Academic Program Review

Engelstad School of Health Sciences

Diagnostic Medical Sonography Program

Cardiac/Vascular Track

Spring 2019

Table of Contents

Mission

CSN Mission Statement

The College of Southern Nevada creates opportunities and enriches lives with inclusive learning and working environments that support diversity and student success. The College fosters economic development, civic engagement, and cultural and scientific literacy, while helping students achieve their educational, professional, and personal goals.

CSN Vision Statement

The College of Southern Nevada is recognized as a leader among community colleges in fostering student success.

CSN is committed to:

- *Exceptional Learning Environments*, which integrate career and liberal arts education, to shape well-rounded, engaged citizens, employees, and community leaders.
- *Developing Solution-Oriented Strategies* to help students overcome barriers to educational access and success.
- *A Culture of Accountability* in which we balance data-informed decision making with flexibility and responsiveness to stakeholders, individuals, and events.
- *A Collegial Work Environment* that makes CSN the "employer of choice" for an exceptional workforce that is engaged in and accountable for the quality of CSN's learning environment, and that benefits from excellent support, growth opportunities, and competitive total compensation packages.
- *Quality Community Partnerships* that provide resources and educational opportunities to develop a skilled workforce.
- *Cultural and Academic Initiatives* that promote the advancement and appreciation of the arts, sciences, and humanities, contributing to the richness of our multicultural community.

CSN Values Statement

CSN values the following:

Lifelong Learning: CSN values a broad-based education because a diverse foundation of knowledge empowers creative thinking, problem solving, and innovation.

Excellence: CSN understands that achieving and surpassing our goals requires care, commitment, and quality in teaching, learning, scholarship, service, and administration.

Integrity: CSN places fairness, honesty, transparency, and trust at the center of all policies and operations.

Inclusion: CSN embraces diversity because it heals social division and injustice, and promotes creativity, growth, and critical thinking through the integration of many different perspectives.

Academic Freedom: CSN values freedom of thought and speech because open minds and uninhibited discussions are fundamental to teaching, learning, and responsible civic engagement.

Connectedness: CSN builds a collective identity through shared governance, effective communication and collaboration among students, faculty, staff, and community members.

DMS Program Mission

The goal of the Cardiac/Vascular Ultrasound Track is to prepare competent entry-level adult cardiac sonographers in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains. This goal is partially achieved by providing the student with the high-level training necessary in the skill-oriented field of Ultrasound Technology through scanning lab practice and clinical rotations. In order to provide a sound foundation for further advancement, emphasis is placed on the "why", not just the "how." Thus, a student learns why the skill is performed as prescribed and what results can be from the correct versus the incorrect technique.

The program is committed to providing an integrated curriculum as determined by the JRC-DMS, which in turn will help ensure that our learners are prepared to sit for the national certification exams as well as become an integral part of the healthcare workforce as a sonographer at the local and national level. This directly supports CSN's mission by ensuring sonography students achieve their educational, professional, and personal goals. Through their education, students acquire economic stability and are in a position to advance themselves through the pursuit of a higher degree or in the profession of sonography itself.

Institutional Research Data

The Cardiac/Vascular track of the Sonography Program leads to an Associate in Applied Science Degree and accepts a maximum of 10 learners per year. The data tables provided from institutional research are attached at the end of the report. Not all of the data is accurate so my comments will be focused on data reported in CAAHEP annual reports.

Since its last program review the Cardiac/Vascular Track of the Sonography Program accepted a total of 41 learners in 2015, 2016, 2017 and 2018. The total number of available positions in this track of the sonography program for those years was 40, indicating a greater than 100% overall enrollment rate. One learner was given an acceptance letter in error and the program chose to accept him which explains the discrepancy between available positions and accepted positions.

Graduation rates and attrition rates for the program are in the table below.

Graduation Year	# Students Admitted	# Students Graduating	Graduation Rate	Attrition Rate
2015	10	8	80%	20%
2016	10	8	80%	20%
2017	10	8	80%	20%
2018	11	9	82%	18%

The reason for program withdrawal and failure to graduate fell into three categories: 5 students left due to an academic failure, 2 students left for personal/medical reasons and one student left due to professional misconduct. According to our CAAHEP accreditation standards, attrition rates can be 20% or less. This puts the CSN program in accreditation compliance for all years reported.

The college hosts numerous occasions where recruitment can occur. College and Job fairs, orientations and student counseling, health programs advisement, as well as our own advisory

board and word of mouth from current and former learners, has led to a steady increase in the number of learners applying for entry into the sonography programs. Retention of those learners admitted into the sonography programs has not proposed much of a problem. In fact, the vast majority of learners admitted to the sonography programs progress on to graduation.

Although the field of sonography is constantly changing, especially technologically, and individual courses have to be updated to meet those changes, there have been no major changes to the overall program curriculum. In fact, when compared to other institutions that provide CAAHEP accredited programs, the sonography programs at CSN are quite comparable. The one difference appears to be that the number of credit hours required for completion is approximately 60 credits in most other institutions, whereas 93 credit hours in the general program or 92 credits hours in the cardiac program are required at CSN for completion. The increased number of credits required for graduation from our sonography programs is due to inclusion of the Vascular Sonography component to both tracks of the sonography programs. Either other benchmark institutions do not offer the Vascular Sonography component or it is offered as an optional component of the sonography program.

Both tracks of the sonography programs are currently accredited by CAAHEP and the JRC-DMS. As a result of accreditation, our learners are able to take the national ARDMS registry exams early. They can sit for the Sonography Principles and Instrumentation exam after the first year of the program and they can sit for their specialty exam 60 days prior to graduation. This allows them to obtain their credentials immediately after graduation and become eligible to work right away. Learners graduating from non-accredited institutions have to work in the field for one year full-time or two years part-time, before the ARDMS will allow them to take the national registry exams.

Faculty Information

Program Director

Each track of the Diagnostic Medical Sonography Program is organized under the same program director, the director reports to the Department Chair of Health Related Professions, and the Dean of the School of Health Sciences. The general and cardiac tracks each have a separate full-time clinical coordinator who reports to the program director. The program does not currently employ any part-time faculty.

Tracy McCord is the Program Director for both tracks of the Sonography Program. She is a market-hire faculty member who holds ARDMS credentials in abdominal sonography, adult echocardiography, and vascular sonography. Tracy teaches the following courses: Son 101B Basic Sonography, Son 102B Basic Cardiac Sonography, Son 102L Basic Cardiac Sonography Lab, Son 160B Scanning Lab I, Son 116B Echocardiography I, Son 216B Echocardiography II, Son 195B Scanning Lab II, Son 275B Vascular Sonography I, Son 275L Vascular Sonography Lab II, Son 250B Case Review I, Son 135B Cardiovascular Physics, Son 276B Vascular Sonography II, and Son 255B Case Review II. She also holds a BS degree in Radiological Sciences, with an emphasis in Ultrasound as well as a MEd in Educational Leadership with an emphasis in Workforce Education.

Tracy is an active member of the program with extensive professional development activities and institutional service. These activities include, but are not limited to:

- Attended four separate CAPE sessions on Assessment.
- Served on the college wide Assessment Council.

- Served on the School of Health Sciences Assessment Committee as assessment coordinator.
- Served on program advisory board.
- Served on DMS OB/Gyn Concentration Coordinator search committee.
- Served on Work Climate Committee.
- Served on implementation and monitoring team through the Work Climate Committee.
- Attended ASE national echocardiography convention in Boston.
- Member of the American Society of Echocardiography.
- Maintained CMEs for three ultrasound credentials.
- Served on Limited Entry Policy Committee.
- Completed cardiac ultrasound simulator training.
- Served on DMS Instructor search committee.
- Attended CAPE session on Curriculum and Curricunet.
- Completed in-service training on new Philips ultrasound system.
- Current Program Director for DMS program.
- Attended 20th Annual Pediatric Heart Conference.
- Served on Dental Hygiene Instructor search committee.
- Attended CAPE session on Multiple Choice Questions.
- Attended and presented at the Forum on Assessment offered through CAPE.
- Maintained CAAHEP accreditation status by completing annual reports, submitting a self-study and successfully hosting a site visit.
- Attended 18th Annual ASCeXAM Review Course in Philadelphia. Participated in CSN's Health Career Exploration Camp 2018

Jodi Gonz is the Clinical Coordinator for the cardiac/vascular track of the program. She is a market-hire faculty member who holds ARDMS credentials in adult echocardiography and CCI credentials in pediatric echocardiography. Jodi teaches the following courses: Son 160B Scanning Lab I, Son 280B Clinical I, Son 125B Sonographic Physics I, Son 190B Sonographic Physics II, Son 281B Clinical II, Son 195B Scanning Lab II, Son 225B Stress Echocardiography, Son 282B Clinical III, Son 283B Clinical IV, Son 261B Pediatric Echocardiography I, Son 250B Case Review I, Son 291B Cardiac Registry Review, Son 284B Clinical V, and Son 262B Pediatric Echocardiography II. She holds a BS in

Jodi is an active member of the program with extensive professional development activities and institutional service. These activities include, but are not limited to:

- ASE Conference Boston
- Pediatric Heart Conference
- CCI Educators Forum Local
- Classes at Nevada State toward BS
- Faculty advisor for the Sonography Club
- Salary & Benefits Committee
- Advisory board member
- Campus Save Act Training
- Scholarship committee
- Tech Expo
- Classes at Nevada State completion of BS
- Scholarship committee
- Dental Hygiene Search committee Chair
- Safety Task Force committee
- Search committee for Diagnostic Ultrasound

- ASE Philadelphia conference
- Pediatric Heart conference
- Work Climate committee
- Reinstatement committee
- Special Hearings committee
- Two Cape sessions- Test questions & Workday
- Annual Sonography Alumni Gathering Director and Planner

Sheena Guynn is an instructor for the general/vascular track of the program. She is a market-hire faculty member who holds ARDMS credentials in abdominal sonography, OB/Gyn sonography, vascular sonography and adult echocardiography. Sheena teaches Son 276L Vascular Scanning Lab II for the cardiac/vascular track of the program. Her other courses are part of the general program curricula. She holds a BS in

Sheena is an active member of the program professional development. However, her institutional service has not been established since she is new to the college. These activities include, but are not limited to:

- Attended Current Practice of Vascular Ultrasound: The New Edition
- Attended Contrast Echo Drives Operation Efficiency and Improves Quality of Care
- Attended Contrast Echo A Proven Impact on Patient Management
- Attended 21st Annual Heart Conference
- Attended Calf Vein Imaging
- Member of the SDMS

All four faculty members of the sonography program have extensive years of experience in the field and hold multiple ultrasound credentials. Since the last academic program review, one faculty member has retired and one has moved on to a position in administration at CSN. We have hired a new clinical coordinator and instructor for the general/vascular program as replacements. Student course critiques and annual faculty evaluations show students are overwhelmingly satisfied with the quality of instruction that is offered by the program.

Student Information

Both tracks of the sonography program are limited entry and accept only 10 students each year. The following is the advising sheet for the cardiac/vascular track as well as the selection criteria.

Diagnostic Medical Sonography

Cardiac/Vascular Ultrasound Track

Associate of Applied Science (92 Credits)

For Students Seeking Admission to the Summer 2020 Program

PROGRAM PREREQUISITE COURSES: These are courses that must be completed before a student is considered eligible for entry into the program. **FOR SELECTION PURPOSES, PREREQUISITE COURSES FOR LIMITED ENTRY PROGRAMS MAY BE ATTEMPTED *THREE TIMES.* ALL ATTEMPTS INCLUDE WITHDRAWALS, AUDITS AND GRADES. THE HIGHEST GRADE WILL BE USED FOR THE GPA CALCULATION.**

Course	Title	Cr	Gen Ed Req.	Tech Prep	Min. Grade
BIOL 223	Anatomy & Physiology I	4	Science	No	C
BIOL 224	Anatomy & Physiology II	4	Science	No	C
MATH 116 or	higher (Except Math 122 & 123)	3	Math	No	C
PHYS 110	Conceptual Physics or any College Physics with Lab**	4	Science	No	C
HIT 117B	Medical Terminology I	1	Tech. Emphasis	Yes	C
ENG 101/100	Composition I	3	English	No	C
or					

ENG	107	Technical Communications I	3	English	Yes	C
			Total 19			

****EGG 131/131L will also be accepted for the Physics requirement.**

ADDITIONAL GENERAL EDUCATION REQUIREMENTS:

Communications: (see AAS degree requirements 3 Cr • College Catalog)
U.S. & Nevada Constitution: (see AAS degree 4 Cr requirements in College Catalog)
Human Relations: (see AAS degree requirements in 3 Cr College Catalog
Social Sciences/Humanities: (see AAS degree require- 3 Cr inCollege Catalog)

IMPORTANT POINTS TO REMEMBER:

Selection Occurs: Once a year in
•Program Begins: Summer 2020
•Application Deadline: **February 1, 2020**
Proof of completion of all program prerequisites must be in the Limited Entry Office by this date.
) •Maximum number of students admitted: **10**
•Science courses must be no more than 7 years old at the time of entry into the program.

Total 13 Cr

PROGRAM COURSES: These are specialized courses within a health discipline. They are restricted to students who have been accepted into the program. Program courses are subject to revision; this will not impact program admission.

1st Semester (Summer)	***2nd Semester (Fall)***	***3rd Semester (Spring)***	***4th Semester (Summer)***	***5th Semester (Fall)***	***6th Semester (Spring)***
SON 102B.....3 cr Basic Cardiac Sonography	SON 160B.....2 cr Scanning Lab I	SON 190B.....3 cr Sonographic Physics II	SON 282B.....3 cr Clinical III	SON 283B.....3 cr Clinical IV	SON 276B.....3 cr Vascular Sonography II
SON 102L.....1 cr Basic Cardiac Sonography Lab	SON 280B.....2 cr Clinical I	SON 281B.....2 cr Clinical II		SON 261B.....3 cr Pediatric Echo I	SON 276L.....1 cr Vascular Sonography Lab II
SON 150B.....2 cr Patient Care (inc. EKG & venipuncture)	SON 125B.....3 cr Sonographic Physics I	SON 216B.....3 cr Echocardiography II		SON 275B.....3 cr Vascular Sonography I	SON 291B.....2 cr Registry Review
SON 150L.....1 cr Patient Care Lab	SON 116B.....3 cr Echocardiography I	SON 195B.....2 cr Scanning Lab II		SON 275L.....1 cr Vascular Sonography Lab I	SON 284B.....3 cr Clinical V
		SON 225B.....3 cr Stress Echocardiography		SON 250B.....2 cr Case Review I	SON 255B.....2 cr Case Review II
				SON 135B.....2 cr Cardiovascular Physics	SON 262B.....2 cr Pediatric Echo II
Total Sem.....7 cr	**Total Sem.....10 cr**	**Total Sem.....13 cr**	**Total Sem.....3 cr**	**Total Sem....14 cr**	**Total Sem.....13 cr**
12/18					**Total Program Course Credits 60**

College of Southern Nevada
Summer 2020 Diagnostic Medical Sonography Selection Criteria

Qualified applicants must have a High School Diploma or GED equivalent, a minimum 2.5 cumulative GPA for all program prerequisites, a minimum of 20 hours of clinical observation, and a minimum cut-off score of 80% in Reading, 60% in Math, 60% in Writing, and 60% in Science on the ATI TEAS Exam. Applicants will be ranked and selected through a point system:

Cumulative GPA for all Program Prerequisites:

- (0.4 points for each fractional grade point average over 2.5 will be awarded)

GPA	Points	GPA	Points	GPA	Points
2.6	0.4	3.1	2.4	3.6	4.4
2.7	0.8	3.2	2.8	3.7	4.8
2.8	1.2	3.3	3.2	3.8	5.2
2.9	1.6	3.4	3.6	3.9	5.6
3.0	2.0	3.5	4.0	4.0	6.0

- **ATI TEST OF ESSENTIAL ACADEMIC SKILLS (TEAS) and KAPLAN ADMISSION TEST (KAT):** (point(s) for selection will be based on the **Adjusted Individual Total Score**).

ATI (TEAS)		Kaplan	
RANGE	**POINTS**	**RANGE**	**POINTS**
64-70%	0 points	69-71%	0 points
71-77%	1 point	72-76%	1 points
78-84%	2 points	77-81%	2 points
85-90%	3 points	82-88%	3 points
91% and higher	4 points	89% & higher	4 points

PLEASE NOTE: TEAS AND KAT COMPONENTS WITH MINIMUM CUT-OFF SCORES IN ORDER TO **QUALIFY** TO APPLY:

ATI (TEAS)		Kaplan	
AREA OF TESTING	**MINIMUM CUT-OFF SCORE**	**AREA OF TESTING**	**MINIMUM CUT-OFF SCORE**
READING	80%	READING	80%
MATH	60%	MATH	80%
ENGLISH	60%	WRITING	60%
SCIENCE	60%	SCIENCE	60%

- Applicants who fail to establish the minimum cut-off score in **each** area will be required to re-take the **entire** exam. Each test is considered a combined complete entity. There will be NO combination of scores from separate tests.
- The completion deadline date for application materials is used as the reference point for time frames.
- **Note: The Kaplan Exam must be taken prior to December 31, 2016 and will be accepted until December 31, 2021. Kaplan Exams taken after December 31, 2016 will not be accepted. TEAS or Kaplan Exam scores older than (5) years at the time of application will not be considered. Students who have taken the TEAS or Kaplan exam from another state and/or institution must have all their scores officially transferred to CSN before their specified application deadline. An unofficial copy must also be presented with the limited entry packet.**
- The **TEAS Registration Information** is available online at: https://www.csn.edu/sites/default/files/documents/teasexam1_chk.pdf

College of Southern Nevada
Summer 2020 Diagnostic Medical Sonography Selection Criteria (con't)

Earn a Credential: (2 points)

- **Credentialed Health Occupation** (EMT, CNA, Orderly, etc.) A copy of the current credential must be supplied.

Healthcare Experience:

Paid Medical Field Experience:** (2 points)

- **Health Care Work Experience** - at least 6 months within the last two years.
  - Documentation form completed by employer indicating work responsibilities and length of employment must be supplied. Clerical work will not meet the requirement. The Health Care Experience Documentation Form is available online at: https://archive.csn.edu/sites/default/files/documents/dms_healthcare_experience.pdf

Volunteer Work in the Medical Field:** (2 points)

- Completed volunteer work in the medical field consisting of a minimum of 40 hours in the previous 12 months*******. Volunteer work must include some form of patient interaction (e.g., assist patients to/from exam room; prepare equipment with a Sonography technician; assist nurses in patient transfers – from wheelchair to bed, etc.). **Clerical work will not meet the requirement.**

    - Note: Letter from the organization(s) where volunteer work was performed must specifically include the following:
        - On letterhead
        - Date letter was written
        - Student's name
        - Location of volunteer work
        - Date volunteer work began and ended
        - Number of volunteer hours completed
        - Specific job duties
        - Supervisor's contact information
        - Supervisor's signature

******Points will only be awarded for either previous medical field experience ***or*** volunteer work in the medical field. **Points cannot be combined from these two categories.**

*******The completion deadline date for application materials is used as the reference point for time frames.

College of Southern Nevada
Summer 2020 Diagnostic Medical Sonography Selection Criteria (con't)

20 Hours of Clinical Observation: (required)

- 20 hours of Clinical Observation of a credentialed sonographer is mandatory for program application.
- Students who cannot obtain these hours in the community may complete their observation hours at the Diagnostic Medical Sonography Program Scanning Lab on the West Charleston campus (Engelstad School of Health Sciences or K building room 305).
- Scanning lab hours will be posted on the Diagnostic Medical Sonography Program website.
- Documentation forms for the required 20 hours of clinical observation are available online at: https://archive.csn.edu/sites/default/files/documents/dms_observation_record.pdf

Completion of General Education Requirements: (3 points)

Points will be awarded **ONLY** if **ALL** General Education requirements are met by the completion deadline.

Previous Graduate: (5 points)

- Points will be awarded to an applicant who has previously graduated from the cardiac/vascular track of the Diagnostic Medical Sonography Program at the College of Southern Nevada.

- Points can also be given to a currently enrolled student in the cardiac/vascular track of the Diagnostic Medical Sonography Program at the College of Southern Nevada with an anticipated graduation date that falls prior to the start of the program they are applying for. The current program director will provide a memo verifying their enrollment status and anticipated graduation date. These points are contingent upon graduation. Should the learner fail to graduate then their acceptance into the program will be reevaluated.

These Guidelines are subject to change without notification. Please contact Health Programs Advising for more information at: 702.651.5885 or 702.651.4415.

Assessment Information

The following are the last three assessment reports for the cardiac concentration of the DMS program. The 2018 assessment report is due on May 1, 2019 and will be reported to the dean, department chair and office of assessment along with a four-year assessment plan.

Assessment is completed based on the four approved program learning outcomes listed below:

- Assess and facilitate basic patient care and comfort during sonographic procedures.
- Evaluate ultrasonic images for appropriate anatomy and recognize pathologic conditions.
- Determine proper sonographic techniques, transducer size, and image settings to obtain quality images while operating ultrasound equipment.
- Diagnose and adapt ultrasound examinations during the performance of an ultrasound procedure.

