

Program Director/Coordinator: _____

Student: _____

**Echocardiography Program
Performance Goal Form**

This form is to be used by the student and preceptor to define learning opportunities and performance goals identified in the weekly evaluations (e.g. when a student is striving to move from a “3” to a “4” in an evaluation category)

Performance goal or learning objective was identified in evaluation form dated :

Description of Performance goal/learning objective:

Time frame for this goal to be accomplished by student Deadline Date:

Student Signature:

Preceptor Signature:

Did the student successfully accomplish the performance goal or learning objective?
(Explanation by preceptor)

Preceptor's Signature:

MASTER CHECK-OFF LIST

STUDENT _____ DATE SUBMITTED _____

	OK	Date	Initials
I. ASEPTIC TECHNIQUE			
1. Maintain infection control and use universal precautions including:			
a. Hand washing and cleaning / disinfection, as appropriate			
b. Use of sterile cover for transducer and cable when appropriate			
c. Use of gloves and other barrier technology as required			
II. QUALITY CONTROL AND SAFETY			
1. Ensures safe and effective equipment operation including:			
a. Inspect for electrical hazards			
b. Inspect for mechanical hazards			
c. Recognize common signs of equipment failure or malfunction and takes Appropriate action.			
d. Assess instrument performance over time and identify performance degradation When present.			
2. Provides patients and co-workers with information on:			
a. How an ultrasound instrument works.			
b. The potential for biological effects from diagnostic ultrasound.			
c. Published AIUM statements on bio effects			
III. PROFESSIONAL CONDUCT			
1. Protects patients' rights and privacy			
2. Performs within the scope of practice of an echocardiographer			
3. Adheres to the Echocardiographer's Code of Conduct			
IV. ORAL AND WRITTEN COMMUNICATION			
1. Maintains clinical records			
2. Correctly employs oral and written summaries with the interpreting physician or Other appropriate physician as permitted by clinical rules and procedure.			
3. Recognizes significant clinical information and historical facts, which may affect the echocardiology study, from patient interview and medical records			
4. Comprehends and employs appropriate medical terminology, abbreviations, Symbols, terms and phrases.			
5. Verifies orders, checks patient chart for physician order, signs off order Appropriately.			
6. Responds appropriately to physician orders during an emergency			

	OK	Date	Initials
IV. ORAL AND WRITTEN COMMUNICATION (continued)			
G. Completes request forms appropriately:			
1. Patient stamp or name, age, sex and medical record number, charge number, diagnosis, height and weight, ordering physician's name			
2. Complete form with appropriate cardiology group stamp			
3. Document if Doppler is required.			
V. PATIENT INTERACTION			
A. Verify correct patient (e.g., check arm band)			
B. Introduces self to patient and explains the procedure			
C. Correctly prepares the patient for procedures			
1. Maintains patient privacy			
2. Positions patient in proper position for the study			
3. Instructs patient to relax			
4. Connects the correct leads to the electrodes			
5. Enters correct patient information into the echocardiographic machine			
6. Employs Universal Precautions.			
7. Respond to the patient's needs and concerns			
IV. DEMONSTRATE THE ABILITY TO:			
A. Do mathematical calculations and use instrument controls.			
B. Utilize keyboard functions.			
C. Enter correct patient information into the instrument memory.			
D. Select appropriate ultrasound system transducer(s) for the examination			
E. Set initial power output and instrument gain for patient size and age			
F. Select menu items as required for each type of equipment available			
G. Consistently provide best image quality within the limitations imposed by available resources.			
H. Utilize correct protocols of the institution			
V. RECOGNIZE AND IDENTIFY SONOGRAPHIC ANATOMICAL APPEARANCES			
A. Normal and abnormal anatomic structures, physiology and hemodynamics.			
1. Cardiac chambers and related septa			
2. Right atrium			
3. Left atrium			
4. Right ventricle			
5. Left ventricle			
6. Great vessels			
B. Knowledge of gross and sectional anatomy			
1. Image the anatomical structures in region of interest			
2. Recognize the echocardiographic appearance of normal and abnormal tissue structures			
C. Knowledge of physiology, pathology, and pathophysiology			
1. Obtain and evaluate pertinent patient history and physical findings			
2. Extend standard imaging protocol as required by patient history or initial echocardiographic findings.			
3. Review image documentation and related data from current and previous examinations			
4. Produce written summary of technical findings, including relevant interval changes for the interpreting physician's reference			
5. Recognize examination findings that may require immediate clinical response and notifies the interpreting physician or other appropriate physician, as allowed by clinical rule and procedure.			

