Indiana University School of Medicine
Health Professions Programs

2022 – 2023 Assessment Report

The Health Professions Programs (HPP) include the ***undergraduate*** programs that reside within the School of Medicine. Graduate and MD programs within the School of Medicine fall under the purview of different administrative offices. They are not included in this report. HPP includes:

Program	Degree Awarded
Cytotechnology	B.S.
Histotechnology	Cert., A.S.
Medical Laboratory Science	B.S.
Ophthalmic Technology	Cert. [New for 2023; No Students]
Paramedic Science	A.S.
Respiratory Therapy	B.S.
Radiologic Sciences	
Radiography	A.S.
Nuclear Medicine Technology	B.S.
Medical Imaging Technology	B.S.
Radiation Therapy	B.S.
* IUFW Medical Imaging and Radiologic Sciences	B.S.

Most of these undergraduate professional programs maintain separate accreditation through specialty accreditation organizations. The program directors and faculty of each of these programs is responsible for maintaining their accreditation. In addition to their program accreditors, the program directors and faculty are active in their professional practice organizations, national credentialing boards, and state licensure boards which may set standards or offer guidance on student learning outcomes and other aspects of the educational program's design. Each accredited program is required to have periodic site visits whose frequency is determined by their respective accreditation organization. Please note that in addition to the yearly IUI PRAC report, each accredited Health Professions Program is required to submit an annual report to their accrediting agency. Although each annual report can vary in format per specific program accreditation guidelines, most reports include an analysis and action plan for each of the following:

- Student learning outcomes
- Accreditation board exam results
- Employer surveys (cognitive, affective and psychomotor domains)
- Graduate surveys (cognitive, affective and psychomotor domains)
- Attrition/retention
- Job placement

Program Structure and Student Population

All of the IUSM HPP are cohort-style and all have selective admissions. Some programs are entirely online but these are typically taken by students who are full-time healthcare employees seeking additional certification and training. Each of the programs within HPP has evolved in unique ways in response to degree requirements, accreditation standards, availability of clinical placements, and the healthcare landscape in central Indiana. As an example, some programs (Medical Laboratory Science & Cytotechnology) are 3+1 which means that students spend their first three years in University College or other schools as they prepare for the competitive application process. Radiation Therapy, Respiratory Therapy, and several others have adopted a 2+2 format with two years of prerequisites in University College or other school. In the case of Radiography, students will spend two semesters in University College before entering their associate's degree program in a 1+2 format. The Medical Imaging and Radiologic Sciences program at IUFW is a 1+ 3 format. As illustrated by these examples, there is wide diversity in program structure, length, and geographic location.

The HPP draw secondary school students to the IUI campus from across the Midwest, but also draw a considerable number of transfer applicants from other post-secondary institutions. The first illustrative example is the Medical Laboratory Science program which has applications from every campus in the IU system and has an affiliation with Purdue whereby students take three years of prerequisite coursework in the Purdue system before completing their final year and earning a bachelors at IUI. HPP also have unique partnerships with area hospital systems and universities. The Respiratory Therapy program is a 2+2 program that was formed as part of a consortium between IUI, Ball State, University of Indianapolis, and IU Health. Each cohort in the Respiratory Therapy program is comprised of students from each member of the consortium. The Medical Laboratory Science program exists as a co-teaching partnership with IU Health wherein each cohort of 24 students is split equally between the two programs. In this partnership IU system and Purdue system students enter the IU MLS program while students from numerous non-IU academic institutions such as Purdue, Ball State, Franklin, Indiana State, University of Miami, University of Indianapolis enter the IU Health program. The Paramedic Science is another partnership program between IUSM and Indianapolis Emergency Medical Service (Indianapolis EMS). A final example of the diversity of the HPP is the Histotechnology Program. The Histotechnology program is offered entirely online and enrolls students from across the country. The program relies on locally recognized clinical coordinators, distance education technology, and students mailing technical artifacts to faculty for the teaching and assessment of these students. In some of the partnerships previously listed, the program directors and faculty may be traditional full-time IUSM faculty with tenure or non-tenure track appointments. In other programs, faculty and program directors may have adjunct status with IUSM and have their primary employment within healthcare institutions such as IU Health or Indianapolis EMS.

As professional healthcare programs, all HPP require extensive clinical experiences. These clinical experiences are not only required for program accreditation leading to national certification and state licensure, but they are also critical opportunities for teaching and assessment. The goals and objectives that are taught and assessed during the clinical experiences are intertwined with and complementary to the learning objectives for lecture and student laboratory courses. The clinical experiences require students to apply classroom knowledge, demonstrate technical skills in real-world situations, and practice skills within the affective domain.