ASSESSMENT REPORT 2013-2014

Date Submitted: February 9, 2015

School: Engelstad School of Health Sciences

Program: AAS Diagnostic Medical Sonography – Cardiac Vascular Tract

Submitted By: Tracy Lopez, Program Director

1. Project Overview and Assessment Goals

A. The current assessment plan is evaluating the following program outcomes:
   1. Assess and facilitate basic patient care and comfort during sonographic procedures.
   2. Determine proper sonographic techniques, transducer size, and image settings to obtain quality images while operating ultrasound equipment.
   3. Evaluate ultrasonic images for appropriate anatomy and recognize pathologic conditions.
   4. Diagnose and adapt ultrasound examinations during the performance of ultrasound procedure.

B. Student outcomes are assessed by using a randomized exit competency that is administered in the last semester of the program in their SON 284B course, just prior to graduation. The students draw an ultrasound exam from a list of required

competencies that must be completed by graduation from a master competency list. All four program outcomes are broken down into value criterion and evaluated with a rubric during the students' completion of the randomized competency.

C. This assessment report is in line with the assessment plan submitted to the school assessment coordinator on November 6, 2014. No changes were made.

D. The Diagnostic Medical Sonography program revised its assessment to include more direct methods in hopes of garnering more useful data for program improvement. Because of this, no previous report is available for conclusions or changes. Methods prior to revision were primarily indirect and were based on accreditation requirements.

2. Project Design and Coherence

A. Direct measure of student learning is completed as a component of SON 284B – Clinical Practicum V. This is the last clinical rotation in the sonography program prior to graduation taught by the Cardiac Clinical Coordinator, Jodi Gonz. A randomized competency exam is selected from the list of exams on the master competency list.

B. An evaluation rubric was used to assess student learning during the performance of the randomized competency. The rubric was developed by program faculty with input from the advisory board. Please see the appendix for a copy of the evaluation rubric.

C. The rubric addresses each program learning outcome by breaking each down into main value criterion for mastery of each outcome. Each value criterion was established using expectations stated in the Commission on Accreditation of Allied Health Education Programs (CAAHEP) standards and guidelines for the accreditation of education program in diagnostic medical sonography. The standards and guidelines are designed to establish minimum expectations for program goals and must be clearly defined.

D. The evaluation rubric divides each outcome into anywhere from three to five value criterion depending on the outcome (see attached rubric). The rubric uses a scale with 0=Unsatisfactory, 1=Fair, 2=Good, and 3=Excellent. The levels of achievement were established first by assigning an "excellent" rating as demonstration of the value criterion at the level expected of a competent entry-level sonographer, as recommended by the CAAHEP standards and guidelines. Then the rating of "unsatisfactory" was assigned with a complete failure to demonstrate competency in each category. The remaining categories of "fair" and "good" were then added with a variation in the amount of mistakes made by the learner.

E. Only two instructors were involved in the administration of the randomized competency and the rubric evaluation of that exam for cardiac learners. There was a lengthy discussion about the construction of the rubric and what would constitute a rating in each area so consistency could be established between instructors and ultrasound concentrations. The instructors also reviewed the rubrics after administration of the competency to ensure they were all in agreement with the assigned rating in each criterion listed for all program outcomes for each learner.

3. Project Methods

Two weeks prior to finals week all senior cardiac sonography students were brought into the sonography scanning lab on the CSN campus. In addition, all junior students were brought in to serve as “mock” patients for the senior students once a competency type had been selected. Junior students were given extensive patient histories so they could accurately represent the type of patient that would be presenting themselves in a clinical setting for that particular exam type.

Each exam that appeared on the master competency list was written separately on a piece of paper and put into a large bowl. Each senior student pulled an exam from that bowl and returned the slip to the bowl afterwards so that each student would have the same set of exams to pull from. Once the exam was selected the appropriate “patient” was assigned from the pool of junior students and the senior student completed the competency with direct observation from the instructor.

After all of the competencies were completed and scored the instructors reviewed the rubrics for each student. The instructors discussed reasons for scoring each criterion and made sure they all agreed on the rating. Once they were in agreement the rubrics were reviewed for results. Strengths and weaknesses were identified and the need for rubric revision was discussed.

4. Project Results

Student	Outcome 1	Outcome 2	Outcome 3	Outcome 4	Total
1	15	12	6	6	39
2	15	10	9	10	44
3	15	11	8	12	46
4	15	12	9	8	44
5	15	8	3	7	33
6	15	8	5	9	37
7	15	10	9	11	45
8	14	7	4	6	31
Average	14.875	9.75	6.625	8.625	39.875
Possible Score	15	12	9	12	48

5. Discussion of Results

- The two areas of primary weakness identified by results occurred with outcome #3 and #4.
- Under outcome #3, the two criterions that demonstrated to be most problematic for some students were their ability to survey adjacent structures during the exam and the ability to correctly annotate the images.
- Under outcome #4, the main criterion was the amount of time the students took to scan.
- The main problem identified with using the random competency was the inability to evaluate the students' recognition of pathology because the "mock" patients were normal subjects without disease.

6. "Closing the loop" actions

- Since there is no previous data to compare to current results, no major changes in the program curriculum or assessment tool will be made until this year's results can be incorporated for comparison.
- The program has acquired transvaginal, transabdominal, and echocardiographic simulators through grant funding so students can be evaluated on their ability to recognize pathology. Training on the phantoms for faculty needs to take place before this happens. The current evaluation tool will most likely need to be revised as a result of the addition of the simulators.

7. Project Ownership

- All four full-time program faculty members were involved in creating the evaluation rubric for the assessment project.
- Once the rubric was completed, it was e-mailed to all advisory board members for input and possible changes.
- Results of the assessment in May were discussed the following week by all faculty members and recommendations for further action were considered. Advisory board members will be notified at the next advisory board meeting for input and comments as well.

APPENDIX

Outcome #1: Assess and facilitate basic patient care and comfort during sonographic procedures.

Criterion	Unsatisfactory	Fair	Good	Excellent
	0	1	2	3
Introduction	Fails to welcome the patient, introduce themself or verify patient identification.	Completes only one of the three introduction tasks.	Completes two of the three introduction tasks.	Welcomes the patient, introduces him/herself, and verifies patient identification.
Patient Safety	Does not wash hands, wear exam gloves, and doesn't clean the transducer, table and machine between patients.	Either washes hands or wears exam gloves but does not do any cleaning of the equipment.	Washes hands or wears exam gloves and does some cleaning of the equipment.	Washes hands, wears exam gloves, and cleans transducer, table and machine between patients.
Patient History	Fails to ask about the patient's medical history, associated testing and symptoms.	Asks one of the three patient history questions.	Asks two of the three patient history questions.	Asks about the patient's medical history, associated testing and symptoms.
Patient Comfort	Provides no support for patient comfort (support pillows) and climate (hot, cold, drafts); no assistance is provided due to any illness or disability.	Provides minimal support for patient comfort (support pillows) and climate (hot, cold, drafts); minimal assistance is provided due to any illness or disability.	Provides moderate support for patient comfort (support pillows) and climate (hot, cold, drafts); moderate assistance is provided due to any illness or disability.	Provides complete support for patient comfort (support pillows) and climate (hot, cold, drafts); complete assistance is provided due to any illness or disability.
Communication	Does not effectively communicate patient instructions before, during and after the exam.	Effectively communicates patient instructions before the exam but not during or after.	Effectively communicates patient instructions before the exam and only once more, either during or after the exam.	Effectively communicates patient instructions before, during and after the exam.

Outcome #2: Determine proper sonographic techniques, transducer size, and image settings to obtain quality images while operating ultrasound equipment.

Criterion	Unsatisfactory	Fair	Good	Excellent
	0	1	2	3
Equipment Selection	Does not select the appropriate ultrasound and ancillary equipment and transducers and does not achieve optimal visualization of structures.	Selects one of either appropriate ultrasound and ancillary equipment or transducers and achieves adequate visualization of structures.	Selects the appropriate ultrasound and ancillary equipment and transducers but still achieves only adequate visualization of structures.	Selects the appropriate ultrasound and ancillary equipment and transducers to achieve optimal visualization of structures.
Ergonomics	Does not adjust equipment position and chair or other aides and doesn't use proper body mechanics during scanning to minimize or eliminate the risk of musculoskeletal injury.	Makes minimal adjustments of equipment position and chair or other aides but still does not use proper body mechanics during scanning to minimize or eliminate the risk of musculoskeletal injury.	Makes some adjustments of equipment position and chair or other aides and improves some body mechanics during scanning to but does not completely eliminate the risk of musculoskeletal injury.	Adjusts equipment position and chair or other aides and uses proper body mechanics during scanning to minimize or eliminate the risk of musculoskeletal injury.
Optimizes Images	Fails to optimize image during the exam (harmonics, window, field of view, gain, TGC, focus, depth, zoom, image orientation, and power, pre- and post-processing, dynamic range, and compression, etc.)	Occasionally optimizes image during the exam (harmonics, window, field of view, gain, TGC, focus, depth, zoom, image orientation, and power, pre- and post-processing, dynamic range, and compression, etc.)	Optimizes image for the majority of the exam with a few exceptions (harmonics, window, field of view, gain, TGC, focus, depth, zoom, image orientation, and power, pre- and post-processing, dynamic range, and compression, etc.)	Completely optimizes image during the exam (harmonics, window, field of view, gain, TGC, focus, depth, zoom, image orientation, and power, pre- and post-processing, dynamic range, and compression, etc.)
Doppler Modes (if used during exam)	Does not use proper Doppler settings (PRF, gains, wall filters, sample volume size and	Occasionally uses proper Doppler settings (PRF, gains, wall filters, sample volume size and	Uses proper Doppler settings for the majority of the exam with a few exceptions (PRF, gains, wall	Consistently uses proper Doppler settings during the exam (PRF, gains, wall filters, sample

	placement, color map, velocity range, angle correct, etc.)	placement, color map, velocity range, angle correct, etc.)	filters, sample volume size and placement, color map, velocity range, angle correct, etc.)	volume size and placement, color map, velocity range, angle correct, etc.)

Outcome #3: Evaluate ultrasonic images for appropriate anatomy and recognize pathologic conditions.

Criterion	Unsatisfactory	Fair	Good	Excellent
	0	1	2	3
Demonstrates Anatomy & Pathology	Does not completely demonstrate and document all normal and abnormal anatomy in multiple sonographic planes and views. More than 4 images are forgotten.	Demonstrates and documents some normal and abnormal anatomy in multiple sonographic planes and views but forgets 3-4 images.	Demonstrates and documents most of the normal and abnormal anatomy in multiple sonographic views but forgets less than 3 images.	Completely demonstrates and documents all normal and abnormal anatomy in multiple sonographic planes and views. No images are forgotten.
Surveys Adjacent Structures	Does not survey area(s) of interest and surrounding structures and does not take additional pictures as necessary.	Does a minimal survey of area(s) of interest and surrounding structures and takes few additional pictures as necessary.	Does and adequate survey of area(s) of interest and surrounding structures and takes additional pictures as necessary.	Completely surveys area(s) of interest and surrounding structures and takes additional pictures as necessary.
Annotation	Does not annotate images correctly for the entire exam by inputting patient identification and appropriate image text.	Annotates some images correctly for the exam by inputting patient identification and appropriate image text.	Annotates most of the images correctly for the exam by inputting patient identification and appropriate image text.	Annotates images correctly for the entire exam by inputting patient identification and appropriate image text.

Outcome #4: Diagnose and adapt ultrasound examinations during the performance of ultrasound procedure.

Criterion	Unsatisfactory	Fair	Good	Excellent
	0	1	2	3
Patient Position	Does not utilize different patient positions to adequately visualize structures or obtain images consistently throughout the procedure.	Utilizes different patient positions to adequately visualize structures or obtain images for less than half of the procedure.	Utilizes different patient positions to adequately visualize structures or obtain images for more than half, but not all, of the procedure.	Utilizes different patient positions to adequately visualize structures or obtain images consistently throughout the procedure.
Protocol	Includes all images necessary for exam type according to CSN established scanning protocol with more than 3 errors.	Includes all images necessary for exam type according to CSN established scanning protocol with 2-3 errors.	Includes images necessary for exam type according to CSN established scanning protocol with 1 error..	Includes all images necessary for exam type according to CSN established scanning protocol.
Measurements	Fails to correctly utilize appropriate measurement controls and analysis software for the procedure with more than 3 errors.	Correctly utilizes appropriate measurement controls and analysis software for the procedure with 2-3 errors.	Correctly utilizes appropriate measurement controls and analysis software for the procedure with 1 error.	Correctly utilizes appropriate measurement controls and analysis software for the entire procedure.
Scan Time	Scan time for examination type is long by more than 10 minutes.	Scan time for examination type is long but not by more than 10 minutes.	Scan time for examination type is long but not by more than 5 minutes.	Demonstrates appropriate exam time for examination type.

College of Southern Nevada

ANNUAL ACADEMIC PROGRAM (Degree and/or Certificate)

STUDENT LEARNING OUTCOMES REPORTING FORM

Academic Year	2015-2016
Academic Program	AAS – Diagnostic Medical Sonography – Cardiac/Vascular Track

Department: Dental Sciences, Diagnostic Evaluation & Rehabilitation Services
Date Report Completed: November 27, 2016
Completed by: Tracy Lopez
Contact Email: tracy.lopez@csn.edu
Contact Phone: 702-651-5925
Mission (Program Mission Strategies) *From your 3-year assessment plan, list the assessment strategies pursued during the current academic year to support the mission of your department, school and CSN.*
The current assessment plan is evaluating the following program outcomes: 5. Assess and facilitate basic patient care and comfort during sonographic procedures. 6. Determine proper sonographic techniques, transducer size, and image settings to obtain quality images while operating ultrasound equipment. 7. Evaluate ultrasonic images for appropriate anatomy and recognize pathologic conditions. 8. Diagnose and adapt ultrasound examinations during the performance of ultrasound procedure. Student outcomes are assessed by using a randomized exit competency that is administered in the last semester of the program in their SON 284B course, just prior to graduation. The students draw an ultrasound exam from a list of required competencies that must be completed by graduation from a master competency list. All four program outcomes are broken down into value criterion and evaluated with a rubric during the students' completion of the randomized competency. Indirect assessment strategies include successful completion and acceptance of the annual report to JRCDMS. The criteria in this report are all indirect measures of learning and include: program attrition rates, graduate survey response rate, employer survey response rate, employment rate, and credential success rate.

REPORT OF PREVIOUS ACADEMIC YEAR ACTION PLAN FOR IMPROVEMENT ACTIVITIES
1. List the planned activities from the previous action plan and provide a narrative report on the activity results. 2. Describe the direct impact to student learning and/or impact to institutional effectiveness/improvement. 3. Indicate any follow-up actions that are still needed for activities revised or not completed. 4. Indicate how the activity results have been shared and discussed (internally and externally) with program stakeholders.
1. The 3 year assessment plan for the 2015-2016 academic year includes the following: • The direct measure of learning will be used for annual reporting. • Results of the spring 2016 scanning competency will be compiled, reviewed and assessed by faculty and reported. Recommendations and any areas of improvement will be noted for revision of future exit ultrasound scanning competencies or any possible changes needed to the rubric. • The Cardiac/Vascular Track of the Sonography Program will review and revise the course outcomes for the following courses: o SON 275B, SON 275L, SON276B, SON 276L, SON 280B, SON 281B, SON 282B, SON 283B, SON 284B, SON 291B 2. Since the CSN program is the only CAAHEP accredited program in the State of Nevada, our main goal is in line with their standards. That goal is to train competent entry level sonographers in Adult Echocardiography. The need to assess students' scanning skills is vital to achieve this goal and the exit competency directly evaluates the skills necessary for competence in the field. Gaps in scanning skills are identified and addressed in the appropriate areas of the curriculum to improve both student learning and program effectiveness. We have integrated the use of ultrasound phantoms and simulators to help with pathology identification.

3. After review of the previous report and further evaluation, the faculty all agreed that the exit competency and the associated evaluation rubric were not effective tools for capturing any significant deficiencies that could be addressed. Faculty explored other assessment strategies and decided that an e-portfolio would be a more effective assessment tool. After the approval of the advisory board, it was decided that the last exit competency will take place for the graduating class of 2017. The e-portfolio was introduced to the graduating class of 2018 and they will be the first cohort using the new assessment tool. Annual report statistics to the JRCDMS were all in line with national requirement for an accredited program. The report was approved with no noted deficiencies.
4. The assessment report was distributed and discussed with the advisory board and faculty members. The deficiency of the current tool was also discussed and the possibility of an e-portfolio was introduced. Advisory board members were in favor of the switch to an e-portfolio and suggested artifacts to be included in that portfolio were established. They also agreed on the timeline for introduction of the new tool.

CURRENT ACADEMIC YEAR ASSESSMENT MEASURES	
Program Completion	
Total number of students enrolled in program on first day of the program for current AY	8
Total number of students completing program on day grades are due for last semester of current AY	8

Student Learning Outcomes

1. List each program SLO
2. The performance criterion that you use to determine achieved, partially achieved or not achieved
3. Report the percentage of students within the program that achieved, partially achieved or did not achieve each SLO
4. Attach evidence of how SLOs were assessed (summary reports, tables, graphs, charts, etc.)
5. Add additional lines for program SLO's as needed

Program SLOs	**Performance criterion (How will you determine achieved, partially achieved or not achieved?)**	**% Achieved SLO**	**% Partially Achieved SLO**	**% Not Achieved SLO**
Assess and facilitate basic patient care and comfort during sonographic procedures.	An outcome rubric with 5 criterions is used to assess this outcome. A 90% of the possible points is considered "achieved". "Partially achieved" is 70-89% . "Not achieved" is 69% or lower.	25%	50%	25%
Determine proper sonographic techniques, transducer size, and image settings to obtain quality images while operating ultrasound equipment.	An outcome rubric with 4 criterions is used to assess this outcome. A 90% of the possible points is considered "achieved". "Partially achieved" is 70-89% . "Not achieved" is 69% or lower.	50%	25%	25%
Evaluate ultrasonic images for appropriate anatomy and recognize pathologic conditions.	An outcome rubric with 3 criterions is used to assess this outcome. A 90% of the possible points is considered "achieved". "Partially achieved" is 70-89% . "Not achieved" is 69% or lower.	12.5%	25%	62.5%
Diagnose and adapt ultrasound examinations during the performance of ultrasound procedure.	An outcome rubric with 4 criterions is used to	25%	25%	50%

	assess this outcome. A 90% of the possible points is considered "achieved". "Partially achieved" is 70-89% . "Not achieved" is 69% or lower.			

Student Performance

Describe how students performed overall in the program. Indicate performance gaps and possible need for improvement.

Since the program faculty and advisory board have decided to switch to a different direct assessment tool, program faculty decided the results are skewed and not representative of significant program weaknesses. The program will be switching to an eportfolio for further assessment endeavors. Indirect measures of assessment reported to the JRCDMS were all in line with national requirements.

Assessment Measurement Tools

Describe the performance and usability of the direct and indirect assessment measurement tools. Indicate performance gaps and possible need for improvement.

Program faculty decided that the current assessment tool is not effective in identifying weaknesses. The program will be implementing an eportfoilio starting with the graduating class of 2018. Current indirect methods will remain the same since it consists of data supplied to national accrediting agency.

Mission Alignment

Describe how the program assessment results support CSN institutional effectiveness. Indicate performance gaps and possible need for improvement

The mission of the Cardiac/Vascular Sonography Program is to provide our learners with a standards-based method of specialized training and preparation for a career in the health specialty of diagnostic medical ultrasound. The Associate of Applied Science degree program in Cardiac/Vascular Sonography has been designed to assess CSN in its mission to meet the need for competent, well-trained sonographers in both the local and state communities, as well as the national community levels. The program is committed to providing an integrated curriculum as determined by the JRC-DMS, which in turn will help ensure that our learners are prepared to sit for the national certification exams as well as become an integral part of the healthcare workforce as a sonographer.

Course Review

Based on the courses indicated for review in the current AY cycle of your 3-year assessment plan, indicate all courses that were reviewed by course number and title. For each course provide an overall summary pertaining to achievement of student learning outcomes and discuss what curriculum components were reviewed (e.g., student learning outcomes, curriculum, assessment, etc.). Provide a concluding statement of how student performance in the course supported student achievement of program student learning outcomes. Indicate any performance gaps and possible need for improvement by course.

The following courses were reviewed for student learning outcomes only. The achievement of program outcomes is difficult to assess using the current assessment tool so contribution of courses to program outcomes and student achievement will be addressed when the eportfolio is implemented.