	OK	Date	Initials
VI. DEMONSTRATES, IDENTIFIES AND PERFORMS			
A. Plan procedure			
1. Determine purpose of procedure			
2. Determine method and sequence of procedure			
3. Check chart for relevant information			
4. Anticipate special procedures or equipment needed			
5. Anticipate special complications			
6. Obtain relevant information from chart, doctor, and/or patient			
B. Able to turn on ultrasound systems and all peripheral devices on system			
C. Recognize conditions under which power-up should not be attempted			
D. Perform basic trouble-shooting and repair when power-up failure occurs			
E. Recognize transducer type (linear, sector curvilinear, etc.)			
F. Recognize operational principle of each transducer type (e.g., mechanical or electronic beam steering)			
G. Select appropriate transducer type and frequency for the examination			
H. Read instrument control labels			
I. Recognize common terminology for instrument controls			
J. Attach transducer to instrument			
K. Select/initialize transducer for use in clinical examination			
L. Enter patient data from keyboard or other data input device			
M. Adjust depth of field or view and the location/number of focal zone(s) for optimum imaging, according to body part being examined			
N. Adjust power output and amplification controls, including TGC or equivalent to optimize image quality			
O. Minimize patient exposure to ultrasonic energy			
P. Use instrument controls to adjust pre- and post-processing for optimal image quality			
Q. Adjust Doppler/color Doppler controls to optimize data display			
R. Perform initial imaging and adjust instrument controls to optimize image quality			
S. Perform linear, area, circumference, volume and related measurements from echocardiographic images or data			
T. Recognize and compensate for acoustic artifacts			
U. Use hard-copy devices to obtain permanent documentation of examination findings			
V. Use instrument controls and keyboard or other data input device to annotate the ultrasound image as needed.			
VII. APPLY ACOUSTICAL PHYSICS, DOPPLER ULTRASOUND PRICIPLES			
A. Select proper transducer(s) for examination(s) being performed			
B. Obtain optimal quality echocardiographic data for the specific specialty			
1. B-mode			
2. M-mode			
3. Continuous wave Doppler			
4. Pulsed wave Doppler			
5. Color flow Doppler			

	OK	Date	Initials
VIII. IDENTIFY, RECOGNIZE AND DOCUMENT CARDIAC ANATOMY			
A. Cardiac valves and related apparatus:			
1. Tricuspid valve			
2. Pulmonary valve			
3. Mitral valve and annulus			
4. Aortic valve and annulus			
B. Coronary vessels and regions of myocardium supplied by:			
1. Right coronary artery			
2. Left main coronary artery			
3. Circumflex artery			
4. Anterior descending artery			
C. Pericardium and pericardial sac			
D. Arteries and veins of the thorax			
1. Ascending aorta			
2. Aortic arch			
3. Descending aorta			
4. Pulmonary artery			
5. Pulmonary veins			
6. Superior and inferior vena cava			
E. Associated normal variants			
F. Electrophysiology and conduction system (ECG)			
G. Pulmonary versus systemic circulation			
H. Intracardiac pressures and principles of flow			
IX. RECOGNIZE, IDENTIFY AND DOCUMENT CARDIAC DISEASE, CONGENITAL ANOMALIES OF THE HEART AND GREAT VESSELS			
A. Bicuspid aortic valve			
B. Supra- or sub-valvular stenosis			
C. Pulmonic stenosis			
D. Mitral valve prolapse			
E. Cleft mitral valve			
F. Atrial septal defects			
1. Associated chamber enlargement			
2. Direction of shunt flow			
G. Ventricular septal defects			
1. Associated chamber enlargement			
2. Direction of shunt flow			
H. Atrioventricular septal defect			
I. Epstein's anomaly			
J. Patent ductus arteriosus			
K. Tetralogy of Fallot			
L. Post-operative status			
X. RECOGNIZE, IDENTIFY AND DEMONSTRATE			
A. Mitral stenosis			
B. Mitral regurgitation			
C. Aortic stenosis			
D. Aortic regurgitation			
E. Pulmonary stenosis			
F. Pulmonary regurgitation			
G. Tricuspid stenosis			
H. Tricuspid regurgitation			
I. Endocarditis			
J. Prosthetic valve			
K. Rheumatic valve disease vs. degenerative changes			