In summary, each of the HPP within IUSM are shaped by their accreditors, their academic departments, their clinical affiliations, and numerous other stakeholders. The students are a diverse group that may hail from all IU campuses as well as other academic institutions. Once students matriculate into a program, their educational experiences are carefully crafted to empower them to meet learning goals and objectives across all domains of learning. To cater to all of the intricacies and diversity among the HPP programs, starting with the 2020-2021 cycle we are adopting a three-year rotating schedule of reporting to PRAC. Below is a cycle of reporting.

Year 1	Year 2	Year 3
MLS	Histotechnology	Ophthalmic Technology
Cytotechnology	Medical Imaging Technology	Radiography
Radiation Therapy	Diagnostic Medical Sonography	Paramedic Science
Nuclear Medicine	IUFW Medical Imaging Radiologic Sciences	Respiratory Therapy

Advising, Student Population, Career Advisement, Learning Resource Centers.

Students are not directly admitted into IUSM HPP cohorts. Prior to admission into IUSM, most advising for students is accomplished through academic advisors and career advisors in University College, Health and Life Sciences Advising Center, and to a lesser degree in other schools. HPP has one academic advisor who advises students through the application process and assists programs in coordinating admissions. Once students are admitted to a program, their program director assumes most of the roles and responsibilities of an advisor and career advisor with the assistance from the HPP academic advisor and HPP director. HPP does not operate any tutoring or success centers because our cohort sizes are too small and the curriculum is too specialized.

Profiles of Learning for Undergraduate Success

The structure of the HPP eliminates the possibility of longitudinally developing students from freshman to seniors in all areas of the Profiles. HPP faculty rely on University College and other schools to start student development in the Profiles and then we teach the professional curriculum once students are admitted to a HPP program. Since admission is competitive and is open to many different educational institutions, we have no clear way of identifying and tracking students before they enter our cohorts. Thankfully, the flexibility of the Profiles allows us to still teach and scaffold students in each of the attribute areas within our programs. However, we must acknowledge that for 3+1 and 2+2 programs there is less time to develop students in each of these attributes than other academic programs across campus. Additionally, since students are arriving from multiple campuses and institutions, there is a spectrum of familiarity and expertise in the Profiles amongst our student population.

Program Strategic Priorities 1: Description of implementation of improvement activities stemming from Program Review or disciplinary accreditation processes, particularly as related to assessment.

Since programs have unique disciplinary accreditation processes, assessment activities, review of findings, and action items are discussed by each program.

Program Strategic Priorities 2: Identification and assessment of experiences for inclusion in the Experiential and Applied Learning Record (the Record).

All of the HPP have experiences that could be acknowledged in the Record. Our clinical experiences, as well as capstone/research experiences, would all be candidates for the Record. In the Fall of 2022 we invited Jerry Daday and Tom Hahn to introduce the Record with our faculty. Leadership has directed Faculty and Program Directors to work on their submissions. As of 2024, there is a sense that the future of the Record in its current form is changing so there has been a general cooling of the process within the unit. Ultimately, convincing faculty to add their experiences to the Record has been challenging because employers and students value the credential (national certification or licensure) far above experiences captured on the Record. The programs had and continue to have high-impact clinical rotation, laboratory, and research experiences.

Program Strategic Priorities 3: Assessment efforts related to units' DEI strategic plans, specifically as they relate to students.

As a unit, HPP tracks students who meet IUSM's definition of Underrepresented in Medicine (URM). The diversity of our unit mirrors the diversity of the larger IUI campus. Success of URM students in our HPP programs is similar to white students. HPP's goal is to increase the diversity of Indiana's healthcare professionals by specifically targeting secondary schools with diverse student populations to raise awareness of our majors/professions. To this end, we have dramatically increased our participation in Indianapolis Public Schools.

Note to reviewers: We were unable to obtain PRAC reports from the Paramedic Science and Respiratory Therapy program. The Ophthalmic Technology program is brand new and has not yet had a student, thus we excused them from the report even though they are part of our 3 year assessment cycle.

