## Program Review Diagnostic Medical Imaging

### For Cycle 2012-13 (2nd Year Group)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The Medical Imaging Program has maintained a steady enrollment from Fall of 2009 to Spring 2012. We dropped slightly in the 2011-2012. Our Maximum enrollment is limited by available Clinical space at our affiliate Medical Centers. Included in the enrollment counts were the Magnetic Resonance Imaging students in 2010-2011, but this program was not offered in 2011-2012 resulting in the lower enrollment numbers. This also shows in our WSCH that increased in 2010, but decreased in 2011. The FTES mirrors this with a decrease in 2011.</td>
<td>Student success has remained in the 90% range with a low in 2010-2011 of 91.82%. The retention rate has also remained high with a dip in the 2011-2012 academic year. Our average attrition rate is about 15%. All of our graduating students achieve an Associate of Science degree and a college certificate of completion in the DMI program.</td>
<td>During the years covered the DMI program had 2 Full Time instructors and 3 Part Time instructors. At the end of the 2011-2012 year, Vickie Goodson retired and no replacement has been hired.</td>
<td>The DMI Program currently has 5 SLOs. We based our assessment goals at a 75% or better achievement level to mirror our licensing boards passing level. #1 Image Formation-Diagram the photographic and digital process and define the technical factors utilized in medical image formation. Of the sampled students, 83% achieved and/or exceeded the minimum score. #2 X-Ray Production-Distinguish the fundamental structure of matter, diagram the production of x-rays, and examine how different radiographic techniques effect the resultant image on a radiograph. 86% of the sampled students met this criteria. #3 Radiation Effects-Assess how radiation effects body systems, differentiate between different types of</td>
<td>In order to maintain the relevancy of our course offerings, we will continue to monitor them to assure that we are up to industry standards. We also do this to keep them up to date with State and National regulatory requirements. When the opportunity presents itself, we would like to replace our retired Full Time faculty member. It is difficult to run the program with only 1 Full Time instructor. To expand our program, and to allow for addition students to be accepted into the program, we need to affiliate with more clinical sites.</td>
</tr>
<tr>
<td>#4 Positioning-Mange</td>
<td>radiation and their effects on human tissue, and formulate ways to decrease exposure. 84% of the sampled students met this criteria.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------</td>
<td>---------------------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>#5 Radiographic Images-Demonstrate ability to properly use all equipment required to produce a diagnostic radiograph, produce an industry standard and diagnostic radiograph. 97% of the sampled students met this criteria.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 6. College Wide

**Overall – How does this information fit with the College Wide Goals?**

The DMI program trains students to be professionals in the healthcare field. It requires critical thinking to produce an industry standard and diagnostic radiograph. Our student success and high degree achievement rate place us in the top third of the college as a whole. Our students must be able to communicate with patients, peers, and the staff of healthcare facilities. This requires a high level of verbal and written communication skills. They are using sophisticated equipment that requires a technical and computer knowledge base. Since they are interacting with the community, they present themselves as ambassadors of the college. They must also have a good working knowledge of anatomy and physiology plus how to maintain...
Program Review Diagnostic Medical Imaging

For Cycle 2012-13 (2nd Year Group)

their physical and mental well being. We have a WSCH: FTEF of 545 which exceeds college wide averages.

The purpose of Program Review is to summarize and interpret the data and information collected from the resources listed above, reflecting how your department program(s) have been successful and incorporated the information into improvements, where necessary. As a part of the overall college planning process, a meaningful Program Review will be the primary document CPC and other college committees will rely on for qualitative and quantitative information on a program, informing enrollment management, budgeting (cap outlay, grants), hiring priorities, and accreditation.

The questions below are designed to help you create, primarily, a narrative review (roughly 5-10 pages). Each question includes the “Feedback Rubric Prompts” that will be used by the committee to read, reflect, and provide feedback on your Program Review; please use these to guide the formulation of your responses. Each program (curriculum guide) within your department requires a separate Program Review Document.

Program Review Questions

Name of Program being reviewed: Diagnostic Medical Imaging

1–3. Enrollment, Achievement, and HR Data

Summarize and interpret the data for each of the first three above as they relate to your program.