	OK	Date	Initials
MITRAL VALVE MEASUREMENTS			
A. 2D			
1. Planimeter MV orifice			
B. Spectral Doppler			
1. Peak Velocity			
2. Mean Velocity			
3. E to A Ratio			
4. Deceleration Time			
5. Pressure Half Time estimate of MVA			
C. Color Doppler			
1. Regurgitant Jet area/left atrial area ratio			
2. Demonstrate stenotic jet on Color			
3. Demonstrate regurgitant jet on Color			
AORTIC VALVE MEASUREMENTS			
A. Spectral Doppler			
1. Peak Velocity			
2. Mean Velocity			
3. Continuity Equation estimate of AVA			
4. Pressure Half Time			
B. Color Doppler			
1. Regurgitant Jet area/ LVOT area ratio			
2. Demonstrate stenotic jet on Color			
3. Demonstrate regurgitant jet on Color			
TRICUSPID VALVE MEASUREMENTS			
A. Spectral Doppler			
1. Peak Velocity			
2. Mean Velocity			
3. SPAP using TR velocity			
B. Color Doppler			
1. Demonstrate stenotic jet on Color			
2. Demonstrate regurgitant jet on Color			
PULMONIC VALVE MEASUREMENTS			
A. Spectral Doppler			
1. Peak Velocity			
2. Mean Velocity			
3. Estimate PA End-Diastolic pressure using PR Jet			
4. Acceleration time			
5. Total ejection time			
B. Color Doppler			
1. Demonstrate stenotic jet on Color			
2. Demonstrate regurgitant jet on Color			
LEFT VENTRICLE MEASUREMENTS			
A. LV Mass			
B. Simpson's Approximation of EF using at least two views			
MISCELLANEOUS MEASUREMENTS			
A. Stroke volume across aortic valve			
B. Stroke volume across mitral valve			
C. IVRT			
D. R-R Interval			
E. Doppler sample of pulmonary venous flow			
F. Doppler sample of hepatic venous flow			
G. Demonstrate reverse flow in hepatic veins/IVC using color			

The Hospital Technologist-Instructor:

The hospital technologist-instructor is a very vital part of the educational process in an ECHO technology program. Because the hospital technologist-instructors are working on a one-to-one basis with students, they are the true instructors for clinical education.

Some of the vital areas that the hospital technologist relates to the student are:

- Actual patient care and management
- Proper scanning skills
- Proper setup and performance of procedures
- Evaluation and approval of quality recordings and calculations
- Maintaining proper professional student behavior
- Assuring that students are actively involved in procedures in assigned area
- Maintain communication with the college instructor concerning listed behaviors

The college instructor communicates with the hospital technologist concerning:

- What theory the students have learned in class
- What procedures the students have been taught in the college laboratory
- The student performance evaluation procedure
- The expectations of the student in clinical education
- Program policies relating to clinical education
- Student area assignments

Clinical Goals and Responsibilities:

Our Goal is to prepare the Echocardiography student for transition into the graduate role.

Preceptor Requirements:

1. Must have a desire to be a preceptor.
2. A minimum of one year of clinical practice (preferred).
3. A minimum of three-six months of employment at current hospital.
4. Must be clinically knowledgeable in area of practice.
5. Must be functioning in direct/indirect patient care.
6. Willing to share responsibilities for student supervision.