Indiana University School of Medicine
Health Professions Programs
PRAC Report
Radiography Program, A.S.
2022 – 2023 Assessment Report

I.   Program Description

The Radiography Associate of Science degree program at Indiana University School of Medicine (IUSM) provides students with hands-on learning and patient care experience starting within the first month of training. The 22-month program provides students with knowledge and communication skills to effectively perform radiographic procedures and evaluate images. In addition to clinical training, students can pursue a study abroad experience in their final semester. Graduates of this program are qualified to work as entry-level technologists.

Like other healthcare programs, Radiography does ***not*** have a direct admission. Students must complete the minimum program requirements listed below with a grade of C or above. Prerequisite courses must be completed by the end of the spring semester prior to entry. Prerequisites may be taken at any accredited college or university.

Course	Credits
One course of written communication; English Composition	3
One course of verbal communication; Fundamentals of Speech Communication	3
One course of college Algebra	3
Human Anatomy	5
Medical Terminology	1

A minimum GPA of 2.8 and a minimum component (math/science) GPA of 2.5 are required to be eligible for program admission. Radiography is a very competitive program. It is not uncommon to exceed 125 applications each year. Students must apply by November 15th each year. Grades and prerequisites are then verified before moving to the next step. Students meeting prerequisite and minimum GPA requirements are ranked by GPA. The purpose of the interviews is to determine the probability of success the applicant would have as a student and as a professional in the field. The interview is not designed to rate the applicant's academic preparation for the field. It is designed to assess their knowledge of the several personality characteristics that are desirable in applications (knowledge of profession, responsibility/decision making, self-expression, self-confidence, and effective communication with the interview team). The interviews are conducted virtually in one day by a number of interview teams. The interview score and GPA score for each student are placed in a formula where the GPA carries greater weight, and then the students are reranked. The top 40 students are offered a position in the program.

The program is offered only full-time in a cohort style format. The radiography program prepares its graduates to pass the American Registry of Radiologic Technologist's (ARRT) certification exam. This exam is a national credentialing exam for professionals working in the radiology department of hospitals, clinics, imaging centers, and physician offices. Graduates from the IUPUI A.S. Radiography Program are highly sought after locally and nationally. Graduates enjoy a direct path from their education to their future professions in medical imaging.

II. Learning Outcomes

The IUSM Radiography Program is accredited by the Joint Review Committee on Education in Radiologic Technology (JRCERT). The JRCERT is recognized by both the United States Department of Education (USDE) and the Council for Higher Education Accreditation (CHEA). The JRCERT currently accredits over 700 educational programs. Through the process of programmatic accreditation, educators are assured that education programs are keeping pace with the profession and with standards developed through national consensus. Accreditation also assures students will be eligible for licensure in each of the 50 states.

The radiography programmatic learning outcomes are informed by IUPUI's Profiles of Learning for Undergraduate Success and the American Society of Radiologic Technologists (ASRT) entry level radiography curriculum. Goals for A.S. Radiography Programs are mandated by the JRCERT. They are (1) graduates will be clinically competent, (2) graduates will communicate effectively in the healthcare environment, (3) graduates will think critically and apply problem-solving skills in the healthcare environment, and (4) graduates will have the knowledge and practical skills that maintain the standards of professional and ethical values. Learning outcomes, the program has assigned to each goal are listed in the table below.

At appropriate points during the radiography program, the student will be able to:	
Demonstrate appropriate knowledge of radiographic procedures	Goal 1
Apply radiographic positioning skills effectively	Goal 1
Determine appropriate technical factors	Goal 1
Demonstrate overall competence in performance of radiographic procedures	Goal 1
Use effective oral communication skills	Goal 2
Demonstrate effective written communication skills	Goal 2
Evaluate images and make appropriate adjustments	Goal 3
Adapt procedures for complicated patients	Goal 3
Demonstrate knowledge of professional and ethical values	Goal 4
Attend professional development activities	Goal 4

In addition, the program must provide the JRCERT Program Effectiveness Data (PED) on a yearly basis. That data is:

- the graduate will pass the ARRT national certification on the 1st attempt
- the graduate will be gainfully employed within 12 months post-graduation, if pursuing employment
- the graduate will complete the program within 22 months
- the graduate will be satisfied with their education
- employers will be satisfied with the graduate's performance

The radiography programmatic learning outcomes are influenced by JRCERT guidelines and IUPUI's Profiles of Learning for Undergraduate Success (PULs). Each program goal has a minimum of two student learning outcomes (SLO). Each SLO has a minimum of two measurement tools. The timeframe captured includes one cohort in one semester. The following year the second set of cohorts is measured in the same semester timeframe with the same measurement tool. Benchmarks for each SLO are decided by the Program Director, Clinical Coordinators, Faculty, and Clinical Preceptors. A record of the outcomes is reviewed yearly on a report that shares five years of data for each SLO including an analysis, action plan based on analysis, and results/improvements noted based on action plans implemented.