SON 275B SLO's were reviewed and found to be appropriate for course and contribution to program goals of training competent entry level sonographers.
SON 275L SLO's were reviewed and found to be appropriate for course and contribution to program goals of training competent entry level sonographers.
SON276B SLO's were reviewed and found to be appropriate for course and contribution to program goals of training competent entry level sonographers.
SON 276L SLO's were reviewed and found to be appropriate for course and contribution to program goals of training competent entry level sonographers.
SON 280B SLO's were reviewed and found to need slight revision. Revised outcomes will be submitted to the curriculum committee in the Spring 2017 semester.
SON 281B SLO's were reviewed and found to need slight revision. Revised outcomes will be submitted to the curriculum committee in the Spring 2017 semester.
SON 282B SLO's were reviewed and found to need slight revision. Revised outcomes will be submitted to the curriculum committee in the Spring 2017 semester.
SON 283B SLO's were reviewed and found to need slight revision. Revised outcomes will be submitted to the curriculum committee in the Spring 2017 semester.

SON 284B SLO's were reviewed and found to need slight revision. Revised outcomes will be submitted to the curriculum committee in the Spring 2017 semester.
SON 291B SLO's were reviewed and found to need slight revision. Revised outcomes will be submitted to the curriculum committee in the Spring 2017 semester.

Action Plan for Improvement

1. Complete the Action Plan for Improvement to address the gaps or areas of improvement identified in your report.
2. Indicate planned activities, the purpose of the activity and how it addresses a strategy for improvement.
3. List the action steps needed and a target date where the activity will be evaluated for progress or completion results.

Planned Activity & Purpose	Strategy for Improvement	Action Steps	Target Date
Since the program faculty and advisory board have decided to switch to a different assessment tool, we are not going to address results that we feel are skewed and not representative of significant program weaknesses.			

Report and Disseminate Results

1. Indicate those internal and external stakeholders that need to know and should know your assessment results.
2. Describe any stakeholder feedback and the impact of that feedback to the program.

1. Program faculty members and advisory board members, which includes the medical director of the program, should be aware of the program's assessment activities. Indirect assessment measures are also listed on the sonography program web page as required by CAAHEP.
2. Program faculty we not confident in the previous assessment report results. After a lengthy discussion, it was recommended that the program abandoned the exit competency and the associated assessment rubric in favor of an eportfolio. This was brought to the advisory board and medical director and received unanimous approval. The change will be made starting with the class of 2018 in order to allow time for students to acquire artifacts for their portfolio.

APPENDIX

Results Summary Table

Student	Outcome 1 Pts/%	Outcome 2 Pts/%	Outcome 3 Pts/%	Outcome 4 Pts/%
1	12/80%	7/58%	2/22%	2/17%
2	12/80%	12/100%	4/44%	2/17%
3	11/73%	12/100%	9/100%	12/100%
4	10/67%	6/50%	1/11%	6/50%
5	15/100%	9/75%	3/33%	11/92%
6	15/100%	11/92%	8/89%	10/83%
7	13/87%	12/100%	5/56%	10/83%
8	2/13%	10/83%	7/78%	7/58%
# Achieved	2	4	1	2
# Partially Achieved	4	2	2	2
# Not achieved	2	2	5	4

ASSESSMENT RUBRIC

Outcome #1: Assess and facilitate basic patient care and comfort during sonographic procedures.

Criterion	Unsatisfactory	Fair	Good	Excellent
	0	1	2	3
Introduction	Fails to welcome the patient, introduce themself or verify patient identification.	Completes only one of the three introduction tasks.	Completes two of the three introduction tasks.	Welcomes the patient, introduces him/herself, and verifies patient identification.
Patient Safety	Does not wash hands, wear exam gloves, and doesn't clean the transducer, table and machine between patients.	Either washes hands or wears exam gloves but does not do any cleaning of the equipment.	Washes hands or wears exam gloves and does some cleaning of the equipment.	Washes hands, wears exam gloves, and cleans transducer, table and machine between patients.
Patient History	Fails to ask about the patient's medical history,	Asks one of the three patient history questions.	Asks two of the three patient history questions.	Asks about the patient's medical history, associated

	associated testing and symptoms.			testing and symptoms.
Patient Comfort	Provides no support for patient comfort (support pillows) and climate (hot, cold, drafts); no assistance is provided due to any illness or disability.	Provides minimal support for patient comfort (support pillows) and climate (hot, cold, drafts); minimal assistance is provided due to any illness or disability.	Provides moderate support for patient comfort (support pillows) and climate (hot, cold, drafts); moderate assistance is provided due to any illness or disability.	Provides complete support for patient comfort (support pillows) and climate (hot, cold, drafts); complete assistance is provided due to any illness or disability.
Communication	Does not effectively communicate patient instructions before, during and after the exam.	Effectively communicates patient instructions before the exam but not during or after.	Effectively communicates patient instructions before the exam and only once more, either during or after the exam.	Effectively communicates patient instructions before, during and after the exam.

Outcome #2: Determine proper sonographic techniques, transducer size, and image settings to obtain quality images while operating ultrasound equipment.

Criterion	**Unsatisfactory**	**Fair**	**Good**	**Excellent**
	0	**1**	**2**	**3**
Equipment Selection	Does not select the appropriate ultrasound and ancillary equipment and transducers and does not achieve optimal visualization of structures.	Selects one of either appropriate ultrasound and ancillary equipment or transducers and achieves adequate visualization of structures.	Selects the appropriate ultrasound and ancillary equipment and transducers but still achieves only adequate visualization of structures.	Selects the appropriate ultrasound and ancillary equipment and transducers to achieve optimal visualization of structures.
Ergonomics	Does not adjust equipment position and chair or other aides and doesn't use proper body mechanics	Makes minimal adjustments of equipment position and chair or other aides but still does not use proper body	Makes some adjustments of equipment position and chair or other aides and improves some body mechanics	Adjusts equipment position and chair or other aides and uses proper body mechanics during scanning

	during scanning to minimize or eliminate the risk of musculoskeletal injury.	mechanics during scanning to minimize or eliminate the risk of musculoskeletal injury.	during scanning to but does not completely eliminate the risk of musculoskeletal injury.	to minimize or eliminate the risk of musculoskeletal injury.
Optimizes Images	Fails to optimize image during the exam (harmonics, window, field of view, gain, TGC, focus, depth, zoom, image orientation, and power, pre- and post-processing, dynamic range, and compression, etc.)	Occasionally optimizes image during the exam (harmonics, window, field of view, gain, TGC, focus, depth, zoom, image orientation, and power, pre- and post-processing, dynamic range, and compression, etc.)	Optimizes image for the majority of the exam with a few exceptions (harmonics, window, field of view, gain, TGC, focus, depth, zoom, image orientation, and power, pre- and post-processing, dynamic range, and compression, etc.)	Completely optimizes image during the exam (harmonics, window, field of view, gain, TGC, focus, depth, zoom, image orientation, and power, pre- and post-processing, dynamic range, and compression, etc.)
Doppler Modes (if used during exam)	Does not use proper Doppler settings (PRF, gains, wall filters, sample volume size and placement, color map, velocity range, angle correct, etc.)	Occasionally uses proper Doppler settings (PRF, gains, wall filters, sample volume size and placement, color map, velocity range, angle correct, etc.)	Uses proper Doppler settings for the majority of the exam with a few exceptions (PRF, gains, wall filters, sample volume size and placement, color map, velocity range, angle correct, etc.)	Consistently uses proper Doppler settings during the exam (PRF, gains, wall filters, sample volume size and placement, color map, velocity range, angle correct, etc.)

Outcome #3: Evaluate ultrasonic images for appropriate anatomy and recognize pathologic conditions.

Criterion	Unsatisfactory	Fair	Good	Excellent
	0	1	2	3
Demonstrates Anatomy & Pathology	Does not completely demonstrate and document all normal and abnormal anatomy in multiple sonographic planes and views. More than	Demonstrates and documents some normal and abnormal anatomy in multiple sonographic planes and views but forgets 3-4 images.	Demonstrates and documents most of the normal and abnormal anatomy in multiple sonographic views but forgets less than 3 images.	Completely demonstrates and documents all normal and abnormal anatomy in multiple sonographic planes and views. No

	4 images are forgotten.			images are forgotten.
Surveys Adjacent Structures	Does not survey area(s) of interest and surrounding structures and does not take additional pictures as necessary.	Does a minimal survey of area(s) of interest and surrounding structures and takes few additional pictures as necessary.	Does and adequate survey of area(s) of interest and surrounding structures and takes additional pictures as necessary.	Completely surveys area(s) of interest and surrounding structures and takes additional pictures as necessary.
Annotation	Does not annotate images correctly for the entire exam by inputting patient identification and appropriate image text.	Annotates some images correctly for the exam by inputting patient identification and appropriate image text.	Annotates most of the images correctly for the exam by inputting patient identification and appropriate image text.	Annotates images correctly for the entire exam by inputting patient identification and appropriate image text.

Outcome #4: Diagnose and adapt ultrasound examinations during the performance of ultrasound procedure.

Criterion	**Unsatisfactory**	**Fair**	**Good**	**Excellent**
	0	**1**	**2**	**3**
Patient Position	Does not utilize different patient positions to adequately visualize structures or obtain images consistently throughout the procedure.	Utilizes different patient positions to adequately visualize structures or obtain images for less than half of the procedure.	Utilizes different patient positions to adequately visualize structures or obtain images for more than half, but not all, of the procedure.	Utilizes different patient positions to adequately visualize structures or obtain images consistently throughout the procedure.
Protocol	Includes all images necessary for exam type according to CSN established scanning protocol with more than 3 errors.	Includes all images necessary for exam type according to CSN established scanning protocol with 2-3 errors.	Includes images necessary for exam type according to CSN established scanning protocol with 1 error..	Includes all images necessary for exam type according to CSN established scanning protocol.
Measurements	Fails to correctly utilize appropriate measurement controls and analysis software	Correctly utilizes appropriate measurement controls and analysis	Correctly utilizes appropriate measurement controls and analysis	Correctly utilizes appropriate measurement controls and analysis

	for the procedure with more than 3 errors.	software for the procedure with 2-3 errors.	software for the procedure with 1 error.	software for the entire procedure.
Scan Time	Scan time for examination type is long by more than 10 minutes.	Scan time for examination type is long but not by more than 10 minutes.	Scan time for examination type is long but not by more than 5 minutes.	Demonstrates appropriate exam time for examination type.

Outcome #1	Outcome #2	Outcome #3	Outcome #4
Crit. 1 _____	Crit. 1 _____	Crit. 1 _____	Crit. 1 _____
Crit. 2 _____	Crit. 2 _____	Crit. 2 _____	Crit. 2 _____
Crit. 3 _____	Crit. 3 _____	Crit. 3 _____	Crit. 3 _____
Crit. 4 _____	Crit. 4 _____	Total _____	Crit. 4 _____
Crit. 5 _____	Total _____	Possible: 9	Total _____
Total _____	Possible: 12		Possible: 12
Possible: 15			

Assessment of Institutional Indicators

Program Name: Diagnostic Medical Sonography - Cardiac Track Prepared By: Tracy Lopez

FALL 2017

LEAP DOMAIN	LEAP OUTCOME	PROGRAM OUTCOME	MEASURE/INSTRUMENT	RESULT	ANALYSIS
Knowledge of Human Cultures & the Physical and Natural World	Knowledge of cultures.	Assess and facilitate basic patient care and comfort during sonographic procedures.	Measure: At least 90% of students score 3 or higher on a 4 point scale. Instrument: Canvas Activity on cultural competence in SON 275B	100% of students scored a 3 or higher on the Canvas Activity on cultural competence in SON 275B.	Expand cultural competence module for next year and continue to monitor.
Intellectual & Practical Skills	Written communication.	Evaluate ultrasonic images for appropriate anatomy and recognize pathologic conditions.	Measure: At least 90% of students score 3 or higher on a 4 point scale Instrument: Preliminary report in SON 275B	Only 33% of students scored a 3 or higher on the preliminary report in SON 275B.	SON 275B is an introductory vascular course. We will reinforce and expand preliminary writing skills next semester in SON 276B and re-evaluate student performance.
Personal & Social Responsibility	Foundations and skills for lifelong learning.	Determine proper sonographic techniques, transducer size, and image settings to obtain quality images while operating ultrasound equipment.	Measure: At least 90% of students score 4 or higher on a 5 point scale Instrument: Clinical Evaluation end of the semester review in SON 283B	89% of students scored a 4 or higher on their Clinical Evaluation end of the semester review in SON283B.	We will re-evaluate the students' skill level using an e-portfolio next semester in SON 290B and SON 291B. This will provide a more summative assessment of students' skills.
Integrative & Applied Learning	Synthesis and advanced accomplishment across general and specialized study.	Diagnose and adapt ultrasound examinations during the performance of an ultrasound procedure.	Measure: At least 90% of students score 3 or higher on a 4 point scale Instrument: Scanning competency from SON 275L	100% of students scored a 3 or higher on their carotid scanning competency in SON 275L.	We will re-evaluate the students' skill level using an e-portfolio next semester in SON 290B and SON 291B. This will provide a more summative assessment of students' skills.

Diagnostic Medical Sonography

Assessments Indicators

LEAP Outcomes

Student Name: _____

LEAP Outcome: Knowledge of cultures

4 Demonstrates thorough knowledge of cultural competence and the difference between surface and deep culture. Learner can identify cultural biases and prejudices after self-assessment.

3 Demonstrates adequate knowledge of cultural competence and the difference between surface and deep culture. Learner can identify cultural biases and prejudices after self-assessment.

2 Demonstrates partial knowledge of cultural competence and the difference between surface and deep culture. Learner can identify some cultural biases and prejudices after self-assessment.

1 Demonstrates little knowledge of cultural competence and the difference between surface and deep culture. Learner cannot identify cultural biases and prejudices after self-assessment.

LEAP Outcome: Written Communication

4 Uses appropriate, relevant and accurate content to describe sonographic images. Learner demonstrates complete understanding of preliminary writing.

3 Uses appropriate, relevant and accurate content to describe sonographic images. Learner demonstrates adequate understanding of preliminary writing.

2 Uses appropriate, relevant and accurate content to describe sonographic images. Learner demonstrates partial understanding of preliminary writing.

1 Uses appropriate, relevant and accurate content to describe sonographic images. Learner demonstrates little understanding of preliminary writing.

LEAP Outcome: Foundations and skills for lifelong learning.

5 Demonstrates excellent quality of work.

4 Demonstrates good quality of work.

3 Demonstrates fair quality of work.

2 Demonstrates poor quality of work.

1 Demonstrates failing quality of work.

LEAP Outcome: Synthesis and advanced accomplishment across general and specialized study.

4 Includes all images necessary for exam type while correctly utilizing appropriate measurements, controls and software. Learner uses different patient positions to adequately visualize structures. Completes above tasks with 0 errors.

3 Includes all images necessary for exam type while correctly utilizing appropriate measurements, controls and software. Learner uses different patient positions to adequately visualize structures. Completes above tasks with 1-2 errors.

2 Includes all images necessary for exam type while correctly utilizing appropriate measurements, controls and software. Learner uses different patient positions to adequately visualize structures. Completes above tasks with 3-4 errors.

1 Includes all images necessary for exam type while correctly utilizing appropriate measurements, controls and software. Learner uses different patient positions to adequately visualize structures. Completes above tasks with more than 4 errors.

Curriculum Information

Each track of the sonography program is a six-semester program with a summer start. Students are required to complete all of their prerequisite courses and most if not all of their general education requirements before the sonography program summer start. The professional curriculum is a series of sequentially planned courses, which include fundamental concepts introduced in the first year and advanced knowledge and skills covered during the second year. The fundamental concepts and skills are integrated into the second year course work, and as a result, there are conceptual threads and specific skills that flow through the curriculum. These are reinforced and expanded during the second year of the program. The curriculum also includes an extensive portion devoted to clinical practicums. This is a vital part of the educational experience. Understanding of the concepts and skills reviewed in various sonography didactic courses ensures competence and safety in the skills necessary for effective patient care and diagnosis. The complete degree sheet for each tract of the program is shown below.

Diagnostic Medical Sonography – Cardiac/Vascular Ultrasound Track **LIMITED ENTRY**
ASSOCIATE OF APPLIED SCIENCE DEGREE (AAS) REQUIRED CREDITS: **92**
DEGREE CODE: **SONCCARAAS**

DESCRIPTION

Ultrasonography is a diagnostic imaging procedure that utilizes high frequency sound waves to image abdominal organs, vessels, the heart, and the developing fetus in the maternal uterus. Ultrasound can demonstrate masses, fluid accumulations, and other pathology in the patient. Ultrasound exams are performed under the supervision of a qualified physician. Students electing to take this area of study are prepared to enter the sonography field in the areas of adult and pediatric echocardiography as well as vascular ultrasound. The student, upon graduation, will be eligible to sit for the National Registry Exams for Diagnostic Cardiac Sonography. Upon passing the exams, they will use the designation RDCS (Registered Diagnostic Cardiac Sonographer). This is a limited entry program and students must attend a health programs orientation and meet with a health programs advisor for additional counseling. The Diagnostic Medical Sonography Program is accredited by the Commission on Accreditation of Allied Health Education Programs (**www.caahep.org**) upon the recommendation of the JRC-DMS which is located at 6021 University Boulevard, Suite 500, Ellicott City, MD 21043, (651) 731-1582.

STUDENT LEARNING OUTCOMES

- Evaluate ultrasonic images for appropriate anatomy and recognize pathologic conditions.
- Determine proper sonographic techniques, transducer size, and image settings to obtain quality images while operating ultrasound equipment.
- Assess and facilitate basic patient care and comfort during sonographic procedures.
- Diagnose and adapt ultrasound examinations during the performance of an ultrasound procedure.

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM
SPECIAL PROGRAM REQUIREMENTS (61 CREDITS)

HIT 117B	Medical Terminology I	1
SON 102B	Basic Cardiac Sonography	3
SON 102L	Basic Cardiac Sonography Lab	1
SON 116B	Echocardiography I	3
SON 125B	Sonographic Physics and Instrumentation I	3
SON 135B	Cardiovascular Ultrasound Physics	2
SON 150B	Patient Care for Imaging Professions	3
SON 160B	Sonographic Scanning Lab I	2
SON 190B	Sonographic Physics and Instrumentation II	3
SON 195B	Sonographic Scanning Lab II	2
SON 216B	Echocardiography II	3
SON 225B	Stress Echocardiography	3
SON 250B	Seminar and Case Review I	2
SON 255B	Seminar and Case Review II	2
SON 261B	Pediatric Echocardiography I	3
SON 262B	Pediatric Echocardiography II	2
SON 275B	Vascular Sonography I	3
SON 275L	Vascular Sonography Laboratory I	1
SON 276B	Vascular Sonography II	3
SON 276L	Vascular Sonography Laboratory II	1
SON 280B	Sonographic Clinical Practicum I	2
SON 281B	Sonographic Clinical Practicum II	2

SON 282B	Sonographic Clinical Practicum III	3
SON 283B	Sonographic Clinical Practicum IV	3
SON 284B	Sonographic Clinical Practicum V	3
SON 291B	Cardiac Registry Review	2

GENERAL EDUCATION REQUIREMENTS (31 CREDITS)

MATHEMATICS (3 credits)

MATH 116 or above (except MATH 122, 123)

ENGLISH COMPOSITION (3-5 credits)

See AAS policy p. 50 for courses

COMMUNICATIONS (3 credits)

Recommended: COM 101 Oral Communication

HUMAN RELATIONS (3 credits)

Recommended: PSY 101 General Psychology

NATURAL SCIENCE (12 credits)

BIOL 223 **and** 224; **and either** EGG 131 **and** EGG 131L; or PHYS 110 or above

FINE ARTS/HUMANITIES/SOCIAL SCIENCES (3 credits)

AM 145 or above; ANTH 101 or above; ART 101 or above; COM 101 or above; ECON 100 or above; ENG 223 or above; GEOG 106; HIST 101 or above; World Languages 101B or above; MUS 101 or above; PHIL 101 or above; PSC 101 or above; PSY 101 or above; SOC 101 or above; THTR 100 or above; WMST 113

U.S. AND NEVADA CONSTITUTIONS (4-6 credits)

Recommended: PSC 101 Introduction to American Politics

PLEASE NOTE - The courses listed below may require a prerequisite or corequisite. Read course descriptions before registering for classes. All MATH and ENG courses numbered 01-99 must be completed before reaching 30 total college-level credits. No course under 100-level counts toward degree completion.

The Diagnostic Medical Sonography program has an ongoing system for periodically and systematically reviewing the effectiveness of the program's curriculum. In a continuing effort to provide quality education in diagnostic medical sonography, the program incorporates feedback from several sources for program review and evaluation. Responses from these sources are considered in planning the curriculum and learning activities for future sonography students. The feedback is obtained from the annual faculty peer evaluations, student course critiques, student end-of-semester program evaluations, graduate surveys, employer surveys, clinical instructor evaluations, student evaluations of clinical sites, and advisory board input. Most of these feedback tools are CAAHEP templates we are required to use, or templates we have designed with CAAHEP approval.