Goals:

1. Provide clinical supervision and support for the Echocardiography student.
2. Assist in increasing the student's capabilities and competencies.
3. Decrease the anxiety of the student experiencing transition to graduate Echocardiography student.

Responsibilities:

1. Meets with Echocardiography student to:
 - a. Assess level of functioning
 - b. Identify specific learning needs
 - c. Provides ongoing feedback to the student
2. Plans and makes assignment for assigned Echocardiography student.
3. Notifies Echocardiography instructor and/or Hill College Health and Public Service program (817 760-5921 or 817 760 5933) as necessary.
4. Evaluates student at the completion of each clinical rotation.
5. Retains total responsibility for patient care.

Clinical Instructor Responsibilities:

1. Serves as liaison for the Echocardiography program, preceptor, and Echocardiography student during their education at Hill College.
2. Available to preceptor to discuss Echocardiography student's performance during the student's clinical.

SUGGESTED TRAINING SCHEDULE

You are entering the clinical portion of your Echocardiography Technology education. It will span the remainder of your tenure at Hill College. You will be working in several different hospitals during this time. We divide your time into semesters, but your progress should be a continuum across the entire year. You will have a total of at least 900 hours in the clinical affiliates. This time will be distributed over two semesters, the first is the summer (11 weeks) and the last is a full 16 week sessions. You will be in clinic four days per week during the Summer Semester (Monday through Friday, class Tuesday) and three days per week the remaining semesters (Monday, Wednesday and Thursday).

READ THIS CAREFULLY, and ask your clinical instructor to explain it as needed. The following schedule is designed to be a general outline of goals and objectives. *Each lab and each day will present new and unexpected learning opportunities.* Do not expect to follow this schedule to the letter for the entire 2 semesters. You must however, accomplish each objective on this list by the end of your clinical training. The schedule is designed to build skills in the most reasonable order. For instance, you must observe how to perform color flow Doppler before you actually can do a color flow Doppler study. There is room for moving skill demonstration from one week to another depending on the hospital case load and your ability to perform that skill. The clinical instructor will keep in close contact with you and suggest ways in which you can more efficiently accomplish your goals.

Your preceptor is your most valuable resource. They are precepting you because they are as committed to your success as your clinical coordinator is. Learn early to communicate with them and to count on them for support. Ask lots of questions, pay attention to the answers, and most of all tell them what you want to learn. Ask them specifically to define in very clear terms what their expectations for you are, and how they would like for you to demonstrate your understanding of those expectations. If you do not take advantage of this opportunity to establish trust and communication early, you will lose valuable learning opportunities in the future. Preceptors are not mind readers, nor are they super-human. They simply have a wealth of experience and knowledge to impart to you. Make sure you do your best to nurture good communication from the very beginning. You are a guest in their lab. You are also a colleague of theirs. Take that charge seriously. From this day forward you must think of yourself as a professional, act as a professional, and foster professional attitudes and actions. One day you will probably ask these very people for a job. Give them reason to think highly of you.

The next few pages will detail the content and the time period for each learning opportunity. Some of the items will require a signature or initial for completion on the master check-off form, others will simply be observed. They will all be discussed by you, the clinical instructor, and your preceptor. Use this schedule as a guide for your clinical training. Be sure you check it daily. The best way to accomplish all that is contained in it is to discuss your objectives with your preceptor each Monday at the beginning of the week. Then follow up each day with your preceptor to ensure you both feel you are getting the most from your clinical rotation.