Breakdown example for a goal and a student learning outcome

- Goal: Graduates will be clinically competent
- SLO: Students will apply radiographic positioning skills effectively
- Measurement Tool: Course RADI-R171 clinic 2 semester in the first year-ortho evaluation-question 5-positioning skills
- Benchmark: students will receive 3.5/5 on clinical evaluation question #5-positioning skills
- Responsible party collecting data: Clinical Coordinator
- Spring of 2021 results were 3.8/5
- Analysis of SLO: Due to the number of *clinical technologists* that complete student evaluations (200+), faculty feel evaluations may include too much grade inflation. Even though there is a detailed grading rubric on the evaluation to assist the tech with more precise grading, it doesn't seem to affect the outcome. Could it be that techs are so familiar with grade forms or are rushed to do evaluations that they do not take the time to truly reflect on the students' skills?
- Action Plan of SLO: Since the program has five measurement tools for this goal, faculty have decided to eliminate excess tools that have a high number of evaluators. By reducing the number of evaluators to include only the IU faculty, focusing on the end of the semester practical, faculty feel a better overall skill ability can be determined without worrying if the score is due to grade inflation.

III.   Description of Assessment Measures

A variety of assessment measures are used to evaluate achievement of student learning outcomes. Formative examples include in-class discussions, homework, weekly quizzes, low-stakes group work, clicker questions, and surveys. Summative examples include final written exams, projects, presentations, final lab skill demonstrations with image critique, and final clinical competencies. Examples that are done annually include the graduates' national board exam pass rates (including

review of scores in all categories), surveys of program graduates, surveys from employers of program graduates, annual program and instructor evaluations completed by students and clinical preceptors.

IV.   Data Collection and Analysis

Depending on attrition, the Radiography Program has 36-40 students in each cohort. Using the clinical evaluation example above, data is collected from a student clinic course evaluation. Each evaluation contains 15 questions. Each question is topic specific with a narrative on the criteria that should be used by the technologist doing the scoring. Question #6 Narrative =[Positioning Skills: Student was able to perform basic and advanced positions from one exam to another. Recognizes when positioning needs to be adapted due to patient's condition, trauma, isolation, etc.] A student will complete a two-four week rotation in orthopedics, surgery, portables, or fluoroscopy before a formal assessment is taken. Technologists in the department work with students each day and provide a great deal of informal feedback. Using the informal feedback students can work on making improvements with each exam, each day and each week. The formal feedback is the completed evaluation at the end of the rotation. The clinical preceptor systematically distributes online evaluations based on an individual student's rotation. The evaluation is in a database management system called e*Value. Technologists receive an email notifying them that an evaluation is ready to be completed on *X* student. Technologists are accustomed to viewing these evaluations and can easily access the evaluation, read through the 16 questions, and provide a score of one to four with one being the lowest (poor performance) and four being the highest (excellent performance). Reviewing the narrative for the question should help the technologist to determine the best score for the student. There is also room on the evaluation form for technologists to provide feedback on each question and/or overall feedback on the evaluation. If the technologist provided daily or frequent feedback communication to the student, the student should be able to make performance improvements prior to the written evaluation. If the technologist is not the best with communication, it is up to the student to follow up and ask for ways to improve. In a perfect situation, communication between the student and technologist will take place regularly, the student applies needed changes according to feedback received, practices on future exams and improves the skill. Finally, the skill is reflected in a number from one to four. This is assigned by the technologist and the score is totaled in with the remaining questions on the evaluation. With the e*Value database program, the Clinical Coordinator can generate a report on *just question 6 from* the *orthopedic* evaluation from *all* students in the cohort for *one* semester. All processes, feedback, and survey outcomes are shared annually with the Radiography Program Advisory Committee. This committee is made up of all department managers and team leaders from our clinical affiliates. They also contribute to the updates made with the program's goals, SLOs, evaluations, and surveys.

V.   Program Strategic Priorities (if applicable)

Continuous program improvement is performed the year following data collection and analysis. Review of the assessment data analysis and action plans are conducted for each SLO. Final reporting and outcomes are noted on the document as well as any trends or events that occurred during the year. The Radiography Program assessment plan is linked below as well as examples of other documents mentioned.

PRAC Report 2023