Based on input received from the above mentioned sources, all courses are reviewed annually by the faculty for relevancy and completeness. Suggestions for updating courses are made and implemented at this time. Annual assessment reports and plans are submitted to the Office of Institutional Research in an effort to evaluate the program, check for weaknesses, and correct deficiencies. The program's CAAHEP accreditation status also requires submission of an annual report that extensively analyzes the data collected from graduate and employer surveys, attrition rates, student employment and exam pass rates. CAAHEP accreditation also guarantees the students ability to sit for their national registry examinations immediately upon program completion.

Several recent curriculum revisions have been taken to the curriculum committee and approved based on faculty program review. Modification of some courses were completed and all of the clinical and scanning lab courses had outcome modifications. These changes will serve the students better and will allow faculty the improved ability to evaluate student scanning skills independently. Content updating dating and modification took place in the physics courses, echocardiography courses, and vascular courses to ensure relevancy with changes in the field of sonography.

The program also recognizes the importance of quality instruction. All instructors are required to take continuing medical education courses related to their discipline. This allows faculty to stay current with new ultrasound concepts and to reinforce basic information. Two program faculty completed a bachelor's degree. Three of the faculty members consistently continue to work part-time in the ultrasound field to maintain their ultrasound skills. In addition to this, the faculty are encouraged to take advantage of CAPE workshops that are relevant to instruction. The program operating budget consistently supports professional development by covering seminar or conference attendance fees and travel funds allocated by the travel committee help with hotel and flight costs. All program faculty consistently take advantage of this as can be seen in the faculty information section.

The pass rate on the national registry exams seems to support program effectiveness and appropriate curriculum. JRC-DMS, which is program specific accrediting agency under CAAHEP, requires a credential success rate threshold of no less than 60% in each ultrasound exam specialty. Please see the credential success rates for the past forur annual report in the table below.

	2014	**2015**	**2016**	**2017**
Abdomen	100%	86%	100%	100%
OB/Gyn	100%	80%	100%	100%
Adult Echo	88%	88%	100%	100%

.

Information, Technology, Space and Equipment Resources

The CSN Library on the West Charleston campus offers a number of resources for students to access. The following link is directly to the Diagnostic Medical Sonography page on the library's website and is given to students during orientation so they can access the resources. https://libguides.csn.edu/sonography

In addition to the library resources our media room has an extensive collection of DVDs, digitized VHS, CDs and books for student use. This collection fully supports learning objectives for both tracks of the program. Four computer stations, two printers and two scanners are also available for student use in the media room. Students have access to this room Monday-Friday from 8:00am to 5:00pm. Graduates are also encouraged to use the material in preparing to take their national registry examinations.

The Sonography Program has an extensive collection of library books, computers and computer software, video tapes, VCRs, DVDs, and anatomic models available for the students in addition to the services offered through the new West Charleston CSN Library. Most of these are housed in the sonography resource room located in the K building on the West Charleston Campus. New reference material is constantly being added to the collection because the field of sonography is advancing so quickly, information becomes obsolete. The program also has a simulation room where computerized ultrasound simulators are available for the students to use in practicing their scanning skills. These simulators afford the student an opportunity to practice their scanning without fear of invading the patient's privacy or taking too long to complete an exam. These models can be programmed to demonstrate specific pathologies in certain sonography specialty areas for student identification.

The Engelstad Health Sciences building houses the sonography program entirely including the resource/media room, simulation room, scanning lab, faculty offices and classrooms with priority scheduling. The space in all areas is sufficient to house an average class size of 10-20 students. Below is a list of ultrasound equipment housed in the scanning lab.

- 2 GE Vivid 7 Systems
- 2 GE Logiq 9 Systems
- 3 Siemens Sequoia Systems
- 1 Philips ie33 System
- 1 treadmill
- 6 Surgical grade large monitors
- 2 Sonora TCD Systems
- 1 Vimedix Echocardiography Simulator
- 3 Vasoguard Vascular Systems
- 3 Unetixs Vascular Systems
- 2 Philips Sonos 5500 Systems

- 6 Transvaginal Phantoms
- 1 Breast Phantom
- 1 Testicular Phantom
- 1 Neonatal Head Phantom
- 2 OB Phantoms
- 1 Abdominal Phantom
- Transvaginal Sterilizing Systems
- Washer and Dryer

All equipment is fully functional and receives preventative maintenance on a yearly basis. We also have ergonomic scanning tables and chairs for students to use to establish correct body mechanics and minimize repetitive musculoskeletal disorders common in the field. Student access the scanning lab during normally schedules hours under the direct supervision of an instructor. Open lab hours are arranged with the instructors on an as needed basis because they do require direct supervision.

External Factors

The sonography program has four full-time faculty members and one part-time instructor. Enrollment over the last three year has been 100%. Applicants for each track of the program over the last four years has been double the number of open spots for the program. Attrition rates can be found in the IR Data section of this review.

The sonography programs success is due in large party to the support from the ultrasound community. Strong clinical site participation and enthusiasm for the program helps in educating the students and in providing job placement after graduation. Job placement for the cardiac track of the program within the first year after graduation is listed in the table below. According to accreditation standards the placement rate cannot be below 75%. The percentages for all four years exceed JRC-DMS thresholds for student job placement post-graduation. CSN has become a major resource in providing sonographers for the local job market. In a number of instances, employers will contact CSN first when looking to hire a new employee, which is a mutually beneficial relationship for both parties.

	# graduates	# employed	Placement rate
2014	8	7	88%
2015	8	7	88%
2016	8	6	75%
2017	8	6	75%

Few students choose to pursue higher degrees and there are several factors contributing to this. The last main issue is salary related. Sonographers rarely receive increases in salary with advanced degrees. Most sonographers wishing to pursue higher degrees are interested in going into management or education. Some graduates have also expressed the interest in a BS for personal fulfillment alone. Nevada State

College has established an articulation agreement with CSN and developed a Bachelor of Applied Science Degree for our graduates. Nevada State College accepts all of the credits from our program and requires approximately 30 additional credits for the student to get their degree.

Graduate and employer satisfaction with the program is evaluated using graduate and employer surveys distributed six months after graduation. The response trend over the past four years has included no negative comments and has satisfied JRC-DMS guidelines. Overall program rating has been either “good” or “excellent.” Most comments dealt with more hands-on during clinical rotations. The sonography program scanning hours already exceed the required number of hours by accreditation standards. Instructors do offer open lab scanning days several times a semester to try to address this concern.

The Diagnostic Medical Sonography Program at the College of Southern Nevada is the only CAAHEP accredited ultrasound program in the State of Nevada. We have a state of the art scanning lab on campus and 56 clinical sites available for student placement. The ultrasound community is supportive of the program and most clinical instructors are program graduates.

Faculty are student centered and are available to students outside of office hours, and class time. One faculty member is the advisor for the sonography student club. They meet regularly over the course of the program to plan the pinning ceremony, graduation party and associated activities. The student club also participates in the Children’s Heart Walk as a group along with instructors. The biggest challenges that most ultrasound programs face is the acquisition of up-to-date ultrasound equipment and its maintenance. We strive to have a variety of ultrasound machines that represent the type of equipment students will see in the field. Perkins Grants have been crucial in the viability of the program, as the operating budget would not support the purchase of ultrasound equipment. The other challenge is the consistent placement of student at clinical sites. While we have an extensive list of sites they do not always want students placed for a variety of reasons.

External Validation

1361 Park Street
Clearwater, FL 33756
Phone: 727-210-2350 / Fax: 727-210-2354
www.caahep.org

March 24, 2014

Michael Richards, PhD President
College of Southern Nevada 6375 W. Charleston Blvd.
Las Vegas, NV 89146-1164

Dear Dr. Richards:

The Commission on Accreditation of Allied Health Education Programs (CAAHEP) is pleased to inform you of its vote on **March 21, 2014** to award **continuing accreditation** to the Diagnostic Medical Sonography - General program at College of Southern Nevada, Las Vegas, NV.

The recent peer review conducted by the Joint Review Committee on Education in Diagnostic Medical Sonography (JRC-DMS) and CAAHEP's Board of Directors recognizes the program's substantial compliance with the nationally established accreditation Standards. The next comprehensive evaluation of the program, including an on-site review, is scheduled to occur no later than **2019**.

The JRC-DMS will regularly monitor the program's compliance with the outcomes assessment thresholds through the program's Annual Report as well as other documentation that may be requested (Standard IV.B.).

The accreditation standards are established by CAAHEP, JRC-DMS, American College of Cardiology Foundation (ACCF), American College of Radiology (ACR), American College of Obstetricians and Gynecologists (ACOG), American Institute of Ultrasound in Medicine (AIUM), American Society of Echocardiography (ASE), American Society of Radiologic Technologists (ASRT), Society of Diagnostic Medical Sonography (SDMS), Society for Vascular Surgery (SVS), and Society for Vascular Ultrasound (SVU).

The commission commends you and your colleagues for your commitment to continuous quality improvement in education, as demonstrated by your participation in program accreditation.

Sincerely,

Cameron Harris, RPSGT President

Cc: Patricia Castro, EdD, MT (ASCP), BB, Dean, School of Health Sciences
Tracy Lopez, MEd, RDMS, RDCS, RVT, Program Director
Sheryl E. Goss, MS, RT(R), RDMS, RDCS, RVT, Chair, JRC-DMS
Cindy Weiland, RVT, RRT, Director of Accreditation, JRC-DMS

Commission on Accreditation of Allied Health Education Programs

Supplemental Narrative Questions

Core Mission

1. **How does this program relate to the Mission and Core Themes of the College?**
    - The Diagnostic Medical Sonography program is designed to create opportunities and enrich lives of our diverse students by providing them with inclusive access to the quality educational background needed to prepare students to prepare competent entry-level general sonographers in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains.

2. **To the best of your knowledge, how and to what extent is this program essential due to state laws, regulations, outside agency regulations, Board of Regents or Legislative priorities?**
    - The Diagnostic Medical Sonography program is the only CAAHEP accredited ultrasound program in the State of Nevada. Most program graduates remain in the Las Vegas area after graduation and are employed. The program is a major contributing factor for ensuring there is no shortage in qualified sonographers.

3. **How and to what extent does this program relate to programs at other NSHE institutions (for example, overlapping programs, articulation or transfer relationships, etc.)?**
    - The sonography program has an articulation agreement with Nevada State College. Learners can transfer after program completion to Nevada State's Bachelor of Applied Science in Allied Health Sciences. An additional 30-35 credits will earn the learner their degree. CSN's sonography program does not transfer to any other NSHE institution.

4. **How and to what extent does this program relate to programs at non-NSHE colleges in southern Nevada?**
    - The Diagnostic Medical sonography Program does not relate or transfer to any non-NSHE colleges in southern Nevada.

5. **How and to what extent does this program depend upon prerequisite courses from other disciplines at CSN?**
    - Students are required to complete all of the program prerequisites prior to program application. Prerequisites are:
        - BIOL 223 Anatomy & Physiology I
        - BIOL 224 Anatomy & Physiology II
        - MATH 116 or higher (Except Math 122 & 123)

    - PHYS 110 Conceptual Physics or any College Physics with Lab**
    - HIT 117B Medical Terminology I
    - ENG 101/100 Composition I
        - or
- ENG 107 Technical Communications I
- In addition students are given point towards selection if they complete their general education requirements. General education requirements are:
    - Communications: (see AAS degree requirements) 3 Cr
    - U.S. & Nevada Constitution: (see AAS degree requirements) 4 Cr
    - Human Relations: (see AAS degree requirements) 3 Cr
    - Social Sciences/Humanities: (see AAS degree requirements)

6. **How and to what extent does this program utilize other college resources for academic support (for example, library, technology, counseling, disability resource center, tutoring, writing or math centers, etc.)?**
    - Library: No exact numbers are available. However, the library does maintain collections of textbooks in the library reference sections on the three campuses. They also have a guide page that sonography students are given during program orientation, which offer a number of resources for research and study in sonography.
        - https://libguides.csn.edu/sonography
    - Technology: All of our faculty require the use of computers in their classrooms and in their offices. OTS in contacted if there are any issues with the equipment.
    - Math Resource Centers: Prospective students who need help prior to the start of the program access Math resource centers. Enrolled sonography students have few instances where they would be performing any calculations.
    - Writing Resource Centers: Enrolled sonography students access the writing center during their final 2 semester as they are completing APA paper course work.
    - Tutoring: Tutoring is not used by students because there are no sonography students available. Students who need help are encouraged to go to their instructor during office hours or join a study group.
    - Other Services: Testing, Counseling, and the Disability Resource Center are used on an as needed basis.

Quality

7. **Does this program have an advisory board, or does the department have an advisory board relevant to this program?**
    - The sonography program is required to have an advisory board due to accreditation standards. It consists of faculty, employers, medical directors, and community members of interest. It helps the program with curricular decisions, equipment needs and student needs. It meets three times a year.

8. **If this program has a specialized accreditation, is this accreditation necessary for alumni licensure or employability?**
    - The sonography program is accredited by the Commission on Accreditation of Allied Health Education Programs. This accreditation designation allows students to sit for their national registry examination early to become registered sonographers through the American Registry for Diagnostic Medical Sonographers. Once registered the graduate can work in any state with those credentials. Employers do not hire unregistered sonographers. In many instances, they will additional require that a candidate graduated from a CAAHEP accredited program.

9. **How and to what extent does this program contribute to CSN's regional or national reputation?**
    - CSN has the only accredited ultrasound program in the State of Nevada. Its long-standing place in the community has earned us the reputation of being a quality program that produces well-qualified sonographers.
    - The program is frequently featured in recruitment ads and appeared on a segment in Channel 8 news in Spring 2019.

10. **How and to what extent does this discipline/program support student extracurricular activities at CSN?**
    - Jodi Gonz is the Sonography Student Club's advisor. She helps with pinning and graduation party planning.
    - All of the faculty attend the Children's Heart walk with students.
    - All of the faculty attend the heart conference held annually that is put on by one of the program's medical director with students.

Demand

11. **Describe the level and nature of external demand for this program (for example, occupational data, labor statistics, employer surveys, student surveys, etc.)?**
    - The sonography program routinely receives more application for the program then the number of seats available. This application cycle the general track received 50 applications and the cardiac track received 18 application. Each track only accepts 10 students each year.
    - The Bureau of Labor statistics predicts a 23% national growth for sonographers from 2016-2026. This is higher than average growth when compared to other professions.
    - Employer and graduate surveys are all overwhelmingly positive. Employers express their interest in continuing to hire program graduates.

12. **Describe the level and nature of external financial or practical support for this program (for example, grants, donations, employer or clinical partnerships, etc.)?**
    - The sonography program frequently applies for Perkins Grants in the spring semester. This primary funding source has allowed us to acquire the number and quality of equipment that we have in the scanning lab.
    - The program has a vast list of 56 possible clinical sites that students are placed in for clinical rotations. These include hospitals, doctors' offices, and imaging centers. Students are rotated for during five of the six-semester program two, three or four days a week. This extensive hands-on time is vital to student learning and essential for program success.

13. **What other options exist for students in the region to earn this degree or certificate?**
    - The Diagnostic Medical Sonography Program at CSN is the only accredited program in the state. UNLV does have a sonography component as part of their comprehensive medical imaging degree but it is not CAAHEP accredited. That program does not have a cardiac component.
    - There are no other schools available in the area.

Institutional Research Data

Course information for all Fall and Spring Semester from 2015-2018.

Report	Courses	Courses Avail Online	Courses Not Avail Online	Post-100 Courses	Pre-101 Courses
Health Sciences					
Dental Sci, Diag Eval & Rehab					
SON	14	0	14	14	0

Course Information for all Summer Semester Courses from 2015-2018

Report	Courses	Courses Avail Online	Courses Not Avail Online	Post-100 Courses	Pre-101 Courses
Health Sciences					
Dental Sci, Diag Eval & Rehab					
SON	7	0	7	7	0

Program FTE Fall 2015

Report	Enrollment	FTE	HeadCount	Hybrid FTE	In-Person FTE	OnlineFTE	Post-100 Level FTE	Pre-101 Level FTE
Health Sciences								
Dental Sci, Diag Eval & Rehab								
SON	190	31	83		31		31	

Program FTE Spring 2016

Report	Enrollment	FTE	HeadCount	Hybrid FTE	In-Person FTE	OnlineFTE	Post-100 Level FTE	Pre-101 Level FTE
Health Sciences								
Dental Sci, Diag Eval & Rehab								
SON	182	29.1	73		29.1		29.1	

Program FTE Summer 2016

Report	Enrollment	FTE	HeadCount	Hybrid FTE	In-Person FTE	OnlineFTE	Post-100 Level FTE	Pre-101 Level FTE
Health Sciences								
Dental Sci, Diag Eval & Rehab								
SON	109	14.3	109		14.3		14.3	

Program FTE Fall 2016

Report	Enrollment	FTE	HeadCount	Hybrid FTE	In-Person FTE	OnlineFTE	Post-100 Level FTE	Pre-101 Level FTE
Health Sciences								
Dental Sci, Diag Eval & Rehab								
SON	209	34	81		34		34	

Program FTE Spring 2017

Report	Enrollment	FTE	HeadCount	Hybrid FTE	In-Person FTE	OnlineFTE	Post-100 Level FTE	Pre-101 Level FTE
Health Sciences								
Dental Sci, Diag Eval & Rehab								
SON	191	30.4	74		30.4		30.4	

Program FTE Summer 2017

Report	Enrollment	FTE	HeadCount	Hybrid FTE	In-Person FTE	OnlineFTE	Post-100 Level FTE	Pre-101 Level FTE
Health Sciences								
Dental Sci, Diag Eval & Rehab								
SON	109	14.3	109		14.3		14.3	

Program FTE Fall 2017

Report	Enrollment	FTE	HeadCount	Hybrid FTE	In-Person FTE	OnlineFTE	Post-100 Level FTE	Pre-101 Level FTE
Health Sciences								
Dental Sci, Diag Eval & Rehab								
SON	209	34	80		34		34	

Program FTE Spring 2018

Report	Enrollment	FTE	HeadCount	Hybrid FTE	In-Person FTE	OnlineFTE	Post-100 Level FTE	Pre-101 Level FTE
Health Sciences								
Dental Sci, Diag Eval & Rehab								
SON	204	32.5	78		32.5		32.5	

Program FTE Summer 2018

Report	Enrollment	FTE	HeadCount	Hybrid FTE	In-Person FTE	OnlineFTE	Post-100 Level FTE	Pre-101 Level FTE
Health Sciences								
Dental Sci, Diag Eval & Rehab								
SON	107	14.1	107		14.1		14.1	

Course Information 2015-2016

	Enrolled	Students on FA	Graduated
⊟ Diagnostic Medical Sonography [Cardiac/Vascular Ultrasound Tract]			
⊟ 2015-16			
SONCAR-AAS	26	15	8
Grand Total	**26**	**15**	**8**

Course Information 2016-2017

	Enrolled	Students on FA	Graduated
⊞ Diagnostic Medical Sonography [Cardiac/Vascular Ultrasound Tract]	18	11	7
Grand Total	**18**	**11**	**7**

	Enrolled	Students on FA	Graduated
⊟ Diagnostic Medical Sonography [Cardiac/Vascular Ultrasound Track]			
⊟ 2016-17			
SONCCARAAS	10	2	1
Grand Total	**10**	**2**	**1**

Course Information 2017-2018

	Enrolled	Students on FA	Graduated
Diagnostic Medical Sonography [Cardiac/Vascular Ultrasound Tract]			
2017-18			
SONCAR-AAS	10	8	9
Grand Total	**10**	**8**	**9**

	Enrolled	Students on FA	Graduated
Diagnostic Medical Sonography [Cardiac/Vascular Ultrasound Track]			
2017-18			
SONCCARAAS	19	15	0
Grand Total	**19**	**15**	**0**

Academic Program Review

Engelstad School of Health Sciences

Diagnostic Medical Sonography Program

General/Vascular Track

Spring 2019

Table of Contents

Mission

CSN Mission Statement

The College of Southern Nevada creates opportunities and enriches lives with inclusive learning and working environments that support diversity and student success. The College fosters economic development, civic engagement, and cultural and scientific literacy, while helping students achieve their educational, professional, and personal goals.

CSN Vision Statement

The College of Southern Nevada is recognized as a leader among community colleges in fostering student success.

CSN is committed to:

- *Exceptional Learning Environments*, which integrate career and liberal arts education, to shape well-rounded, engaged citizens, employees, and community leaders.
- *Developing Solution-Oriented Strategies* to help students overcome barriers to educational access and success.
- *A Culture of Accountability* in which we balance data-informed decision making with flexibility and responsiveness to stakeholders, individuals, and events.
- *A Collegial Work Environment* that makes CSN the "employer of choice" for an exceptional workforce that is engaged in and accountable for the quality of CSN's learning environment, and that benefits from excellent support, growth opportunities, and competitive total compensation packages.
- *Quality Community Partnerships* that provide resources and educational opportunities to develop a skilled workforce.
- *Cultural and Academic Initiatives* that promote the advancement and appreciation of the arts, sciences, and humanities, contributing to the richness of our multicultural community.

CSN Values Statement

CSN values the following:

Lifelong Learning: CSN values a broad-based education because a diverse foundation of knowledge empowers creative thinking, problem solving, and innovation.

