IAU Metro Campus Medical Technology Program
Assessment Report
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I. Introduction:

The purpose of this assessment report is to determine the progress being made in student's development of the minimum skills required by the profession and the compliance with the expected institutional standards, which are congruent with those established by the accrediting agency. This assessment process leads us to determine the need for curricular changes, strengthen learning opportunities for students, and to continue improving the quality of teaching and academic services to students.

This report comprises information from the Medical Technology Program for the years 2008 to 2010. The Medical Technology Program is part of the Science and Technology Division of the Metropolitan Campus, IAUPR. The Program, established in 1982, offers two options of study: the B. S. in Medical Technology, and the Professional Certificate in Medical Technology, for students who upon admission have a Bachelor’s Degree in Science.

The mission of the program is: to prepare professionals in clinical laboratory sciences with a theoretical and practical education to meet the needs of providing clinical laboratory services and related areas of the health services system.

A program revised curriculum, based on the assessment findings, was implemented in August 2010. Therefore, the assessment plan presented is divided in two parts: before and after the curricular revision. The goals, objectives and learning outcomes prior to the curricular revision were:

Goal: **To prepare competent medical technologists or clinical laboratory scientists that posse the knowledge, skills, and attitudes needed to initiate as a professional of the clinical laboratory sciences.**

Objectives:

1. Possess the minimum required knowledge of the fundamental concepts and the technical competencies in clinical laboratory necessary for an adequate performance in the health industry.
2. Be qualified to do a successful performance as a medical technologist or as a clinical laboratory scientist.
3. Demonstrate and apply moral and ethical principles in their relations with patients, peers, and the community.
4. Recognize the importance of keeping updated by means of continuous education.
5. Possess the necessary skills for developing additional competencies in the technological advances required for their professional growth.
Professional Competencies: the program graduate must possess the following competencies.

1. Develop, implement and evaluate procedures needed to collect process and analyze biological samples and other substances, keeping the samples' integrity.
2. Perform clinical analysis in fluids, cells and other substances.
3. Integrate and correlate data generated by different clinical departments and make decisions related to possible discrepancies.
4. Confirm abnormal laboratory results, verify and execute quality control procedures and develop solutions to problems produced by discrepancies on laboratory results.
5. Make decisions regarding quality control results and the quality control program and implement adequate procedures in order to maintain them accurate and precise.
6. Establish and execute preventive and corrective maintenance procedures for the instruments and equipment and identify appropriate source to repair them.
7. Develop, evaluate and select new methods, instruments and techniques, considering its practical use in the laboratory context, the personnel, space, equipment, and the available resources.
8. Demonstrate a professional behavior in the interaction with patients, laboratory personnel, allied health personnel, and general public.
9. Establish and maintain a continuous education program to assure the professional growth and competency.
10. Become a leader in the education of allied health professionals and to the community.
11. Apply administration, safety and supervision principles.
12. Apply methodological education principles.
13. Apply information system principles.

New Curriculum:

Upon completion of the Program, it is expected that students be able to:

Goal 1: Provide an academic education of excellence to medical technologists by developing the knowledge, skills and attitudes needed in their profession.

Objectives:

1. Apply the basic concepts in selecting, preparing and evaluating methods, instruments and quality systems that guarantee the accuracy and preciseness of tests and the general operations in the clinical laboratory setting that allows the correlation of the tests results to physiological processes.
2. Demonstrate skills when executing and assessing the pre analytical, analytical and post analytical phases.
3. Identify a professional that demonstrates interest in his/her professional growth.
Goal 2: Develop professionals able to communicate and interact effectively with patients, peers, and other health professionals and complying with the ethical principles and the laws that regulates the laboratory and the medical technologist profession.

Objectives:
1. Identify the ethical concepts that applies to the patients’ management.
2. Develop the ability to communicate effectively the information about the laboratory processes to patients and health professionals.
3. Practice professional and ethical attitudes consistent with a high quality health system in agreement to regulations and applicable laws.

Goal 3: Prepare professionals entrepreneurs qualified with an education in the sciences of the clinical laboratory that allows them to perform properly as clinical instructors, consultants, supervisors, administrators, educators, researchers, among other activities, by means of an innovative curriculum that pursue the clinical research.

Objectives:
1. Integrate fundamental concepts that qualifies them to unwind in several roles of working environments.
2. Adopt technical research, teaching and administrative skills consistent with the different roles and working environment of the medical technology.
3. Assist in leadership educational tasks and entrepreneurship in the workplace.

Based on knowledge, skills and affective

Knowledge

1. Develop, implement and evaluate proceedings to collect, process and analyze biological samples and other substances maintaining the sample’s integrity.
2. Apply moral and ethical principles in their relationship with patients, peers and the community.
3. Criticize scientific research articles related to medical technology.
4. Design research proposals following appropriate guidelines.