Response:

1. The enrollment has not changed to a great degree in the years covered. In the 2009-2010 period, our enrollment was 333. It shot up to 428 in 2010-2011 because we offered the Magnetic Resonance Imaging Program that added 6 sections for the year. In 2011-2012, the enrollment fell back to 343 when the MRI program was not offered reducing our program by 6 sections. Our enrollment by ethnicity is equal to the community and the college as a whole. As stated section 1, we are limited by our clinical affiliations as to how many students we can accept into our program. We currently have 6 affiliates that can take between 24 to 26 students. Each site accepts students based on the number of Technologists, size of the facility, and patient workload. We have a waitlist that is not reflected in the data since it is maintained locally and not at the college wide level. This waitlist has 129 students and we average 10 students attending our monthly information sessions that are interested in applying to the program. This is mimicked in the other area colleges that offer Imaging programs.

2. Our success rate has been consistent over the years. Our students are motivated to complete the program and they stay focused on their goal. With a 96.7% rate in 2009-2010, 91.82% in 2010-2011, and 95.92% in 2011-2012 shows that. We keep track of why students do not complete and have found that the majority of the time it is either financial or for health reasons. The majority of our students that earn a failing grade happens in the first few courses so the remaining students tend to stay through the program. Some of
Program Review Diagnostic Medical Imaging  
For Cycle 2012-13 (2\textsuperscript{nd} Year Group)

them are not prepared to handle the clinical area as they have never experienced a medical facility. The program and our national examination board require that each graduating student has a minimum of an Associate degree. We also encourage them to apply for the college certificate of completion.

3. We are required to have a Full Time Program Director and a Full Time Equivalent Clinical Coordinator. This is stipulated in the State and National regulations. We have had 2 Full Time instructors since 1976 and Part Time instructors to help fill in when needed. As of July 2012 we have 1 Full Time instructor due to the retirement of the Program Director. Because of the budgetary concerns at this time we are not replacing this Full Time instructor. This leaves us with 2 Part Time instructors sharing the duties of the Clinical Coordinator and an additional Part Time instructor to take the rest of the load. We will need to bring on another Part Time instructor in the Fall to teach the MRI program and another to help with the DMI load.

4. SLOs

a) Summarize the collected program data

Response:

#1 Image Formation-Diagram the photographic and digital process and define the technical factors utilized in medical image formation. During the final semester of the program, students take a course that comprehensively assesses the student’s knowledge of all of the courses from the program. In this way, we are better able to assess how our SLOs are working and help prepare the students to take the National licensing board exam. They are given a simulated registry exam at the beginning of the course and then given exams covering different sections of the program. At the conclusion of the course they are given a different simulated registry exam. We have embedded questions within the first and last simulated registry and also in the specific area exams. A random sampling of students results were analyzed to measure the outcomes. Of the sampled students, 83\% achieved and/or exceeded the minimum score. This is a good result, but it can get better.

#2 X-Ray Production-Distinguish the fundamental structure of matter, diagram the production of x-rays, and examine how different radiographic techniques effect the resultant image on a radiograph. This SLO is also evaluated in the final course with embedded questions in the simulated registry. 86\% of the sampled students met this criteria. Again this is a good result, but improvement can be made.

#3 Radiation Effects- Assess how radiation effects body systems, differentiate between different types of radiation and their effects on human tissue, and formulate ways to decrease exposure. This SLO is also evaluated in the final course with embedded questions in the simulated registry. 84\% of the sampled students met this criteria. This is a very important part of the program and we would hope to do much better on this SLO. This is dealing with patient, personnel, and personal radiation protection. We will evaluate the questions missed and find ways to better present the information.
#4 Positioning - Manage proper patient positioning of the skeletal system, cranium, and viscera to achieve an industry standard radiograph. The students are required to perform specific mandatory and elective competency evaluations throughout the program. These are performed on live patients at the clinical site. In the last semester, they are required to repeat 15 out of 19 mandatory examinations. They are evaluated on their ability to complete the examination without prompts or mistakes required a repeated projection. The industry standard is a diagnostic quality radiograph that shows the proper area of interest in the correct part of the radiograph. Patient and personal protection is also assessed. 98% of sampled students met this criteria. This outcome is higher than expected and is wonderful.