Excellence: CSN understands that achieving and surpassing our goals requires care, commitment, and quality in teaching, learning, scholarship, service, and administration.

Integrity: CSN places fairness, honesty, transparency, and trust at the center of all policies and operations.

Inclusion: CSN embraces diversity because it heals social division and injustice, and promotes creativity, growth, and critical thinking through the integration of many different perspectives.

Academic Freedom: CSN values freedom of thought and speech because open minds and uninhibited discussions are fundamental to teaching, learning, and responsible civic engagement.

Connectedness: CSN builds a collective identity through shared governance, effective communication and collaboration among students, faculty, staff, and community members.

DMS Program Mission

The goal of the General/Vascular Ultrasound Track is to prepare competent entry-level general sonographers in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains. This goal is partially achieved by providing the student with the high-level training necessary in the skill-oriented field of Ultrasound Technology through scanning lab practice and clinical rotations. In order to provide a sound foundation for further advancement, emphasis is placed on the "why", not just the "how." Thus, a student learns why the skill is performed as prescribed and what results can be from the correct versus the incorrect technique.

The program is committed to providing an integrated curriculum as determined by the JRC-DMS, which in turn will help ensure that our learners are prepared to sit for the national certification exams as well as become an integral part of the healthcare workforce as a sonographer at the local and national level. This directly supports CSN's mission by ensuring sonography students achieve their educational, professional, and personal goals. Through their education, students acquire economic stability and are in a position to advance themselves through the pursuit of a higher degree or in the profession of sonography itself.

Institutional Research Data

The General/Vascular track of the Sonography Program leads to an Associate in Applied Science Degree and accepts a maximum of 12 learners per year. The data tables provided from institutional research are attached at the end of the report. Not all of the data is accurate so my comments will be focused on data reported in CAAHEP annual reports.

Since its last program review the General/Vascular Track of the Sonography Program accepted a total of 48 learners in 2015, 2016, 2017 and 2018. The total number of available positions in this track of the sonography program for those years was 48, indicating a 100% overall enrollment rate.

Graduation rates and attrition rates for the program are in the table below.

Graduation Year	# Students Admitted	# Students Graduating	Graduation Rate	Attrition Rate
2015	12	11	92%	8%
2016	12	8	67%	33%
2017	12	10	83%	17%
2018	12	10	83%	17%

The reason for program withdrawal and failure to graduate fell into three categories: 1 student left due to an academic failure, 8 students left for personal/medical reasons. According to our CAAHEP accreditation standards, attrition rates can be 20% or less. This puts the CSN program in accreditation compliance for all years reported ecept for the graduating class of 2016.

Several students from that cohort voluntarily withdrew once they determined that the field was no longer a profession they wanted to pursue. We feel this is why the rate was higher than normal. We have discussed this with the advisory board and we are looking at offering an optional introductory course to prospective students which will give more information about the field. We are requiring 40 hours of observation for program application which is intended to provide the same information but it does not seem to help in all cases . Should the course be developed we

will cut the number of required observation. In the meantime, we are going to develop activities for observing prospective students to give them a clearer grasp of the field and see of this corrects the problem.

The college hosts numerous occasions where recruitment can occur. College and Job fairs, orientations and student counseling, health programs advisement, as well as our own advisory board and word of mouth from current and former learners, has led to a steady increase in the number of learners applying for entry into the sonography programs. Retention of those learners admitted into the sonography programs has not proposed much of a problem. In fact, the vast majority of learners admitted to the sonography programs progress on to graduation.

Although the field of sonography is constantly changing, especially technologically, and individual courses have to be updated to meet those changes, there have been no major changes to the overall program curriculum. In fact, when compared to other institutions that provide CAAHEP accredited programs, the sonography programs at CSN are quite comparable. The one difference appears to be that the number of credit hours required for completion is approximately 60 credits in most other institutions, whereas 93 credit hours in the general program or 92 credits hours in the cardiac program are required at CSN for completion. The increased number of credits required for graduation from our sonography programs is due to inclusion of the Vascular Sonography component to both tracks of the sonography programs. Either other benchmark institutions do not offer the Vascular Sonography component or it is offered as an optional component of the sonography program.

Both tracks of the sonography programs are currently accredited by CAAHEP and the JRC-DMS. As a result of accreditation, our learners are able to take the national ARDMS registry exams early. They can sit for the Sonography Principles and Instrumentation exam after the first year of the program and they can sit for their specialty exam 60 days prior to graduation. This allows them to obtain their credentials immediately after graduation and become eligible to work right away. Learners graduating from non-accredited institutions have to work in the field for one year full-time or two years part-time, before the ARDMS will allow them to take the national registry exams.

Faculty Information

Program Director

Each track of the Diagnostic Medical Sonography Program is organized under the same program director, the director reports to the Department Chair of Health Related Professions, and the Dean of the School of Health Sciences. The general and cardiac tracks each have a separate full-time clinical coordinator who reports to the program director. There is one instructional faculty member in the general/vascular track of the program as well as one part-time instructor in the general/vascular track of the program.

Tracy McCord is the Program Director for both tracks of the Sonography Program. She is a market-hire faculty member who holds ARDMS credentials in abdominal sonography, adult echocardiography, and vascular sonography. Tracy teaches the following courses: Son 101B Basic Sonography, Son 102B Basic Cardiac Sonography, Son 102L Basic Cardiac Sonography Lab, Son 160B Scanning Lab I, Son 116B Echocardiography I, Son 216B Echocardiography II, Son 195B Scanning Lab II, Son 275B Vascular Sonography I, Son 275L Vascular Sonography Lab II, Son 250B Case Review I, Son 135B Cardiovascular Physics, Son 276B Vascular Sonography II, and Son 255B Case Review II. She also holds a BS degree in Radiological Sciences, with an

emphasis in Ultrasound as well as a MEd in Educational Leadership with an emphasis in Workforce Education.

Tracy is an active member of the program with extensive professional development activities and institutional service. These activities include, but are not limited to:

- Attended four separate CAPE sessions on Assessment.
- Served on the college wide Assessment Council.
- Served on the School of Health Sciences Assessment Committee as assessment coordinator.
- Served on program advisory board.
- Served on DMS OB/Gyn Concentration Coordinator search committee.
- Served on Work Climate Committee.
- Served on implementation and monitoring team through the Work Climate Committee.
- Attended ASE national echocardiography convention in Boston.
- Member of the American Society of Echocardiography.
- Maintained CMEs for three ultrasound credentials.
- Served on Limited Entry Policy Committee.
- Completed cardiac ultrasound simulator training.
- Served on DMS Instructor search committee.
- Attended CAPE session on Curriculum and Curricunet.
- Completed in-service training on new Philips ultrasound system.
- Attended 20th Annual Pediatric Heart Conference.
- Served on Dental Hygiene Instructor search committee.
- Attended CAPE session on Multiple Choice Questions.
- Attended and presented at the Forum on Assessment offered through CAPE.
- Maintained CAAHEP accreditation status by completing annual reports, submitting a self-study and successfully hosting a site visit.
- Attended 18th Annual ASCeXAM Review Course in Philadelphia.
- Participated in CSN's Health Career Exploration Camp 2018

Tammy Plourde is the Clinical Coordinator for the general/vascular track of the program. She is a market-hire faculty member who holds ARDMS credentials in abdominal sonography, OB/Gyn sonography and vascular sonography. Tammy teaches the following courses: Son 160B Scanning Lab I, Son 280B Clinical I, Son 235B Gynecologic Ultrasound, Son 281B Clinical II, Son 195B Scanning Lab II, Son 245B Obstetrical Sonography I, Son 282B Clinical III, Son 283B Clinical IV, Son 260B Obstetrical Sonography II, Son 270B Small Parts/Pediatric Sonography, Son 284B Clinical V, Son 255B Case Review II. She holds a BAS in Allied Health Sciences.

Tammy is an active member of the program with extensive professional development activities and institutional service. These activities include, but are not limited to:

- CAPE sessions: specifically "Getting to know you: Improving Faculty/Student relationships through Service Excellence"
- Completed initial and refresher Sexual Harassment training and Title IX as required by CSN
- Became a Registered Vascular Technologist (RVT)
- Attended multiple sessions of CATS – Classroom Assessment Techniques
- Member of the Assessment (Huddle) Committee
- Member of the Reinstatement Committee
- Gave presentation to Nevada State College President and Administrative staff regarding Employees and Job satisfaction (Climate survey) and made suggestions for improvement based on research – awarded best presentation.

- Graduated with High Honors from Nevada State College with a B.A.S. in Allied Health Sciences.
- Member of the SDMS
- Attended ESP Ultrasound Conference in 2017 for Pediatric Sonography as well as OB/GYN
- Attended ESP Ultrasound Conference in 2018 for Vascular Sonography as well as Fetal Echo
- Yearly attendance at the Children's Heart Conference
- Participation in the Children's Heart Foundation Annual "Walk with the Heart of a Child"
- Participated in CSN's Health Career Exploration Camp 2018
- Yearly participation in the CSN Science and Technology Expo
- Active Community volunteer – Keep Memory Alive Gala, Elementary School assistance for teachers in the classroom

Sheena Guynn is an instructor for the general/vascular track of the program. She is a market-hire faculty member who holds ARDMS credentials in abdominal sonography, OB/Gyn sonography, vascular sonography and adult echocardiography. Sheena teaches the following courses: Son 160B Scanning Lab I, Son 210B Abdominal Sonography I, Son 220B Abdominal Sonography II, Son 195B Scanning Lab II, Son 275L Vascular Scanning Lab I, Son 250B Case Review I, Son 270B Small Parts/Pediatric Ultrasound, Son 276L Vascular Scanning Lab II, and Son 290B Registry Review. She holds a BS in

Sheena is an active member of the program professional development. However, her institutional service has not been established since she is new to the college. These activities include, but are not limited to:

- Attended Current Practice of Vascular Ultrasound: The New Edition
- Attended Contrast Echo Drives Operation Efficiency and Improves Quality of Care
- Attended Contrast Echo A Proven Impact on Patient Management
- Attended 21st Annual Heart Conference
- Attended Calf Vein Imaging
- Member of the SDMS

Jodi Gonz is the Clinical Coordinator for the cardiac/vascular track of the program. She is a market-hire faculty member who holds ARDMS credentials in adult echocardiography and CCI credentials in pediatric echocardiography. Jodi teaches SON125B Sonographic Physics I and Son 190B Sonographic Physics II for the general program. The other courses she teaches are part of the cardiac/vascular track curricula. She holds a BS in

Jodi is an active member of the program with extensive professional development activities and institutional service. These activities include, but are not limited to:

- ASE Conference Boston
- Pediatric Heart Conference
- CCI Educators Forum Local
- Classes at Nevada State toward BS
- Faculty advisor for the Sonography Club
- Salary & Benefits Committee
- Advisory board member
- Campus Save Act Training
- Scholarship committee
- Tech Expo
- Classes at Nevada State completion of BS

- Scholarship committee
- Dental Hygiene Search committee Chair
- Safety Task Force committee
- Search committee for Diagnostic Ultrasound
- ASE Philadelphia conference
- Pediatric Heart conference
- Work Climate committee
- Reinstatement committee
- Special Hearings committee
- Two Cape sessions- Test questions & Workday
- Annual Sonography Alumni Gathering Director and Planner

All four faculty members of the sonography program have extensive years of experience in the field and hold multiple ultrasound credentials. Since the last academic program review, one faculty member has retired and one has moved on to a position in administration at CSN. We have hired a new clinical coordinator and instructor for the general/vascular program as replacements. Student course critiques and annual faculty evaluations show students are overwhelmingly satisfied with the quality of instruction that is offered by the program.

Student Information

Both tracks of the sonography program are limited entry and accept only 10 students each year. The following is the advising sheet for the cardiac/vascular track as well as the selection criteria.

Diagnostic Medical Sonography

General/Vascular Ultrasound Track

Associate of Applied Science (93 Credits)

For Students Seeking Admission to the Summer 2020 Program

PROGRAM PREREQUISITE COURSES: These are courses that must be completed before a student is considered eligible for entry into the program. **FOR SELECTION PURPOSES, PREREQUISITE COURSES FOR LIMITED ENTRY PROGRAMS MAY BE ATTEMPTED *THREE TIMES.* ALL ATTEMPTS INCLUDE WITHDRAWALS, AUDITS AND GRADES. THE HIGHEST GRADE WILL BE USED FOR THE GPA CALCULATION.**

Course		Title	Cr	Gen Ed Req.	Tech Prep	Min. Grade
BIOL	223	Anatomy & Physiology I	4	Science	No	C
BIOL	224	Anatomy & Physiology II	4	Science	No	C
MATH	116 or	higher (Except Math 122 & 123)	3	Math	No	C
PHYS	110	Conceptual Physics or any College Physics with Lab**	4	Science	No	C
HIT	117B	Medical Terminology I	1	Tech. Emphasis	Yes	C
ENG	101/100	Composition I	3	English	No	C
or						
ENG	107	Technical Communications I	3	English	Yes	C
		Total	**19**			

****EGG 131/131L will also be accepted for the Physics requirement.**

ADDITIONAL GENERAL EDUCATION

Communications: (see AAS degree requirements 3 Cr
College Catalog)
U.S. & Nevada Constitution: (see AAS degree 4 Cr
requirements in College Catalog)
Human Relations: (see AAS degree requirements 3 Cr
in College Catalog)
Social Sciences/Humanities: (see AAS degree require- 3 C
in College Catalog)

REQUIREMENTS: IMPORTANT POINTS TO REMEMBER:

*Selection Occurs: Once a year in
*Program Begins: Summer 2020
*Application Deadline: **February 1, 2020**
Proof of completion of all program prerequisites must be in the Limited Entry Office by this date.
*Maximum number of students admitted: **10**
*Science courses must be no more than 7 years old at the time of entry into the program. ments

PROGRAM COURSES: These are specialized courses within a health discipline. They are restricted to students who have been accepted into the program. Program courses are subject to revision; this will not impact program admission

1st Semester (Summer)	*2nd Semester (Fall)*	*3rd Semester (Spring)*	*4th Semester (Summer)*	*5th Semester (Fall)*	*6th Semester (Spring)*
SON 101B.....3 cr Basic Sonography	SON 160B.....2 cr Scanning Lab I	SON 190B.....3 cr Sonographic Physics II	SON 282B.....3 cr Clinical III	SON 283B.....3 cr Clinical IV	SON 276B.....3 cr Vascular Sonography II
SON 101L.....1 cr Basic Sonography Lab	SON 280B.....2 cr Clinical I	SON 281B.....2 cr Clinical II		SON 260B.....3cr Obstetrical Sonography II	SON 276L.....1cr Vascular Sonography Lab II
SON 150B.....2 cr Patient Care	SON 125B.....3 cr Sonographic Physics I	SON 220B.....3 cr Abdominal Sonography II		SON 275B.....3 cr Vascular Sonography I	SON 290B.....2 cr Registry Review
SON 150L.....1 cr Patient Care Lab	SON 210B.....3 cr Abdominal Sonography I	SON 195B.....2 cr Scanning Lab II		SON 275L.....1 cr Vascular Sonography Lab I	SON 284B.....3 cr Clinical V
	SON 235B.....3 cr Gynecologic Sonography	SON 245B.....3 cr Obstetrical Sonography I		SON 250B.....2 cr Case Review I	SON 255B.....2 cr Case Review II
				SON 270B.....2 cr Small Part/Pediatric Sonography	
Total Sem.....7 cr	**Total Sem.....13 cr**	**Total Sem.....13 cr**	**Total Sem....3 cr**	**Total Sem.....14 cr**	**Total Sem.....11 cr** **Total Program Course Credits 61**

College of Southern Nevada
Summer 2020 Diagnostic Medical Sonography Selection Criteria

Qualified applicants must have a High School Diploma or GED equivalent, a minimum 2.5 cumulative GPA for all program prerequisites, a minimum of 20 hours of clinical observation, and a minimum cut-off score of 80% in Reading, 60% in Math, 60% in Writing, and 60% in Science on the ATI TEAS Exam. Applicants will be ranked and selected through a point system:

Cumulative GPA for all Program Prerequisites:

- (0.4 points for each fractional grade point average over 2.5 will be awarded)

GPA	Points	GPA	Points	GPA	Points
2.6	0.4	3.1	2.4	3.6	4.4
2.7	0.8	3.2	2.8	3.7	4.8
2.8	1.2	3.3	3.2	3.8	5.2
2.9	1.6	3.4	3.6	3.9	5.6
3.0	2.0	3.5	4.0	4.0	6.0

- **ATI TEST OF ESSENTIAL ACADEMIC SKILLS (TEAS) and KAPLAN ADMISSION TEST (KAT):** (point(s) for selection will be based on the **Adjusted Individual Total Score**).

ATI (TEAS)		Kaplan	
RANGE	**POINTS**	**RANGE**	**POINTS**
64-70%	0 points	69-71%	0 points
71-77%	1 point	72-76%	1 points
78-84%	2 points	77-81%	2 points
85-90%	3 points	82-88%	3 points
91% and higher	4 points	89% & higher	4 points

PLEASE NOTE: TEAS AND KAT COMPONENTS WITH MINIMUM CUT-OFF SCORES IN ORDER TO **QUALIFY** TO APPLY:

ATI (TEAS)		Kaplan	
AREA OF TESTING	**MINIMUM CUT-OFF SCORE**	**AREA OF TESTING**	**MINIMUM CUT-OFF SCORE**
READING	80%	READING	80%
MATH	60%	MATH	80%
ENGLISH	60%	WRITING	60%
SCIENCE	60%	SCIENCE	60%

- Applicants who fail to establish the minimum cut-off score in **each** area will be required to re-take the **entire** exam. Each test is considered a combined complete entity. There will be NO combination of scores from separate tests.
- The completion deadline date for application materials is used as the reference point for time frames.
- **Note: The Kaplan Exam must be taken prior to December 31, 2016 and will be accepted until December 31, 2021. Kaplan Exams taken after December 31, 2016 will not be accepted. TEAS or Kaplan Exam scores older than (5) years at the time of application will not be considered. Students who have taken the TEAS or Kaplan exam from another state and/or institution must have all their scores officially transferred to CSN before their specified application deadline. An unofficial copy must also be presented with the limited entry packet.**
- The **TEAS Registration Information** is available online at: https://www.csn.edu/sites/default/files/documents/teasexam1_chk.pdf

College of Southern Nevada
Summer 2020 Diagnostic Medical Sonography Selection Criteria (con't)

Earn a Credential: (2 points)

- **Credentialed Health Occupation** (EMT, CNA, Orderly, etc.) A copy of the current credential must be supplied.

Healthcare Experience:

Paid Medical Field Experience:** (2 points)

- **Health Care Work Experience** - at least 6 months within the last two years.
  - Documentation form completed by employer indicating work responsibilities and length of employment must be supplied. Clerical work will not meet the requirement. The Health Care Experience Documentation Form is available online at: https://archive.csn.edu/sites/default/files/documents/dms_healthcare_experience.pdf

Volunteer Work in the Medical Field:** (2 points)

- Completed volunteer work in the medical field consisting of a minimum of 40 hours in the previous 12 months*******. Volunteer work must include some form of patient interaction (e.g., assist patients to/from exam room; prepare equipment with a Sonography technician; assist nurses in patient transfers – from wheelchair to bed, etc.). **Clerical work will not meet the requirement.**

  - Note: Letter from the organization(s) where volunteer work was performed must specifically include the following:
    - On letterhead
    - Date letter was written
    - Student's name
    - Location of volunteer work
    - Date volunteer work began and ended
    - Number of volunteer hours completed
    - Specific job duties
    - Supervisor's contact information
    - Supervisor's signature

******Points will only be awarded for either previous medical field experience ***or*** volunteer work in the medical field. **Points cannot be combined from these two categories.**

*******The completion deadline date for application materials is used as the reference point for time frames.

College of Southern Nevada
Summer 2020 Diagnostic Medical Sonography Selection Criteria (con't)

20 Hours of Clinical Observation: (required)

- 20 hours of Clinical Observation of a credentialed sonographer is mandatory for program application.
- Students who cannot obtain these hours in the community may complete their observation hours at the Diagnostic Medical Sonography Program Scanning Lab on the West Charleston campus (Engelstad School of Health Sciences or K building room 305).
- Scanning lab hours will be posted on the Diagnostic Medical Sonography Program website.
- Documentation forms for the required 20 hours of clinical observation are available online at: https://archive.csn.edu/sites/default/files/documents/dms_observation_record.pdf

Completion of General Education Requirements: (3 points)

Points will be awarded **ONLY** if **ALL** General Education requirements are met by the completion deadline.

Previous Graduate: (5 points)

- Points will be awarded to an applicant who has previously graduated from the cardiac/vascular track of the Diagnostic Medical Sonography Program at the College of Southern Nevada.

- Points can also be given to a currently enrolled student in the cardiac/vascular track of the Diagnostic Medical Sonography Program at the College of Southern Nevada with an anticipated graduation date that falls prior to the start of the program they are applying for. The current program director will provide a memo verifying their enrollment status and anticipated graduation date. These points are contingent upon graduation. Should the learner fail to graduate then their acceptance into the program will be reevaluated.