Freely discuss your concerns, fears, questions, and accomplishments with your preceptor. You should not be expected to read their mind and you should not expect them to read yours. Think back on a time when you taught someone to do something for instance, to drive a car, to make a bed, to color within the lines, or to perform a task on a job. What you

most wanted to see in that individual was a willingness to learn and to just get in there and do it. Your preceptors are looking for the same thing in you. Do not cause them to be uncertain of your willingness to try. If you wait to be told what to do, you will often be perceived as uninterested or unmotivated (remember they cannot read your thoughts). So always look for some new challenge and a task that needs to be performed and do it before you are asked to do it. Each time you enter the lab ask yourself this simple question, “What is the most important thing happening right now?” If you cannot figure that out for yourself, ask someone. Then ask yourself, “Is that task being done right now?” If it is not then you must do it. If it is, then look for the second most important thing and do it.

This approach is called problem solving. It is the most important skill you will ever learn. It requires good communication skills, and the ability to work in a team. These are the three most requested skills of employees by bosses. Learn them early, practice them often, and you will be able to anticipate what is coming next and be prepared for that. That will cause the day to go smoothly and efficiently. It will cause people to develop a trust in you. And, it will help ensure that the patient gets the best care possible.

It is important to keep this in mind: ***Every one of us is both a student and a teacher. We are at our best when we each teach ourselves what we need to learn. The more often we have a good attitude, the more often we will have a good day.***

First impressions do count. The first day in the clinical site, be sure to introduce yourself and meet the echocardiology lab team members. Be friendly and eager to learn. Be sure to ask questions. Learn the cardiac arrest and fire codes. Know the location of CPR equipment as well as fire exits and fire extinguishers. Locate and preview procedure manuals. Tour the layout of the echocardiology lab. Start learning the locations of all equipment and supplies in the department and procedure rooms.

Start becoming a member of the echocardiology lab team. Don't sit in the lounge with your feet up - seek out learning opportunities. Remember, the echocardiology lab staff is observing you as a potential employee. Make the most of the learning opportunities available to you. In a short while you will be a graduate of the Echocardiography program and your employers will have certain expectations about your level of skill and knowledge.

We will be using “one-minute” techniques to learn about Echocardiology technology.

Step 1: Take one minute a few times each day to look at your goals and see what you want to learn.

- * Take the time to think about what you want to teach yourself
- * Write your goals briefly, in the first person, present tense, as though you are already achieving them
- * Set a definite time to reach your goals and state what you want to happen
- * As you read your goals, imagine how good you feel as you achieve them.
- * Look at your behavior and see if it matches your goals

Step 2: Take one minute several times each day to praise yourself

- * Praise yourself immediately
- * As soon as you have done something right, tell yourself specifically what you did right
- * Remind yourself that you are indeed a good person
- * Encourage yourself to continue the same good behavior because you want to feel

good again soon - about your behavior and about yourself

Step 3: Take one minute recoveries when necessary

The first half of the minute:

- * As soon as possible, you see when your behavior does not match your goals
- * Tell yourself specifically what you did wrong - what is keeping you from teaching yourself what you want to learn
- * Be silent for a few seconds to quietly feel your “fumble” - the more uncomfortable you feel, the more you want to recover

The second half of the minute:

- * Remind yourself that your behavior is not good right now, but that you are good. Redirect your behavior and feel good about yourself. Do not defend your behavior or make excuses, even to yourself.
- * Teach yourself what you want to learn. Change your behavior and recover.

SUGGESTED GUIDELINES AND SCHEDULE OF LEARNING

Summer Semester:

Objectives:

General Orientation	Introduction to Procedures and
Equipment	
Equipment and Room Set Up	Transporting of Patients
Patient Safety	Introduction to Procedures
Introduction to Equipment	Cardiovascular Anatomy and Physiology
Review	