#5 Radiographic Images - Demonstrate ability to properly use all equipment required to produce a diagnostic radiograph, produce an industry standard and diagnostic radiograph. This is evaluated in the same way as the above assessment. In order to create an industry standard diagnostic quality radiograph a student must able to operate the equipment necessary for the examination. 97% of the sampled students met this criteria. This is again better than expected which is great for the students.

b) Based on analysis of course and program SLO assessment:

- **How are program-level and course-level SLOs being implemented, assessed, and used for program improvement?**

  **Response:**
  
  The SLOs for both the program and the individual courses have been honed over the years to where they are now. As an accredited Radiologic Technology Program we have been required to maintain SLOs for some time. Each instructor in the program maintains assessment results that are gathered and summarized at the end of each semester. As our success rates show, we have been able to modify our delivery methods to help the students retain and use the knowledge needed to achieve their goals.

- **Summarize how the program has responded to SLO assessment results.**

  **Response:**
  
  We have been pleased with the results of our assessments. We have looked at the way we present information, what we present, and how we assess the outcomes.

- **Discuss how each action/change is based on ASLO results and how it will contribute to the improvement of the program.**

  **Response:**
  
  We did not have any specific actions required during this evaluation period. What we have done, is to look at the embedded questions to see if they are asking what is needed to correctly evaluate the outcomes. At this point, we are satisfied with them. We will continue to assess and evaluate each course within the program to maintain student success.
5. Goals

a) Based on the data from questions 1 – 4 and any other relevant internal or external data your department has collected, how have your department and program goals developed and changed over the past three years?

Response:

Our goals have always been to improve how we present information to the students for maximum results. Our first goal is to keep up with the ever changing medical environment. Since this a technology heavy environment, it has not always been easy. We have been able to update on a continuing basis through VATEA and other grants. We must also keep all of our courses at industry standards as regulations change we change.

Our second goal is to replace our retired Full Time faculty member. This will lessen the burden on the one Full Time faculty as he is now Dept Head, Program Director for DMI, CT, and MRI, and the main instructor for the program. It will also be nice to bring in fresh eyes to help keep the program up to date.

Our third goal is to find much needed clinical space. Since a site needs college and State approval this requires time. They also must have a workload to justify having students and enough Technologists to adequately supervise. A clinical site must be a full service X-ray department and not just an outpatient clinic. Since the other area colleges have the same criteria, most of the full service facilities are affiliated with someone.

b) Discuss the steps you have taken to address each goal. What have been the results of these efforts?

Response:

As stated above, we have been able to acquire equipment through VATEA funds and other grants. We have also benefitted from the generosity of our clinical affiliates. They have donated used equipment that we use for demonstration purposes.

We were approved for a hire, but it was removed when the budgetary and discontinuance issues came up. We are hopeful that we will be able to hire in the 2012-2014 academic year.

We are trying to return to Pacific Hospital and hope that Community Hospital can increase their workload sufficiently so we can return.

c) Based on the new data collected (4), what are your plans for change in the future?

Response:

Our main goal is to keep offering a quality education to our students. We will always strive to stay current with our offerings and our equipment. We will be moving to a swing space and then to our final
Program Review Diagnostic Medical Imaging
For Cycle 2012-13 (2\textsuperscript{nd} Year Group)

destination in the D building. We are planning on revamping our lab area in the new space and to expand our program, if possible.

6. College Wide

Discuss how the program SLOs as well as the department goals integrate, articulate, and complement the institutional goals and initiatives. (How does your department fit into the big picture?)

Response:

Our SLOs and goals are there to aid the students. We strive to improve their lives by improving their knowledge base. As our statistic show, we look for and help attain excellence. Our completion rate and overall success rate show that. Many of our graduates are fist time college success stories. Many are the first in their family to achieve a degree. We are ethnically diverse and comparing the overall success rate by ethnicity we are pretty much equal across the board. The American Registry of Radiologic Technologists has a strict ethical code that our students adhere to. We teach them to be good citizens in the medical community and community as a whole. They have timelines for completing requirements and they are held responsible for those deadlines.

In our profession a radiograph is not only a diagnostic tool, it must also adhere to certain aesthetic qualities. This sometimes is not the easiest thing to do. It takes critical think and creativity to give the Radiologist when they need to give a correct diagnosis. We are in an ever changing and chaotic environment that calls for flexibility and the ability to remain calm. We are a service industry and our students are taught how to provide this service in a safe and correct way. We teach them how to maintain personal and mental wellness. They need to have this in order to adequately care for their patients. Our program produces qualified and competent technologists that are valued members of the healthcare community.