These Guidelines are subject to change without notification. Please contact Health Programs Advising for more information at: 702.651.5885 or 702.651.4415.

Assessment Information

The following are the last three assessment reports for the general concentration of the DMS program. The 2018 assessment report is due on May 1, 2019 and will be reported to the dean, department chair and office of assessment along with a four-year assessment plan.

Assessment is completed based on the four approved program learning outcomes listed below:

- Assess and facilitate basic patient care and comfort during sonographic procedures.
- Evaluate ultrasonic images for appropriate anatomy and recognize pathologic conditions.
- Determine proper sonographic techniques, transducer size, and image settings to obtain quality images while operating ultrasound equipment.
- Diagnose and adapt ultrasound examinations during the performance of an ultrasound procedure.

ASSESSMENT REPORT 2013-2014

Date Submitted: February 9, 2015

School: Engelstad School of Health Sciences

Program: AAS Diagnostic Medical Sonography – General Vascular Tract

Submitted By: Tracy Lopez, Program Director

1. Project Overview and Assessment Goals

A. The current assessment plan is evaluating the following program outcomes:
   1. Assess and facilitate basic patient care and comfort during sonographic procedures.
   2. Determine proper sonographic techniques, transducer size, and image settings to obtain quality images while operating ultrasound equipment.
   3. Evaluate ultrasonic images for appropriate anatomy and recognize pathologic conditions.
   4. Diagnose and adapt ultrasound examinations during the performance of ultrasound procedure.

B. Student outcomes are assessed by using a randomized exit competency that is administered in the last semester of the program in their SON 284B course, just prior to graduation. The students draw an ultrasound exam from a list of required competencies that must be completed by graduation from a master competency list. All four program outcomes are broken down into value criterion and evaluated with a rubric during the students' completion of the randomized competency.

C. This assessment report is in line with the assessment plan submitted to the school assessment coordinator on November 6, 2014. No changes were made.

D. The Diagnostic Medical Sonography program revised its assessment to include more direct methods in hopes of garnering more useful data for program improvement. Because of this, no previous report is available for conclusions or changes. Methods prior to revision were primarily indirect and were based on accreditation requirements.

2. Project Design and Coherence

A. Direct measure of student learning is completed as a component of SON 284B – Clinical Practicum V. This is the last clinical rotation in the sonography program prior to graduation taught by the Cardiac Clinical Coordinator, Jodi Gonz. A randomized competency exam is selected from the list of exams on the master competency list.

B. An evaluation rubric was used to assess student learning during the performance of the randomized competency. The rubric was developed by program faculty with input from the advisory board. Please see the appendix for a copy of the evaluation rubric.

C. The rubric addresses each program learning outcome by breaking each down into main value criterion for mastery of each outcome. Each value criterion was established using expectations stated in the Commission on Accreditation of Allied Health Education Programs (CAAHEP) standards and guidelines for the accreditation of education program in diagnostic medical sonography. The standards and guidelines are designed to establish minimum expectations for program goals and must be clearly defined.

D. The evaluation rubric divides each outcome into anywhere from three to five value criterion depending on the outcome (see attached rubric). The rubric uses a scale with 0=Unsatisfactory, 1=Fair, 2=Good, and 3=Excellent. The levels of achievement were established first by assigning an “excellent” rating as demonstration of the value criterion at the level expected of a competent entry-level sonographer, as recommended by the CAAHEP standards and guidelines. Then the rating of “unsatisfactory” was assigned with a complete failure to demonstrate competency in each category. The remaining categories of “fair” and “good” were then added with a variation in the amount of mistakes made by the learner.

E. Only one instructor was involved in the administration of the randomized competency and the rubric evaluation of that exam for the general learners. There was a lengthy discussion about the construction of the rubric and what would constitute a rating in each area with the cardiac instructors so consistency could be established between ultrasound concentrations. The instructors also reviewed the rubrics after administration of the competency to ensure they were all in agreement with the assigned rating in each criterion listed for all program outcomes for each learner.

3. Project Methods

Two weeks prior to finals week all senior cardiac sonography students were brought into the sonography scanning lab on the CSN campus. In addition, all junior students were brought in to serve as “mock” patients for the senior students once a competency type had been selected. Junior students were given extensive patient histories so they could accurately represent the type of patient that would be presenting themselves in a clinical setting for that particular exam type.

Each exam that appeared on the master competency list was written separately on a piece of paper and put into a large bowl. Each senior student pulled an exam from that bowl and returned the slip to the bowl afterwards so that each student would have the same set of exams to pull from. Once the exam was selected the appropriate “patient” was assigned from the pool of junior students and the senior student completed the competency with direct observation from the instructor.

After all of the competencies were completed and scored the instructors reviewed the rubrics for each student. The instructors discussed reasons for scoring each criterion and made sure they all agreed on the rating. Once they were in agreement the rubrics were reviewed for results. Strengths and weaknesses were identified and the need for rubric revision was discussed.

4. Project Results

Student	Outcome 1	Outcome 2	Outcome 3	Outcome 4	Total
1	13	11	9	12	44
2	14	12	9	12	47
3	13	12	9	12	46
4	14	12	9	12	46
5	14	12	9	10	45
6	14	11	9	11	45
7	14	12	3	12	41
8	11	11	9	12	43
9	14	12	9	12	47
10	14	11	9	12	46
11	14	11	9	12	46
Average	13.818	11.545	8.45	11.727	
Possible Score	15	12	9	12	48

5. Discussion of Results

- All criterion categories seemed to be demonstrated appropriately by students. No major areas of weakness were identified.
- There were minor deficiencies in outcome #1 under the patient safety criterion. The errors were only minor and students still ranked in the “good” category.
- The main problem identified with using the random competency was the inability to evaluate the students’ recognition of pathology because the “mock” patients were normal subjects without disease.

6. “Closing the loop” actions

- Since there is no previous data to compare to current results, no major changes in the program curriculum or assessment tool will be made until this year's results can be incorporated for comparison.
- The program has acquired transvaginal, transabdominal, and echocardiographic simulators through grant funding so students can be evaluated on their ability to recognize pathology. Training on the phantoms for faculty needs to take place before this happens. The current evaluation tool will most likely need to be revised as a result of the addition of the simulators.

7. Project Ownership

- All four full-time program faculty members were involved in creating the evaluation rubric for the assessment project.
- Once the rubric was completed, it was e-mailed to all advisory board members for input and possible changes.
- Results of the assessment in May were discussed the following week by all faculty members and recommendations for further action were considered. Advisory board members will be notified at the next advisory board meeting for input and comments as well.

APPENDIX

Outcome #1: Assess and facilitate basic patient care and comfort during sonographic procedures.

Criterion	Unsatisfactory	Fair	Good	Excellent
	0	1	2	3
Introduction	Fails to welcome the patient, introduce themself or verify patient identification.	Completes only one of the three introduction tasks.	Completes two of the three introduction tasks.	Welcomes the patient, introduces him/herself, and verifies patient identification.
Patient Safety	Does not wash hands, wear	Either washes hands or wears	Washes hands or wears exam	Washes hands, wears exam

	exam gloves, and doesn't clean the transducer, table and machine between patients.	exam gloves but does not do any cleaning of the equipment.	gloves and does some cleaning of the equipment.	gloves, and cleans transducer, table and machine between patients.
Patient History	Fails to ask about the patient's medical history, associated testing and symptoms.	Asks one of the three patient history questions.	Asks two of the three patient history questions.	Asks about the patient's medical history, associated testing and symptoms.
Patient Comfort	Provides no support for patient comfort (support pillows) and climate (hot, cold, drafts); no assistance is provided due to any illness or disability.	Provides minimal support for patient comfort (support pillows) and climate (hot, cold, drafts); minimal assistance is provided due to any illness or disability.	Provides moderate support for patient comfort (support pillows) and climate (hot, cold, drafts); moderate assistance is provided due to any illness or disability.	Provides complete support for patient comfort (support pillows) and climate (hot, cold, drafts); complete assistance is provided due to any illness or disability.
Communication	Does not effectively communicate patient instructions before, during and after the exam.	Effectively communicates patient instructions before the exam but not during or after.	Effectively communicates patient instructions before the exam and only once more, either during or after the exam.	Effectively communicates patient instructions before, during and after the exam.

Outcome #2: Determine proper sonographic techniques, transducer size, and image settings to obtain quality images while operating ultrasound equipment.

Criterion	Unsatisfactory	Fair	Good	Excellent
	0	1	2	3
Equipment Selection	Does not select the appropriate ultrasound and ancillary equipment and transducers and does not achieve optimal	Selects one of either appropriate ultrasound and ancillary equipment or transducers and achieves	Selects the appropriate ultrasound and ancillary equipment and transducers but still achieves only adequate	Selects the appropriate ultrasound and ancillary equipment and transducers to achieve optimal

	visualization of structures.	adequate visualization of structures.	visualization of structures.	visualization of structures.
Ergonomics	Does not adjust equipment position and chair or other aides and doesn't use proper body mechanics during scanning to minimize or eliminate the risk of musculoskeletal injury.	Makes minimal adjustments of equipment position and chair or other aides but still does not use proper body mechanics during scanning to minimize or eliminate the risk of musculoskeletal injury.	Makes some adjustments of equipment position and chair or other aides and improves some body mechanics during scanning to but does not completely eliminate the risk of musculoskeletal injury.	Adjusts equipment position and chair or other aides and uses proper body mechanics during scanning to minimize or eliminate the risk of musculoskeletal injury.
Optimizes Images	Fails to optimize image during the exam (harmonics, window, field of view, gain, TGC, focus, depth, zoom, image orientation, and power, pre- and post-processing, dynamic range, and compression, etc.)	Occasionally optimizes image during the exam (harmonics, window, field of view, gain, TGC, focus, depth, zoom, image orientation, and power, pre- and post-processing, dynamic range, and compression, etc.)	Optimizes image for the majority of the exam with a few exceptions (harmonics, window, field of view, gain, TGC, focus, depth, zoom, image orientation, and power, pre- and post-processing, dynamic range, and compression, etc.)	Completely optimizes image during the exam (harmonics, window, field of view, gain, TGC, focus, depth, zoom, image orientation, and power, pre- and post-processing, dynamic range, and compression, etc.)
Doppler Modes (if used during exam)	Does not use proper Doppler settings (PRF, gains, wall filters, sample volume size and placement, color map, velocity range, angle correct, etc.)	Occasionally uses proper Doppler settings (PRF, gains, wall filters, sample volume size and placement, color map, velocity range, angle correct, etc.)	Uses proper Doppler settings for the majority of the exam with a few exceptions (PRF, gains, wall filters, sample volume size and placement, color map, velocity range, angle correct, etc.)	Consistently uses proper Doppler settings during the exam (PRF, gains, wall filters, sample volume size and placement, color map, velocity range, angle correct, etc.)

Outcome #3: Evaluate ultrasonic images for appropriate anatomy and recognize pathologic conditions.

Criterion	Unsatisfactory	Fair	Good	Excellent
	0	1	2	3
Demonstrates Anatomy & Pathology	Does not completely demonstrate and document all normal and abnormal anatomy in multiple sonographic planes and views. More than 4 images are forgotten.	Demonstrates and documents some normal and abnormal anatomy in multiple sonographic planes and views but forgets 3-4 images.	Demonstrates and documents most of the normal and abnormal anatomy in multiple sonographic views but forgets less than 3 images.	Completely demonstrates and documents all normal and abnormal anatomy in multiple sonographic planes and views. No images are forgotten.
Surveys Adjacent Structures	Does not survey area(s) of interest and surrounding structures and does not take additional pictures as necessary.	Does a minimal survey of area(s) of interest and surrounding structures and takes few additional pictures as necessary.	Does and adequate survey of area(s) of interest and surrounding structures and takes additional pictures as necessary.	Completely surveys area(s) of interest and surrounding structures and takes additional pictures as necessary.
Annotation	Does not annotate images correctly for the entire exam by inputting patient identification and appropriate image text.	Annotates some images correctly for the exam by inputting patient identification and appropriate image text.	Annotates most of the images correctly for the exam by inputting patient identification and appropriate image text.	Annotates images correctly for the entire exam by inputting patient identification and appropriate image text.

Outcome #4: Diagnose and adapt ultrasound examinations during the performance of ultrasound procedure.

Criterion	Unsatisfactory	Fair	Good	Excellent
	0	1	2	3
Patient Position	Does not utilize different patient positions to adequately	Utilizes different patient positions to adequately visualize	Utilizes different patient positions to adequately visualize	Utilizes different patient positions to adequately visualize

	visualize structures or obtain images consistently throughout the procedure.	structures or obtain images for less than half of the procedure.	structures or obtain images for more than half, but not all, of the procedure.	structures or obtain images consistently throughout the procedure.
Protocol	Includes all images necessary for exam type according to CSN established scanning protocol with more than 3 errors.	Includes all images necessary for exam type according to CSN established scanning protocol with 2-3 errors.	Includes images necessary for exam type according to CSN established scanning protocol with 1 error..	Includes all images necessary for exam type according to CSN established scanning protocol.
Measurements	Fails to correctly utilize appropriate measurement controls and analysis software for the procedure with more than 3 errors.	Correctly utilizes appropriate measurement controls and analysis software for the procedure with 2-3 errors.	Correctly utilizes appropriate measurement controls and analysis software for the procedure with 1 error.	Correctly utilizes appropriate measurement controls and analysis software for the entire procedure.
Scan Time	Scan time for examination type is long by more than 10 minutes.	Scan time for examination type is long but not by more than 10 minutes.	Scan time for examination type is long but not by more than 5 minutes.	Demonstrates appropriate exam time for examination type.

Outcome #1	Outcome #2	Outcome #3	Outcome #4
Crit. 1 _____	Crit. 1 _____	Crit. 1 _____	Crit. 1 _____
Crit. 2 _____	Crit. 2 _____	Crit. 2 _____	Crit. 2 _____
Crit. 3 _____	Crit. 3 _____	Crit. 3 _____	Crit. 3 _____
Crit. 4 _____	Crit. 4 _____	Total _____	Crit. 4 _____
Crit. 5 _____	Total _____	Possible: 9	Total _____
Total _____	Possible: 12		Possible: 12
Possible: 15			

College of Southern Nevada

ANNUAL ACADEMIC PROGRAM (Degree and/or Certificate)

STUDENT LEARNING OUTCOMES REPORTING FORM

Academic Year	2015-2016
Academic Program	AAS – Diagnostic Medical Sonography – General/Vascular Track

Department: Dental Sciences, Diagnostic Evaluation & Rehabilitation Services

Date Report Completed: November 27, 2016

Completed by: Tracy Lopez

Contact Email: tracy.lopez@csn.edu

Contact Phone: 702-651-5925

Mission (Program Mission Strategies)

From your 3-year assessment plan, list the assessment strategies pursued during the current academic year to support the mission of your department, school and CSN.

The current assessment plan is evaluating the following program outcomes:

5. Assess and facilitate basic patient care and comfort during sonographic procedures.
6. Determine proper sonographic techniques, transducer size, and image settings to obtain quality images while operating ultrasound equipment.
7. Evaluate ultrasonic images for appropriate anatomy and recognize pathologic conditions.
8. Diagnose and adapt ultrasound examinations during the performance of ultrasound procedure.

Student outcomes are assessed by using a randomized exit competency that is administered in the last semester of the program in their SON 284B course, just prior to graduation. The students draw an ultrasound exam from a list of required competencies that must be completed by graduation from a master competency list. All four program outcomes are broken down into value criterion and evaluated with a rubric during the students' completion of the randomized competency.

Indirect assessment strategies include successful completion and acceptance of the annual report to JRCDMS. The criteria in this report are all indirect measures of learning and include: program attrition rates, graduate survey response rate, employer survey response rate, employment rate, and credential success rate.

REPORT OF PREVIOUS ACADEMIC YEAR ACTION PLAN FOR IMPROVEMENT ACTIVITIES

1. List the planned activities from the previous action plan and provide a narrative report on the activity results.
2. Describe the direct impact to student learning and/or impact to institutional effectiveness/improvement.
3. Indicate any follow-up actions that are still needed for activities revised or not completed.
4. Indicate how the activity results have been shared and discussed (internally and externally) with program stakeholders.

1. The 3 year assessment plan for the 2015-2016 academic year includes the following:

- The direct measure of learning will be used for annual reporting.
- Results of the spring 2016 scanning competency will be compiled, reviewed and assessed by faculty and reported. Recommendations and any areas of improvement will be noted for revision of future exit ultrasound scanning competencies or any possible changes needed to the rubric.
- The Cardiac/Vascular Track of the Sonography Program will review and revise the course outcomes for the following courses:
  - SON 275B, SON 275L, SON276B, SON 276L, SON 280B, SON 281B, SON 282B, SON 283B, SON 284B, SON 290B

2. Since the CSN program is the only CAAHEP accredited program in the State of Nevada, our main goal is in line with their standards. That goal is to train competent entry level sonographers in Adult Echocardiography. The need to assess students' scanning skills is vital to achieve this goal and the exit competency directly evaluates the skills necessary for competence in the field. Gaps in scanning skills are identified and addressed in the appropriate areas of the curriculum to improve both student learning and program effectiveness. We have integrated the use of ultrasound phantoms and simulators to help with pathology identification.
3. After review of the previous report and further evaluation, the faculty all agreed that the exit competency and the associated evaluation rubric were not effective tools for capturing any significant deficiencies that could be addressed. Faculty explored other assessment strategies and decided that an e-portfolio would be a more effective assessment tool. After the approval of the advisory board, it was decided that the last exit competency will take place for the graduating class of 2017. The e-portfolio was introduced to the graduating class of 2018 and they will be the first cohort using the new assessment tool. Annual report

statistics to the JRCDMS were all in line with national requirement for an accredited program. The report was approved with no noted deficiencies.

4. The assessment report was distributed and discussed with the advisory board and faculty members. The deficiency of the current tool was also discussed and the possibility of an e-portfolio was introduced. Advisory board members were in favor of the switch to an e-portfolio and suggested artifacts to be included in that portfolio were established. They also agreed on the timeline for introduction of the new tool.

CURRENT ACADEMIC YEAR ASSESSMENT MEASURES	
Program Completion	
Total number of students enrolled in program on first day of the program for current AY	8
Total number of students completing program on day grades are due for last semester of current AY	8
Student Learning Outcomes	

1. List each program SLO
2. The performance criterion that you use to determine achieved, partially achieved or not achieved
3. Report the percentage of students within the program that achieved, partially achieved or did not achieve each SLO
4. Attach evidence of how SLOs were assessed (summary reports, tables, graphs, charts, etc.)
5. Add additional lines for program SLO's as needed

Program SLOs	**Performance criterion (How will you determine achieved, partially achieved or not achieved?)**	**% Achieved SLO**	**% Partially Achieved SLO**	**% Not Achieved SLO**
Assess and facilitate basic patient care and comfort during sonographic procedures.	An outcome rubric with 5 criterions is used to assess this outcome. A 90% of the possible points is considered "achieved". "Partially achieved" is 70-89% . "Not achieved" is 69% or lower.	37.5%	62.5%	0%
Determine proper sonographic techniques, transducer size, and image settings to obtain quality images while operating ultrasound equipment.	An outcome rubric with 4 criterions is used to assess this outcome. A 90% of the possible points is considered "achieved". "Partially achieved" is 70-89% . "Not achieved" is 69% or lower.	50%	12.5%	37.5%
Evaluate ultrasonic images for appropriate anatomy and recognize pathologic conditions.	An outcome rubric with 3 criterions is used to assess this outcome. A 90% of the possible points is considered "achieved". "Partially achieved" is 70-89% . "Not achieved" is 69% or lower.	75%	25%	0%
Diagnose and adapt ultrasound examinations during the performance of ultrasound procedure.	An outcome rubric with 4 criterions is used to assess this outcome. A 90% of the possible points is considered "achieved". "Partially	50%	25%	25%

	achieved" is 70-89% . "Not achieved" is 69% or lower.			

Student Performance

Describe how students performed overall in the program. Indicate performance gaps and possible need for improvement.

Since the program faculty and advisory board have decided to switch to a different direct assessment tool, program faculty decided the results are skewed and not representative of significant program weaknesses. The program will be switching to an eportfolio for further assessment endeavors. Indirect measures of assessment reported to the JRCDMS were all in line with national requirements.

Assessment Measurement Tools

Describe the performance and usability of the direct and indirect assessment measurement tools. Indicate performance gaps and possible need for improvement.

Program faculty decided that the current assessment tool is not effective in identifying weaknesses. The program will be implementing an eportfoilio starting with the graduating class of 2018. Current indirect methods will remain the same since it consists of data supplied to national accrediting agency.

Mission Alignment

Describe how the program assessment results support CSN institutional effectiveness. Indicate performance gaps and possible need for improvement

The mission of the Cardiac/Vascular Sonography Program is to provide our learners with a standards-based method of specialized training and preparation for a career in the health specialty of diagnostic medical ultrasound. The Associate of Applied Science degree program in Cardiac/Vascular Sonography has been designed to assess CSN in its mission to meet the need for competent, well-trained sonographers in both the local and state communities, as well as the national community levels. The program is committed to providing an integrated curriculum as determined by the JRC-DMS, which in turn will help ensure that our learners are prepared to sit for the national certification exams as well as become an integral part of the healthcare workforce as a sonographer.