Week One	<p>General Echo Lab Orientation: How the lab operates Policies and Procedures Daily operation: scheduling, patient admission, bed assignment, case assignment, transport, physician interactions, emergencies, priority setting Procedures performed Involvement with other departments Understanding of Personal Responsibilities and Functions Daily responsibilities of echo tech General Duties: Patient care, clean up, restocking, call schedule Specific duties: Ordering, QA, education, in-services</p>	<p>Goals: Introduction to the system Orientation to the lab To observe the staff performing these functions To be able to define these roles</p>
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Week Two:	General Review of Procedures Performed Location and Use of Supplies and Equipment	Goals: Introduction Observation
Week Three:	General Review of Procedures Performed Location and Use of Supplies and Equipment	Goals: Orientation Introduction
Week Four:	Assist with transport of patients Assist with patient prep Review routine echocardiographic views	Goals: Personal and Patient safety Procedures
Week Five:	Learn different types of transducers Learn different modes Learn recording techniques Continue to review routine echocardiographic views	Goals: Continue familiarizing self with equipment and techniques
Week Six:	Universal precautions and sterile technique: Learn rules and regulation for lab Continue to transport patients and prep patients	Goals: Sterile technique Attention to detail Personal integrity Intro to equipment

<p>Week Seven:</p>	<p>Identify cardiovascular anatomy on the image Continue to assist preparing for procedures Obtain supplies as needed during case Observe screen for normal and abnormal anatomy during case Set up entire room for diagnostic cases Learn and assist special cases</p>	<p>Goals: Introduction to special equipment Introduction to lab set up Increase knowledge of flow of diagnostic case Learn set up of room for special cases</p>
<p>Week Eight:</p>	<p>Observe cases, flow of cases, objectives for diagnosis (A&P), Anticipate next step Learn set up for special procedures Continue to set up routine cases Learn views and modes for coronary angiography Learn best views for each examination</p>	<p>Goals: Introduction to special cases Learn views and modes</p>
<p>Week Nine- Eleven:</p>	<p>Instructor may make clinical assignments as needed.</p>	<p>Goals: Compare and contrast the experiences at the different clinical affiliates</p>

SUGGESTED WEEKLY CLINICAL TRAINING SCHEDULE

Fall Semester:

A highly regulated and specific weekly schedule of learning objectives is not practical because of the variable daily dynamics of each facility. Therefore, during the fall and spring semesters the student is expected to participate in every aspect of the daily routine of the clinical facility and accomplish a series of scan assignments and check-off goals which are geared to systematically develop the student's technical and practical skills. The Preceptor's role is to support, encourage, facilitate and direct this overall objective with consideration to the specific fall objectives outlined below.

Week 1-16	<p>General Goals:</p> <ul style="list-style-type: none"> • Observation • Participation • Maximize supervised scanning practice and assist with technical reporting 	<p>Specific Fall Objectives:</p> <ul style="list-style-type: none"> • Practice Aseptic technique • Practice patient interaction and communication skills • Develop interpersonal communication skills and professional behaviors as outlined during didactic sessions • Practice basic scan views and develop confident acquisition skills for these views • Develop confidence in identifying normal anatomical structures in each view • Develop a confident, practical knowledge of the basic scan measurements for each normal heart structure and valve as covered during didactic sessions and demonstrate accurate measurement techniques • Practice the scan measurements needed to document and quantify abnormal cardiac findings as covered during didactic sessions • Keep accurate and thorough records of experience through daily logs, summary logs, clinical check-off and master check-off sheets
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The provisions contained in the student's clinical manual may be changed at the discretion of the Program Director. When necessary, appropriate notice of such changes will be given to the student

CRIMINAL CONVICTIONS BARRING CLINICAL ATTENDANCE

A student may not attend clinical in any facility if he or she has been convicted of an offense listed in this section:

1. Chapter 19, Penal Code (criminal homicide)
2. Chapter 20, Penal Code (kidnapping and unlawful restraint)
3. Section 21.02, Penal Code (continuous sexual abuse of young child) or Section 21.11, Penal Code (Indecency with a child)
4. Section 21.011, Penal Code (sexual assault)
5. Section 22.02, Penal Code (aggravated assault)
6. Section 22.04, Penal Code (injury to a child, elderly individual, or disable individual)
7. Section 22.041, Penal Code (abandoning or endangering a child)
8. Section 22.08, Penal Code (aiding suicide)
9. Section 25.031, Penal Code (agreement to abduct from custody)
10. Section 25.08, Penal Code (sale or purchase of a child)
11. Section 28.02, Penal Code (arson)
12. Section 29.02, Penal Code (robbery)
13. Section 29.03, Penal Code (aggravated robbery)
14. Section 21.08, Penal Code (indecent exposure)
15. Section 21.12, Penal Code (improper relationship between educator and student)
16. Section 21.15, Penal Code (improper photography or visual recording)
17. Section 22.05, Penal Code (deadly conduct)
18. Section 22.021, Penal Code (aggravated sexual assault)
19. Section 22.07, Penal Code (terroristic threat)
20. Section 33.021, Penal Code (online solicitation of a minor)
21. Section 34.02, Penal Code (money laundering)
22. Section 35A.02, Penal Code (Medicaid fraud)
23. Section 42.09, Penal Code (cruelty of animals)
24. A conviction under the laws of the state, federal, or Uniform Code of Military Justice for an offense containing elements that are substantially similar to the elements of an offense listed above.

A student may not attend any clinical facility before the *fifth anniversary* of the date the person is convicted of an offense listed below:

1. Section 22.01, Penal Code (assault), that is punishable as a class A misdemeanor or as a felony
2. Section 30.02, Penal Code (burglary)
3. Chapter 31, Penal Code (theft), that is punishable as a felony
4. Section 32.45, Penal Code (misapplication of fiduciary property or property of a financial institution), that is punishable as a class A misdemeanor or a felony
5. Section 32.46, Penal Code (securing execution of a document by deception), that is punishable as a class A misdemeanor or felony
6. Section 37.12, Penal Code (false identification as a peace officer)
7. Section 42.01 (a)(7), (8), or (9), Penal code (disorderly conduct)

A person who is placed on deferred adjudication community supervision for an offense listed, successfully completes the period of deferred adjudication community supervision, and receives a dismissal and discharge in accordance with Section 5©, Article 42.12, Code

of Criminal Procedure, is not considered convicted of the offense for which the person received deferred adjudication community supervision.

Learning Competencies

The general sonographer, cardiac sonographer, and vascular technologist are able to perform the following:

- Obtain, review, and integrate pertinent patient history and supporting clinical data to facilitate optimum diagnostic results
- Perform appropriate procedures and record anatomic, pathologic, and/or physiologic data for interpretation by a physician;
- Record, analyze, and process diagnostic data and other pertinent observations made during the procedure for presentation to the interpreting physician;
- Exercise discretion and judgment in the performance of sonographic and/or other diagnostic services;
- Demonstrate appropriate communication skills with patients and colleagues;
- Act in a professional and ethical manner;
- Provide patient education related to medical ultrasound and/or other diagnostic vascular techniques, and promote principles of good health.

Learning Competencies Common to Each Concentration

The minimum competency offered by the program must include the following:

a. Utilize oral and written communication.

- (1) Maintain clinical records;
- (2) Interact with the interpreting physician or other designated physicians with oral or written summary of findings as permitted by employer policy and procedure
- (3) Recognize significant clinical information and historical facts from the patient and the medical records, which may impact the diagnostic examination;
- (4) Comprehend and employ appropriate medical terminology, abbreviations, symbols, terms, and phrases; and
- (5) Educate other health care providers and the public in the appropriate applications of ultrasound and other diagnostic vascular evaluation, including the following:
 - Medical terminology
 - Sonographic/other vascular terminology
 - Pertinent clinical signs, symptoms, and laboratory tests
 - Pertinent legal principles

b. Provide basic patient care and comfort.

- (1) Maintain infection control and utilize standard precautions;
- (2) Anticipate and be able to respond to the needs of the patient; and
- (3) Identify life-threatening situations and implement emergency care as permitted by employer procedure, including the following:
 - Pertinent patient care procedures
 - Principles of psychological support
 - Emergency conditions and procedures
 - First aid and resuscitation techniques

(4) Proper patient positioning

c. Demonstrate knowledge and understanding of human gross anatomy and sectional anatomy.

- (1) Evaluate anatomic structures in the region of interest; and
- (2) Recognize the sonographic appearance of normal tissue structures.

d. Demonstrate knowledge and understanding of physiology, pathology, and pathophysiology.