Course Review

Based on the courses indicated for review in the current AY cycle of your 3-year assessment plan, indicate all courses that were reviewed by course number and title. For each course provide an overall summary pertaining to achievement of student learning outcomes and discuss what curriculum components were reviewed (e.g., student learning outcomes, curriculum, assessment, etc.). Provide a concluding statement of how student performance in the course supported student achievement of program student learning outcomes. Indicate any performance gaps and possible need for improvement by course.

The following courses were reviewed for student learning outcomes only. The achievement of program outcomes is difficult to assess using the current assessment tool so contribution of courses to program outcomes and student achievement will be addressed when the eportfolio is implemented.

SON 275B SLO's were reviewed and found to be appropriate for course and contribution to program goals of training competent entry level sonographers.
SON 275L SLO's were reviewed and found to be appropriate for course and contribution to program goals of training competent entry level sonographers.
SON276B SLO's were reviewed and found to be appropriate for course and contribution to program goals of training competent entry level sonographers.
SON 276L SLO's were reviewed and found to be appropriate for course and contribution to program goals of training competent entry level sonographers.
SON 280B SLO's were reviewed and found to need slight revision. Revised outcomes will be submitted to the curriculum committee in the Spring 2017 semester.
SON 281B SLO's were reviewed and found to need slight revision. Revised outcomes will be submitted to the curriculum committee in the Spring 2017 semester.
SON 282B SLO's were reviewed and found to need slight revision. Revised outcomes will be submitted to the curriculum committee in the Spring 2017 semester.
SON 283B SLO's were reviewed and found to need slight revision. Revised outcomes will be submitted to the curriculum committee in the Spring 2017 semester.
SON 284B SLO's were reviewed and found to need slight revision. Revised outcomes will be submitted to the curriculum committee in the Spring 2017 semester.

SON 290B SLO's were reviewed and found to need slight revision. Revised outcomes will be submitted to the curriculum committee in the Spring 2017 semester.

Action Plan for Improvement

1. Complete the Action Plan for Improvement to address the gaps or areas of improvement identified in your report.
2. Indicate planned activities, the purpose of the activity and how it addresses a strategy for improvement.
3. List the action steps needed and a target date where the activity will be evaluated for progress or completion results.

Planned Activity & Purpose	Strategy for Improvement	Action Steps	Target Date
Since the program faculty and advisory board have decided to switch to a different assessment tool, we are not going to address results that we feel are skewed and not representative of significant program weaknesses.			

Report and Disseminate Results

1. Indicate those internal and external stakeholders that need to know and should know your assessment results.
2. Describe any stakeholder feedback and the impact of that feedback to the program.

1. Program faculty members and advisory board members, which includes the medical director of the program, should be aware of the program's assessment activities. Indirect assessment measures are also listed on the sonography program web page as required by CAAHEP.
2. Program faculty we not confident in the previous assessment report results. After a lengthy discussion, it was recommended that the program abandoned the exit competency and the associated assessment rubric in favor of an eportfolio. This was brought to the advisory board and medical director and received unanimous approval. The change will be made starting with the class of 2018 in order to allow time for students to acquire artifacts for their portfolio.

Review	Signature	Date
Program Director:		
Department Chair		
Academic Dean		
Director, Office of Assessment		

APPENDIX

Results Summary Table

Student	Outcome 1 Pts/%	Outcome 2 Pts/%	Outcome 3 Pts/%	Outcome 4 Pts/%
1	12/80%	11/92%	9/100%	12/100%
2	14/93%	12/100%	9/100%	12/100%
3	12/80%	12/100%	9/100%	11/92%
4	14/93%	6/50%	8/89%	8/67%
5	15/100%	12/100%	9/100%	12/100%
6	12/80%	9/75%	9/100%	8/67%
7	11/73%	8/67%	9/100%	9/75%
8	12/80%	8/67%	7/78%	10/83%
# Achieved	3	4	6	4
# Partially Achieved	5	1	2	2
# Not achieved	0	3	0	2

ASSESSMENT RUBRIC

Outcome #1: Assess and facilitate basic patient care and comfort during sonographic procedures.

Criterion	Unsatisfactory	Fair	Good	Excellent
	0	1	2	3
Introduction	Fails to welcome the patient, introduce themself or verify patient identification.	Completes only one of the three introduction tasks.	Completes two of the three introduction tasks.	Welcomes the patient, introduces him/herself, and verifies patient identification.
Patient Safety	Does not wash hands, wear exam gloves, and doesn't clean the transducer, table and machine between patients.	Either washes hands or wears exam gloves but does not do any cleaning of the equipment.	Washes hands or wears exam gloves and does some cleaning of the equipment.	Washes hands, wears exam gloves, and cleans transducer, table and machine between patients.
Patient History	Fails to ask about the patient's medical history, associated testing and symptoms.	Asks one of the three patient history questions.	Asks two of the three patient history questions.	Asks about the patient's medical history, associated testing and symptoms.
Patient Comfort	Provides no support for patient comfort (support pillows) and climate (hot, cold, drafts); no assistance is provided due to any illness or disability.	Provides minimal support for patient comfort (support pillows) and climate (hot, cold, drafts); minimal assistance is provided due to any illness or disability.	Provides moderate support for patient comfort (support pillows) and climate (hot, cold, drafts); moderate assistance is provided due to any illness or disability.	Provides complete support for patient comfort (support pillows) and climate (hot, cold, drafts); complete assistance is provided due to any illness or disability.
Communication	Does not effectively communicate patient instructions before, during	Effectively communicates patient instructions before the exam but not during or after.	Effectively communicates patient instructions before the exam and only once more, either	Effectively communicates patient instructions before, during and after the exam.

	and after the exam.		during or after the exam.	

Outcome #2: Determine proper sonographic techniques, transducer size, and image settings to obtain quality images while operating ultrasound equipment.

Criterion	Unsatisfactory	Fair	Good	Excellent
	0	1	2	3
Equipment Selection	Does not select the appropriate ultrasound and ancillary equipment and transducers and does not achieve optimal visualization of structures.	Selects one of either appropriate ultrasound and ancillary equipment or transducers and achieves adequate visualization of structures.	Selects the appropriate ultrasound and ancillary equipment and transducers but still achieves only adequate visualization of structures.	Selects the appropriate ultrasound and ancillary equipment and transducers to achieve optimal visualization of structures.
Ergonomics	Does not adjust equipment position and chair or other aides and doesn't use proper body mechanics during scanning to minimize or eliminate the risk of musculoskeletal injury.	Makes minimal adjustments of equipment position and chair or other aides but still does not use proper body mechanics during scanning to minimize or eliminate the risk of musculoskeletal injury.	Makes some adjustments of equipment position and chair or other aides and improves some body mechanics during scanning to but does not completely eliminate the risk of musculoskeletal injury.	Adjusts equipment position and chair or other aides and uses proper body mechanics during scanning to minimize or eliminate the risk of musculoskeletal injury.
Optimizes Images	Fails to optimize image during the exam (harmonics, window, field of view, gain, TGC, focus, depth, zoom, image orientation, and power, pre- and post-processing, dynamic range, and	Occasionally optimizes image during the exam (harmonics, window, field of view, gain, TGC, focus, depth, zoom, image orientation, and power, pre- and post-processing, dynamic range, and	Optimizes image for the majority of the exam with a few exceptions (harmonics, window, field of view, gain, TGC, focus, depth, zoom, image orientation, and power, pre- and post-processing, dynamic range, and	Completely optimizes image during the exam (harmonics, window, field of view, gain, TGC, focus, depth, zoom, image orientation, and power, pre- and post-processing, dynamic range, and

	compression, etc.)	compression, etc.)	compression, etc.)	compression, etc.)
Doppler Modes (if used during exam)	Does not use proper Doppler settings (PRF, gains, wall filters, sample volume size and placement, color map, velocity range, angle correct, etc.)	Occasionally uses proper Doppler settings (PRF, gains, wall filters, sample volume size and placement, color map, velocity range, angle correct, etc.)	Uses proper Doppler settings for the majority of the exam with a few exceptions (PRF, gains, wall filters, sample volume size and placement, color map, velocity range, angle correct, etc.)	Consistently uses proper Doppler settings during the exam (PRF, gains, wall filters, sample volume size and placement, color map, velocity range, angle correct, etc.)

Outcome #3: Evaluate ultrasonic images for appropriate anatomy and recognize pathologic conditions.

Criterion	Unsatisfactory	Fair	Good	Excellent
	0	1	2	3
Demonstrates Anatomy & Pathology	Does not completely demonstrate and document all normal and abnormal anatomy in multiple sonographic planes and views. More than 4 images are forgotten.	Demonstrates and documents some normal and abnormal anatomy in multiple sonographic planes and views but forgets 3-4 images.	Demonstrates and documents most of the normal and abnormal anatomy in multiple sonographic views but forgets less than 3 images.	Completely demonstrates and documents all normal and abnormal anatomy in multiple sonographic planes and views. No images are forgotten.
Surveys Adjacent Structures	Does not survey area(s) of interest and surrounding structures and does not take additional pictures as necessary.	Does a minimal survey of area(s) of interest and surrounding structures and takes few additional pictures as necessary.	Does and adequate survey of area(s) of interest and surrounding structures and takes additional pictures as necessary.	Completely surveys area(s) of interest and surrounding structures and takes additional pictures as necessary.
Annotation	Does not annotate images correctly for the entire exam by inputting patient identification and	Annotates some images correctly for the exam by inputting patient identification and appropriate image text.	Annotates most of the images correctly for the exam by inputting patient identification	Annotates images correctly for the entire exam by inputting patient identification

	appropriate image text.		and appropriate image text.	and appropriate image text.

Outcome #4: Diagnose and adapt ultrasound examinations during the performance of ultrasound procedure.

Criterion	Unsatisfactory	Fair	Good	Excellent
	0	1	2	3
Patient Position	Does not utilize different patient positions to adequately visualize structures or obtain images consistently throughout the procedure.	Utilizes different patient positions to adequately visualize structures or obtain images for less than half of the procedure.	Utilizes different patient positions to adequately visualize structures or obtain images for more than half, but not all, of the procedure.	Utilizes different patient positions to adequately visualize structures or obtain images consistently throughout the procedure.
Protocol	Includes all images necessary for exam type according to CSN established scanning protocol with more than 3 errors.	Includes all images necessary for exam type according to CSN established scanning protocol with 2-3 errors.	Includes images necessary for exam type according to CSN established scanning protocol with 1 error..	Includes all images necessary for exam type according to CSN established scanning protocol.
Measurements	Fails to correctly utilize appropriate measurement controls and analysis software for the procedure with more than 3 errors.	Correctly utilizes appropriate measurement controls and analysis software for the procedure with 2-3 errors.	Correctly utilizes appropriate measurement controls and analysis software for the procedure with 1 error.	Correctly utilizes appropriate measurement controls and analysis software for the entire procedure.
Scan Time	Scan time for examination type is long by more than 10 minutes.	Scan time for examination type is long but not by more than 10 minutes.	Scan time for examination type is long but not by more than 5 minutes.	Demonstrates appropriate exam time for examination type.

Crit. 1 _____	Crit. 1 _____	Crit. 1 _____	Crit. 1 _____
Crit. 2 _____	Crit. 2 _____	Crit. 2 _____	Crit. 2 _____
Crit. 3 _____	Crit. 3 _____	Crit. 3 _____	Crit. 3 _____
Crit. 4 _____	Crit. 4 _____	Total _____	Crit. 4 _____
Crit. 5 _____	Total _____	Possible: 9	Total _____
Total _____	Possible: 12		Possible: 12
Possible: 15			

Assessment of Institutional Indicators

Program Name: Diagnostic Medical Sonography - General Track Prepared By: Tracy Lopez

FALL 2017

LEAP DOMAIN	LEAP OUTCOME	PROGRAM OUTCOME	MEASURE/INSTRUMENT	RESULT	ANALYSIS
Knowledge of Human Cultures & the Physical and Natural World	Knowledge of cultures.	Assess and facilitate basic patient care and comfort during sonographic procedures.	Measure: At least 90% of students score 3 or higher on a 4 point scale. Instrument: Canvas Activity on cultural competence in SON 275B	100% of students scored a 3 or higher on the Canvas Activity on cultural competence in SON 275B.	Expand cultural competence module for next year and continue to monitor.
Intellectual & Practical Skills	Written communication.	Evaluate ultrasonic images for appropriate anatomy and recognize pathologic conditions.	Measure: At least 90% of students score 3 or higher on a 4 point scale Instrument: Preliminary report in SON 275B	Only 60% of students scored a 3 or higher on the preliminary report in SON 275B.	SON 275B is an introductory vascular course. We will reinforce and expand preliminary writing skills next semester in SON 276B and re-evaluate student performance.
Personal & Social Responsibility	Foundations and skills for lifelong learning.	Determine proper sonographic techniques, transducer size, and image settings to obtain quality images while operating ultrasound equipment.	Measure: At least 90% of students score 4 or higher on a 5 point scale Instrument: Clinical Evaluation end of the semester review in SON 283B	90% of students scored a 4 or higher on their Clinical Evaluation end of the semester review in SON283B.	We will re-evaluate the students' skill level using an e-portfolio next semester in SON 290B and SON 291B. This will provide a more summative assessment of students' skills.
Integrative & Applied Learning	Synthesis and advanced accomplishment across general and specialized study.	Diagnose and adapt ultrasound examinations during the performance of an ultrasound procedure.	Measure: At least 90% of students score 3 or higher on a 4 point scale Instrument: Scanning competency from SON 275L	100% of students scored a 3 or higher on their carotid scanning competency in SON 275L.	We will re-evaluate the students' skill level using an e-portfolio next semester in SON 290B and SON 291B. This will provide a more summative assessment of students' skills.

Diagnostic Medical Sonography

Assessments Indicators

LEAP Outcomes

Student Name: _____

LEAP Outcome: Knowledge of cultures

4 Demonstrates thorough knowledge of cultural competence and the difference between surface and deep culture. Learner can identify cultural biases and prejudices after self-assessment.

3 Demonstrates adequate knowledge of cultural competence and the difference between surface and deep culture. Learner can identify cultural biases and prejudices after self-assessment.

2 Demonstrates partial knowledge of cultural competence and the difference between surface and deep culture. Learner can identify some cultural biases and prejudices after self-assessment.

1 Demonstrates little knowledge of cultural competence and the difference between surface and deep culture. Learner cannot identify cultural biases and prejudices after self-assessment.

LEAP Outcome: Written Communication

4 Uses appropriate, relevant and accurate content to describe sonographic images. Learner demonstrates complete understanding of preliminary writing.

3 Uses appropriate, relevant and accurate content to describe sonographic images. Learner demonstrates adequate understanding of preliminary writing.

2 Uses appropriate, relevant and accurate content to describe sonographic images. Learner demonstrates partial understanding of preliminary writing.

1 Uses appropriate, relevant and accurate content to describe sonographic images. Learner demonstrates little understanding of preliminary writing.

LEAP Outcome: Foundations and skills for lifelong learning.

5 Demonstrates excellent quality of work.

4 Demonstrates good quality of work.

3 Demonstrates fair quality of work.

2 Demonstrates poor quality of work.

1 Demonstrates failing quality of work.

LEAP Outcome: Synthesis and advanced accomplishment across general and specialized study.

4 Includes all images necessary for exam type while correctly utilizing appropriate measurements, controls and software. Learner uses different patient positions to adequately visualize structures. Completes above tasks with 0 errors.

3 Includes all images necessary for exam type while correctly utilizing appropriate measurements, controls and software. Learner uses different patient positions to adequately visualize structures. Completes above tasks with 1-2 errors.

2 Includes all images necessary for exam type while correctly utilizing appropriate measurements, controls and software. Learner uses different patient positions to adequately visualize structures. Completes above tasks with 3-4 errors.

1 Includes all images necessary for exam type while correctly utilizing appropriate measurements, controls and software. Learner uses different patient positions to adequately visualize structures. Completes above tasks with more than 4 errors

Curriculum Information

Curriculum Information

Each tract of the sonography program is a six semester program with a summer start. Students are required to complete all of their prerequisite courses and most if not all of their general education requirements before the sonography program summer start. The professional curriculum is a series of sequentially planned courses which include fundamental concepts introduced in the first year and advanced knowledge and skills covered during the second year. The fundamental concepts and skills are integrated into the second year course work, and as a result, there are conceptual threads and specific skills that flow through the curriculum. These are reinforced and expanded during the second year of the program. The curriculum also includes an extensive

portion devoted to clinical practicums. This is a vital part of the educational experience. Understanding of the concepts and skills reviewed in various sonography didactic courses ensures competence and safety in the skills necessary for effective patient care and diagnosis. The complete degree sheet for each tract of the program is shown below.

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

Diagnostic Medical Sonography – General/Vascular Ultrasound Track **LIMITED ENTRY**

ASSOCIATE OF APPLIED SCIENCE DEGREE (AAS) REQUIRED CREDITS: **93**

DEGREE CODE: **SONGVASAAS**

DESCRIPTION

Ultrasonography is a diagnostic imaging procedure that utilizes high frequency sound waves to image abdominal organs, vessels, the heart, and the developing fetus in the maternal uterus. Ultrasound can demonstrate masses, fluid accumulations, and other pathology in the patient. Ultrasound exams are performed under the supervision of a qualified physician. Students electing to take this area of study are prepared to enter the sonography field in the areas of abdominal, obstetrical/gynecological, and vascular ultrasound. The student, upon graduation, will be eligible to sit for the National Registry Exams for Diagnostic Medical Sonography. Upon passing the exams, they will use the designation RDMS (Registered Diagnostic Medical Sonographer). This is a limited entry program and students must attend a health programs orientation and meet with a health programs advisor for additional counseling. The Diagnostic Medical Sonography Program is accredited by the Commission on Accreditation of Allied Health Education Programs (**www.caahep.org**) upon the recommendation of the JRC-DMS which is located at 6021 University Boulevard, Suite 500, Ellicott City, MD 21043, (651) 731-1582.

STUDENT LEARNING OUTCOMES

- Evaluate ultrasonic images for appropriate anatomy and recognize pathologic conditions.
- Determine proper sonographic techniques, transducer size, and image settings to obtain quality images while operating ultrasound equipment.
- Assess and facilitate basic patient care and comfort during sonographic procedures.
- Diagnose and adapt ultrasound examinations during the performance of an ultrasound procedure.

PLEASE NOTE - The courses listed below may require a prerequisite or corequisite. Read course descriptions before registering for classes. All MATH and ENG courses numbered 01-99 must

SPECIAL PROGRAM REQUIREMENTS (62 CREDITS)
HIT 117B Medical Terminology I 1
SON 101B Basic Sonography 3
SON 101L Basic Sonography Laboratory 1
SON 125B Sonographic Physics and Instrumentation I 3
SON 150B Patient Care for Imaging Professions 3
SON 160B Sonographic Scanning Lab I 2
SON 190B Sonographic Physics and Instrumentation II 3
SON 195B Sonographic Scanning Lab II 2
SON 210B Abdominal Sonography I 3
SON 220B Abdominal Sonography II 3
SON 235B Gynecologic Sonography 3
SON 245B Obstetrical Sonography I 3
SON 250B Seminar and Case Review I 2
SON 255B Seminar and Case Review II 2
SON 260B Obstetrical Sonography II 3
SON 270B Small Parts/Pediatric Sonography 2
SON 275B Vascular Sonography I 3
SON 275L Vascular Sonography Laboratory I 1
SON 276B Vascular Sonography II 3
SON 276L Vascular Sonography Laboratory II 1
SON 280B Sonographic Clinical Practicum I 2
SON 281B Sonographic Clinical Practicum II 2
SON 282B Sonographic Clinical Practicum III 3
SON 283B Sonographic Clinical Practicum IV 3
SON 284B Sonographic Clinical Practicum V 3
SON 290B Sonography Registry Review 2

See Degree Plan on next page.

GENERAL EDUCATION REQUIREMENTS (31 CREDITS)

MATHEMATICS (3 credits) MATH 116 or above (except MATH 122, 123)
ENGLISH COMPOSITION (3-5 credits) See AAS policy p. 50 for courses
COMMUNICATIONS (3 credits) Recommended: COM 101 Oral Communication
HUMAN RELATIONS (3 credits) Recommended: PSY 101 General Psychology
NATURAL SCIENCE (12 credits) BIOL 223 **and** 224; **and either** EGG 131 **and** EGG 131L; or PHYS 110 or above
FINE ARTS/HUMANITIES/SOCIAL SCIENCES (3 credits) AM 145 or above; ANTH 101 or above; ART 101 or above; COM 101 or above; ECON 100 or above; ENG 223 or above; GEOG 106; HIST 101 or above; World Languages 101B or above; MUS 101 or

above; PHIL 101 or above; PSC 101 or above; PSY 101 or above; SOC 101 or above; THTR 100 or above; WMST 113
U.S. AND NEVADA CONSTITUTIONS (4-6 credits) Recommended: PSC 101 Introduction to American Politics

The Diagnostic Medical Sonography program has an ongoing system for periodically and systematically reviewing the effectiveness of the program's curriculum. In a continuing effort to provide quality education in diagnostic medical sonography, the program incorporates feedback from several sources for program review and evaluation. Responses from these sources are considered in planning the curriculum and learning activities for future sonography students. The feedback is obtained from the annual faculty peer evaluations, student course critiques, student end-of-semester program evaluations, graduate surveys, employer surveys, clinical instructor evaluations, student evaluations of clinical sites, and advisory board input. Most of these feedback tools are CAAHEP templates we are required to use, or templates we have designed with CAAHEP approval.