- (1) Obtain and evaluate pertinent patient history and physical findings;
- (2) Extend standard diagnostic testing protocol as required by patient history or initial findings;
- (3) Review data from current and previous examinations to produce a written/oral summary of technical findings, including relevant interval changes, for the interpreting physician's reference and
- (4) Recognize examination findings that require immediate clinical response and notify the interpreting physician of such findings, including the following:
 - Patient interview and examination techniques
 - Chart and referral evaluation
 - Diagnostic testing protocols related to specific disease conditions
 - Physiology including blood flow dynamics
 - Pertinent pathology and pathophysiology
 - Pertinent legal issues

e. Demonstrate knowledge and understanding of acoustic physics, Doppler ultrasound principles, and ultrasound instrumentation in evaluating pathology.

- (1) Select the appropriate technique(s) for examination(s) being performed
- (2) Adjust instrument controls to optimize image quality;
- (3) Perform measurements from sonographic images or data.
- (4) Recognize and compensate for acoustical artifacts
- (5) Utilize appropriate devices to obtain pertinent documentation
- (6) Minimize patient exposure to acoustic energy
- (7) Apply basic concepts of acoustic physics.
- (8) Emerging Technologies

f. Demonstrate knowledge and understanding of the interaction between ultrasound and tissue and the probability of biological effects in clinical examinations.

- (1) Biologic effects
- (2) Pertinent in-vitro and in-vivo studies
- (3) Exposure display indices
- (4) Generally accepted maximum safe exposure levels

g. Employ professional judgment and discretion.

- (1) Protect the patient's right to privacy based on current federal standards and regulations;
- (2) Maintain confidentiality; and
- (3) Adhere to the professional codes of conduct/ethics through the following:
 - Medical ethics
 - Pertinent legal principles
 - Professional interaction skills
 - Diagnostic Medical Sonography
 - Professional scopes of practice

h. Understand the fundamental elements for implementing a quality assurance and improvement program, and the policies, protocols, and procedures for the general function of the ultrasound laboratory, including the following:

- (1) Administrative procedures
- (2) Quality control procedures
- (3) Elements of quality assurance program
- (4) Records maintenance
- (5) Personnel and fiscal management
- (6) Trends in health care systems

i. Recognize the importance of continuing education, through the following:

- (1) Professional journals
- (2) Conferences
- (3) Lectures
- (4) In-house educational offerings
- (5) Professional organizations and resources
- (6) Recent developments in sonography
- (7) Research statistics and design

j. Recognize the importance of, and employ, ergonomically correct scanning techniques:

- (1) Personal fitness
- (2) Supports, tools, and devices
- (3) Equipment adjustments
- (4) Patient positioning

The General Learning Concentration must include the following:

a. Demonstrate the ability to perform sonographic examinations of the heart

b. Recognize and identify the sonographic appearance of normal anatomic structure

c. Recognize, identify, and appropriately document the cardiac sonographic and Doppler patterns of disease processes, pathology, and pathophysiology of the structures listed in III.C.4.b.

- Modify the scanning protocol based on the sonographic findings and the differential diagnosis.
- History and physical examination
- Related imaging, laboratory, and functional testing procedures
- Clinical differential diagnosis
- Role of ultrasound in patient management
- Sonographic and Doppler patterns in clinical diseases that may occur in the following categories:
 - Iatrogenic
 - Degenerative
 - Inflammatory
 - Traumatic
 - Neoplastic
 - Infectious
 - Obstructive
 - Congenital
 - Metabolic
 - Immunologic

d. Demonstrate knowledge and understanding of the role of the sonographer in performing Interventional and invasive procedures.

e. Knowledge of importance and impact of other laboratory values and invasive and non-invasive testing/imaging modalities.

f. Demonstrate proficiency in the performance of physiologic testing (including volume pulse recording, pressure measurements, and stress testing), real-time ultrasound imaging, and Doppler evaluation (pulsed and continuous wave, color and power flow) as relates to the vasculature.