Based on input received from the above mentioned sources, all courses are reviewed annually by the faculty for relevancy and completeness. Suggestions for updating courses are made and implemented at this time. Annual assessment reports and plans are submitted to the Office of Institutional Research in an effort to evaluate the program, check for weaknesses, and correct deficiencies. The program's CAAHEP accreditation status also requires submission of an annual report that extensively analyzes the data collected from graduate and employer surveys, attrition rates, student employment and exam pass rates. CAAHEP accreditation also guarantees the students ability to sit for their national registry examinations immediately upon program completion.

Several recent curriculum revisions have been taken to the curriculum committee and approved based on faculty program review. Modification of some courses were completed and all of the clinical and scanning lab courses had outcome modifications. These changes will serve the students better and will allow faculty the improved ability to evaluate student scanning skills independently. Content updating dating and modification took place in the physics courses, Ob/Gyn courses, small parts and pediatric, and vascular courses to ensure relevancy with changes in the field of sonography.

The program also recognizes the importance of quality instruction. All instructors are required to take continuing medical education courses related to their discipline. This allows faculty to stay current with new ultrasound concepts and to reinforce basic information. Two program faculty completed a bachelor's degree. Three of the faculty members consistently continue to work part-time in the ultrasound field to maintain their ultrasound skills. In addition to this, the faculty are encouraged to take advantage of CAPE workshops that are relevant to instruction. The program operating budget consistently supports professional development by covering seminar or conference attendance fees and travel funds allocated by the travel committee help with hotel and

flight costs. All program faculty consistently take advantage of this as can be seen in the faculty information section.

The pass rate on the national registry exams seems to support program effectiveness and appropriate curriculum. JRC-DMS, which is program specific accrediting agency under CAAHEP, requires a credential success rate threshold of no less than 60% in each ultrasound exam specialty. Please see the credential success rates for the past forur annual report in the table below.

	2014	2015	2016	2017
Abdomen	100%	86%	100%	100%
OB/Gyn	100%	80%	100%	100%
Adult Echo	88%	88%	100%	100%

Few students choose to pursue higher degrees and there are several factors contributing to this. The last main issue is salary related. Sonographers rarely receive increases in salary with advanced degrees. Most sonographers wishing to pursue higher degrees are interested in going into management or education. Some graduates have also expressed the interest in a BS for personal fulfillment alone. Nevada State College has established an articulation agreement with CSN and developed a Bachelor of Applied Science Degree for our graduates. Nevada State College accepts all of the credits from our program and requires approximately 30 additional credits for the student to get their degree.

Graduate and employer satisfaction with the program is evaluated using graduate and employer surveys distributed six months after graduation. The response trend over the past four years has included no negative comments and has satisfied JRC-DMS guidelines. Overall program rating has been either “good” or “excellent.” Most comments dealt with more hands-on during clinical rotations. The sonography program scanning hours already exceed the required number of hours by accreditation standards. Instructors do offer open lab scanning days several times a semester to try to address this concern.

The Diagnostic Medical Sonography Program at the College of Southern Nevada is the only CAAHEP accredited ultrasound program in the State of Nevada. We have a state of the art scanning lab on campus and 56 clinical sites available for student placement. The ultrasound community is supportive of the program and most clinical instructors are program graduates.

Faculty are student centered and are available to students outside of office hours, and class time. One faculty member is the advisor for the sonography student club. They meet regularly over the course of the program to plan the pinning ceremony, graduation party and associated activities. The student club also participates in the Children’s Heart Walk as a group along with instructors. The biggest challenges that most ultrasound programs face is the acquisition of up-to-date ultrasound equipment and its maintenance. We strive to have a variety of ultrasound machines that represent the type

of equipment students will see in the field. Perkins Grants have been crucial in the viability of the program, as the operating budget would not support the purchase of ultrasound equipment. The other challenge is the consistent placement of student at clinical sites. While we have an extensive list of sites they do not always want students placed for a variety of reasons.

Information, Technology, Space and Equipment Resources

The CSN Library on the West Charleston campus offers a number of resources for students to access. The following link is directly to the Diagnostic Medical Sonography guide on the library's website and is given to students during orientation so they can access the resources. https://libguides.csn.edu/sonography

In addition to the library resources our media room has an extensive collection of DVDs, digitized VHS, CDs and books for student use. This collection fully supports learning objectives for both tracks of the program. Four computer stations, two printers and two scanners are also available for student use in the media room. Students have access to this room Monday-Friday from 8:00am to 5:00pm. Graduates are also encouraged to use the material in preparing to take their national registry examinations.

The Sonography Program has an extensive collection of library books, computers and computer software, video tapes, VCRs, DVDs, and anatomic models available for the students in addition to the services offered through the West Charleston CSN Library. Most of these are housed in the sonography resource room located in the K building on the West Charleston Campus. New reference material is constantly being added to the collection because the field of sonography is advancing so quickly, information becomes obsolete. The program also has a simulation room where computerized ultrasound simulators are available for the students to use in practicing their scanning skills. These simulators afford the student an opportunity to practice their scanning without fear of invading the patient's privacy or taking too long to complete an exam. Simulators can be programmed to demonstrate specific pathologies in certain sonography specialty areas for student identification.

The Engelstad Health Sciences building houses the sonography program entirely including the resource/media room, simulation room, scanning lab, faculty offices and classrooms with priority scheduling. The space in all areas is sufficient to house an average class size of 10-20 students. Below is a list of ultrasound equipment housed in the scanning lab. Below is a list of ultrasound equipment housed in the scanning lab.

- 2 GE Vivid 7 Systems
- 2 GE Logiq 9 Systems
- 3 Siemens Sequoia Systems
- 1 Philips ie33 System
- 1 treadmill
- 6 Surgical grade large monitors
- 2 Sonora TCD Systems
- 1 Vimedix Echocardiography Simulator

- 3 Vasoguard Vascular Systems
- 3 Unetixs Vascular Systems
- 2 Philips Sonos 5500 Systems
- 6 Transvaginal Phantoms
- 1 Breast Phantom
- 1 Testicular Phantom
- 1 Neonatal Head Phantom
- 2 OB Phantoms
- 1 Abdominal Phantom
- Transvaginal Sterilizing Systems
- Washer and Dryer

All equipment is fully functional and receives preventative maintenance on a yearly basis. We also have ergonomic scanning tables and chairs for students to use to establish correct body mechanics and minimize repetitive musculoskeletal disorders common in the field. Student access the scanning lab during normally schedules hours under the direct supervision of an instructor. Open lab hours are arranged with the instructors on an as needed basis because they do require direct supervision.

External Factors

The sonography program has four full-time faculty members and one part-time instructor. Enrollment over the last three year has been 100%. Applicants for each track of the program over the last four years has been double the number of open spots for the program. Attrition rates can be found in the IR Data section of this review.

The sonography programs success is due in large party to the support from the ultrasound community. Strong clinical site participation and enthusiasm for the program helps in educating the students and in providing job placement after graduation. Job placement for the cardiac track of the program within the first year after graduation is listed in the table below. According to accreditation standards, the placement rate cannot be below 75%. The percentages for all four years exceed JRC-DMS thresholds for student job placement post-graduation. CSN has become a major resource in providing sonographers for the local job market. In a number of instances, employers will contact CSN first when looking to hire a new employee, which is a mutually beneficial relationship for both parties.

	# graduates	# employed	Placement rate
2014	8	6	75%
2015	11	9	82%
2016	8	8	100%
2017	10	9	90%

Few students choose to pursue higher degrees and there are several factors contributing to this. The last main issue is salary related. Sonographers rarely receive increases in salary with advanced degrees. Most sonographers wishing to pursue

higher degrees are interested in going into management or education. Some graduates have also expressed the interest in a BS for personal fulfillment alone. Nevada State College has established an articulation agreement with CSN and developed a Bachelor of Applied Science Degree for our graduates. Nevada State College accepts all of the credits from our program and requires approximately 30 additional credits for the student to get their degree.

Graduate and employer satisfaction with the program is evaluated using graduate and employer surveys distributed six months after graduation. The response trend over the past four years has included no negative comments and has satisfied JRC-DMS guidelines. Overall program rating has been either “good” or “excellent.” Most comments dealt with more hands-on during clinical rotations. The sonography program scanning hours already exceed the required number of hours by accreditation standards. Instructors do offer open lab scanning days several times a semester to try to address this concern.

External Validation

1361 Park Street
Clearwater, FL 33756
Phone: 727-210-2350 / Fax: 727-210-2354
www.caahep.org

Commission on Accreditation of Allied Health Education Programs

March 24, 2014

Michael Richards, PhD President
College of Southern Nevada 6375 W.
Charleston Blvd.
Las Vegas, NV 89146-1164

Dear Dr. Richards:

The Commission on Accreditation of Allied Health Education Programs (CAAHEP) is pleased to inform you of its vote on **March 21, 2014** to award **continuing accreditation** to the Diagnostic Medical Sonography - General program at College of Southern Nevada, Las Vegas, NV.

The recent peer review conducted by the Joint Review Committee on Education in Diagnostic Medical Sonography (JRC-DMS) and CAAHEP's Board of Directors recognizes the program's substantial compliance with the nationally established accreditation Standards. The next comprehensive evaluation of the program, including an on-site review, is scheduled to occur no later than **2019**.

The JRC-DMS will regularly monitor the program's compliance with the outcomes assessment thresholds through the program's Annual Report as well as other documentation that may be requested (Standard IV.B.).

The accreditation standards are established by CAAHEP, JRC-DMS, American College of Cardiology Foundation (ACCF), American College of Radiology (ACR), American College of Obstetricians and Gynecologists (ACOG), American Institute of Ultrasound in Medicine (AIUM), American Society of Echocardiography (ASE), American Society of Radiologic Technologists (ASRT), Society of Diagnostic Medical Sonography (SDMS), Society for Vascular Surgery (SVS), and Society for Vascular Ultrasound (SVU).

The commission commends you and your colleagues for your commitment to continuous quality improvement in education, as demonstrated by your participation in program accreditation.

Sincerely,

Cameron Harris, RPSGT President

Cc: Patricia Castro, EdD, MT (ASCP), BB, Dean, School of Health Sciences
Tracy Lopez, MEd, RDMS, RDCS, RVT, Program Director
Sheryl E. Goss, MS, RT(R), RDMS, RDCS, RVT, Chair, JRC-D
Cindy Weiland, RVT, RRT, Director of Accreditation, JRC-DMS

Supplemental Narrative Questions

Core Mission

1. **How does this program relate to the Mission and Core Themes of the College?**
    - The Diagnostic Medical Sonography program is designed to create opportunities and enrich lives of our diverse students by providing them with inclusive access to the quality educational background needed to prepare students to prepare competent entry-level general sonographers in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains.

2. **To the best of your knowledge, how and to what extent is this program essential due to state laws, regulations, outside agency regulations, Board of Regents or Legislative priorities?**
    - The Diagnostic Medical Sonography program is the only CAAHEP accredited ultrasound program in the State of Nevada. Most program graduates remain in the Las Vegas area after graduation and are employed. The program is a major contributing factor for ensuring there is no shortage in qualified sonographers.

3. **How and to what extent does this program relate to programs at other NSHE institutions (for example, overlapping programs, articulation or transfer relationships, etc.)?**
    - The sonography program has an articulation agreement with Nevada State College. Learners can transfer after program completion to Nevada State's Bachelor of Applied Science in Allied Health Sciences. An additional 30-35 credits will earn the learner their degree. CSN's sonography program does not transfer to any other NSHE institution.

4. **How and to what extent does this program relate to programs at non-NSHE colleges in southern Nevada?**
    - The Diagnostic Medical sonography Program does not relate or transfer to any non-NSHE colleges in southern Nevada.

5. **How and to what extent does this program depend upon prerequisite courses from other disciplines at CSN?**
    - Students are required to complete all of the program prerequisites prior to program application. Prerequisites are:
        - BIOL 223 Anatomy & Physiology I
        - BIOL 224 Anatomy & Physiology II
        - MATH 116 or higher (Except Math 122 & 123)

    - PHYS 110 Conceptual Physics or any College Physics with Lab**
    - HIT 117B Medical Terminology I
    - ENG 101/100 Composition I
        - or
- ENG 107 Technical Communications I
- In addition students are given point towards selection if they complete their general education requirements. General education requirements are:
    - Communications: (see AAS degree requirements) 3 Cr
    - U.S. & Nevada Constitution: (see AAS degree requirements) 4 Cr
    - Human Relations: (see AAS degree requirements) 3 Cr
    - Social Sciences/Humanities: (see AAS degree requirements)

6. **How and to what extent does this program utilize other college resources for academic support (for example, library, technology, counseling, disability resource center, tutoring, writing or math centers, etc.)?**
    - Library: No exact numbers are available. However, the library does maintain collections of textbooks in the library reference sections on the three campuses. They also have a guide page that sonography students are given during program orientation, which offer a number of resources for research and study in sonography.
        - https://libguides.csn.edu/sonography
    - Technology: All of our faculty require the use of computers in their classrooms and in their offices. OTS in contacted if there are any issues with the equipment.
    - Math Resource Centers: Prospective students who need help prior to the start of the program access Math resource centers. Enrolled sonography students have few instances where they would be performing any calculations.
    - Writing Resource Centers: Enrolled sonography students access the writing center during their final 2 semester as they are completing APA paper course work.
    - Tutoring: Tutoring is not used by students because there are no sonography students available. Students who need help are encouraged to go to their instructor during office hours or join a study group.
    - Other Services: Testing, Counseling, and the Disability Resource Center are used on an as needed basis.

Quality

7. **Does this program have an advisory board, or does the department have an advisory board relevant to this program?**

- The sonography program is required to have an advisory board due to accreditation standards. It consists of faculty, employers, medical directors, and community members of interest. It helps the program with curricular decisions, equipment needs and student needs. It meets three times a year.

8. **If this program has a specialized accreditation, is this accreditation necessary for alumni licensure or employability?**
    - The sonography program is accredited by the Commission on Accreditation of Allied Health Education Programs. This accreditation designation allows students to sit for their national registry examination early to become registered sonographers through the American Registry for Diagnostic Medical Sonographers. Once registered the graduate can work in any state with those credentials. Employers do not hire unregistered sonographers. In many instances, they will additional require that a candidate graduated from a CAAHEP accredited program.

9. **How and to what extent does this program contribute to CSN's regional or national reputation?**
    - CSN has the only accredited ultrasound program in the State of Nevada. Its long-standing place in the community has earned us the reputation of being a quality program that produces well-qualified sonographers.
    - The program is frequently featured in recruitment ads and appeared on a segment in Channel 8 news in Spring 2019.

10. **How and to what extent does this discipline/program support student extracurricular activities at CSN?**
    - Jodi Gonz is the Sonography Student Club's advisor. She helps with pinning and graduation party planning.
    - All of the faculty attend the Children's Heart walk with students.
    - All of the faculty attend the heart conference held annually that is put on by one of the program's medical director with students.

Demand

11. **Describe the level and nature of external demand for this program (for example, occupational data, labor statistics, employer surveys, student surveys, etc.)?**
    - The sonography program routinely receives more application for the program then the number of seats available. This application cycle the general track received 50 applications and the cardiac track received 18 application. Each track only accepts 10 students each year.

- The Bureau of Labor statistics predicts a 23% national growth for sonographers from 2016-2026. This is higher than average growth when compared to other professions.
- Employer and graduate surveys are all overwhelmingly positive. Employers express their interest in continuing to hire program graduates.

12. Describe the level and nature of external financial or practical support for this program (for example, grants, donations, employer or clinical partnerships, etc.)?

- The sonography program frequently applies for Perkins Grants in the spring semester. This primary funding source has allowed us to acquire the number and quality of equipment that we have in the scanning lab.
- The program has a vast list of 56 possible clinical sites that students are placed in for clinical rotations. These include hospitals, doctors' offices, and imaging centers. Students are rotated for during five of the six-semester program two, three or four days a week. This extensive hands-on time is vital to student learning and essential for program success.

13. What other options exist for students in the region to earn this degree or certificate?

- The Diagnostic Medical Sonography Program at CSN is the only accredited program in the state. UNLV does have a sonography component as part of their comprehensive medical imaging degree but it is not CAAHEP accredited. That program does not have a cardiac component.
- There are no other schools available in the area.

Institutional Research Data

Course information for all Fall and Spring Semester from 2015-2018.

Report	Courses	Courses Avail Online	Courses Not Avail Online	Post-100 Courses	Pre-101 Courses
Health Sciences					
Dental Sci, Diag Eval & Rehab					
SON	14	0	14	14	0

Course Information for all Summer Semester Courses from 2015-2018

Report	Courses	Courses Avail Online	Courses Not Avail Online	Post-100 Courses	Pre-101 Courses
Health Sciences					
Dental Sci, Diag Eval & Rehab					
SON	7	0	7	7	0

Program FTE Fall 2015

Report	Enrollment	FTE	HeadCount	Hybrid FTE	In-Person FTE	OnlineFTE	Post-100 Level FTE	Pre-101 Level FTE
Health Sciences								
Dental Sci, Diag Eval & Rehab								
SON	190	31	83		31		31	

Program FTE Spring 2016

Report	Enrollment	FTE	HeadCount	Hybrid FTE	In-Person FTE	OnlineFTE	Post-100 Level FTE	Pre-101 Level FTE
Health Sciences								
Dental Sci, Diag Eval & Rehab								
SON	182	29.1	73		29.1		29.1	

Program FTE Summer 2016

Report	Enrollment	FTE	HeadCount	Hybrid FTE	In-Person FTE	OnlineFTE	Post-100 Level FTE	Pre-101 Level FTE
Health Sciences								
Dental Sci, Diag Eval & Rehab								
SON	109	14.3	109		14.3		14.3	

Program FTE Fall 2016

Report	Enrollment	FTE	HeadCount	Hybrid FTE	In-Person FTE	OnlineFTE	Post-100 Level FTE	Pre-101 Level FTE
Health Sciences								
Dental Sci, Diag Eval & Rehab								
SON	209	34	81		34		34	

Program FTE Spring 2017

Report	Enrollment	FTE	HeadCount	Hybrid FTE	In-Person FTE	OnlineFTE	Post-100 Level FTE	Pre-101 Level FTE
Health Sciences								
Dental Sci, Diag Eval & Rehab								
SON	191	30.4	74		30.4		30.4	

Program FTE Summer 2017

Report	Enrollment	FTE	HeadCount	Hybrid FTE	In-Person FTE	OnlineFTE	Post-100 Level FTE	Pre-101 Level FTE
Health Sciences								
Dental Sci, Diag Eval & Rehab								
SON	109	14.3	109		14.3		14.3	

Program FTE Fall 2017

Report	Enrollment	FTE	HeadCount	Hybrid FTE	In-Person FTE	OnlineFTE	Post-100 Level FTE	Pre-101 Level FTE
Health Sciences								
Dental Sci, Diag Eval & Rehab								
SON	209	34	80		34		34	

Program FTE Spring 2018

Report	Enrollment	FTE	HeadCount	Hybrid FTE	In-Person FTE	OnlineFTE	Post-100 Level FTE	Pre-101 Level FTE
Health Sciences								
Dental Sci, Diag Eval & Rehab								
SON	204	32.5	78		32.5		32.5	

Program FTE Summer 2018

Report	Enrollment	FTE	HeadCount	Hybrid FTE	In-Person FTE	OnlineFTE	Post-100 Level FTE	Pre-101 Level FTE
Health Sciences								
Dental Sci, Diag Eval & Rehab								
SON	107	14.1	107		14.1		14.1	

Course Information 2015-2016

	Enrolled	Students on FA	Graduated
Diagnostic Medical Sonography [General/Vascular Ultrasound Track]			
2016-17			
SONGVASAAS	11	4	0
Grand Total	**11**	**4**	**0**

Course Information 2016-2017

	Enrolled	Students on FA	Graduated
Diagnostic Medical Sonography [General/Vascular Ultrasound Track]			
2016-17			
SONGVASAAS	11	4	0
Grand Total	**11**	**4**	**0**

	Enrolled	Students on FA	Graduated
Diagnostic Medical Sonography [General/Vascular Ultrasound Tract]			
2016-17			
SONVAS-AAS	24	13	10
Grand Total	**24**	**13**	**10**