Skills

1. Determine the properly collection of the sample following the established procedures.
2. Perform clinical analysis of fluids, cells and other substances manually and automatically.
3. Integrate and correlate the data generated by several clinical departments and be able to determine if there are discrepancies in the results obtained.
4. Confirm abnormal results, verify and execute quality control procedures and establish procedures to solve problems related to the data generated in the laboratory.
5. Make decisions based on the quality control results and the quality assurance program, and set up appropriate procedures to assure the accuracy and preciseness.
6. Establish and execute preventive maintenance procedures of laboratory's instruments and equipments and identify appropriate sources to repair them.
7. Develop, evaluate and select new techniques, instruments and methods according to its practical use for the laboratory’s personnel, equipment, space and resources context.
8. Explain students, peers and other professionals, the procedures used to collect, and analyze a clinical sample. To evaluate or revise the established procedures to reject a sample or to collect the samples timely.
9. Demonstrate flexibility and adaptability to the most recent technologic and administrative changes.
10. Apply the principles of information systems.
11. Apply administrative, safety, and supervision principles.
12. Select appropriate literature using the available library resources.
13. Design a methodology for data collection.
14. Organize the results obtained to deliver an oral and written presentation.
15. Demonstrate ability to prepare lectures applying the knowledge acquired of teaching and evaluation methods.

Affective

1. Establish and maintain a continued education program to keep the professional development of the medical technologist.
2. Practice security and confidentiality laws and assume the responsibility to revise abnormal laboratory results.
3. Demonstrate a professional conduct to patients, laboratory personnel; other health professionals, and to the public.
4. Practice leadership in the education of other health professionals, and to the community.
5. Work in research projects or as a clinical consultant.

The were articulated with the Institutional Goals and the program’s goals and objectives, and are shown in Appendix 1. It is important to articulate these outcomes to the curriculum and determine the outcomes level in the curriculum or in the courses. In other words, if these outcomes are met (I), developed (D) or mastered (M) in an introductory course. Once we have determined the joints between the outcomes and courses within the curriculum, it is important to establish one last joint with the learning experiences or activities that are carried out to achieve the outcomes level. Three tables (shown in Appendix 2-4) help determine if all outcomes are fully addressed throughout the curriculum.
II. **Assessment Plan:**

It is based on the and provides a criterion of assessment for what is expected from students, using instruments, measured direct or indirectly; including dates on which data was collected, analysis of the results and the action taken (Appendix 5).

III. **Results:**

**Assessment Period: 2007-08**

**Goal 1:** to prepare competent medical technologists or clinical laboratory scientists that possess the knowledge, skills, and attitudes needed to initiate as a professional of the clinical laboratory sciences.

**Learning Outcomes:**

| 1. Develop, implement and evaluate procedures needed to collect process and analyze biological samples and other substances, keeping the samples’ integrity. |
| 2. Perform clinical analysis in fluids, cells and other substances. |
| 3. Integrate and correlate data generated by different clinical departments and make decisions related to possible discrepancies. |
| 4. Confirm abnormal laboratory results, verify and execute quality control procedures and develop solutions to problems produced by discrepancies on laboratory results. |
| 5. Make decisions regarding quality control results and the quality control program and implement adequate procedures in order to maintain them accurate and precise. |
| 6. Establish and execute preventive and corrective maintenance procedures for the instruments and equipment and identify appropriate source to repair them. |
| 7. Develop, evaluate and select new methods, instruments and techniques, considering its practical use in the laboratory context, the personnel, space, equipment, and the available resources. |
| 8. Demonstrate a professional behavior in the interaction with patients, laboratory personnel, allied health personnel, and general public. |
| 9. Establish and maintain a continuous education program to assure the professional growth and competency. |
| 10. Become a leader in the education of allied health professionals and to the community. |
| 11. Apply administration, safety and supervision principles. |
| 12. Apply methodological education principles. |
| 13. Apply information system principles. |

**Measurements**

**Measure 1:** In the Medical Laboratory Scientists Certification Examination, 80% or more of the graduates of each group will approve the certification.
**Measure 1 Results:** 50% of the graduates from the group that started on March 2007 and finished on February 2008 approved the Medical Laboratory Scientists Certification. 66% of the graduates from the group that started on August 2007 and finished on August 2008 approved the Medical Laboratory Scientists Certification. The annual average of the groups was 58%.

**Measure 2:** The average program performance score in the Board of Registry of the ASCP (MPS) will be equal or above of the Nation’s mean score.

**Measure 2 Results:** The average score of the Board of Registry of the ASCP (MPS) of the February 2007-08 group was 476 and the Nation’s mean score was 489. The average score of the Board of Registry of the ASCP (MPS) of the August 2007-08 group was 442 and the Nation’s mean score was 489.

**Measure 3:** 80% or more of the graduates of each group will approve the Program Final Test in the first attempt.

**Measure 3 Results:** 91% of the graduates from the group that started on March 2007 and finished on February 2008 approved the Program Final Test in the first attempt. 74% of the graduates from the group that started on August 2007 and finished on August 2008 approved the Program Final Test in the first attempt. The annual average of the groups was 82%.

**Measure 4:** The students will obtain good grades in the evaluation of their clinical practice performance. The group will obtain an average of 90% or more in the evaluation performed by the clinical practice instructors, in all rotation areas.

**Measure 4 Results:** The group that started on March 2007 and finished on February 2008 obtained an average of 85-90% in the evaluation performed by the clinical practice instructors, in all rotation areas. **Urinalysis and Parasitology were the areas that obtained an average of 90%**. The other five areas obtained an average of 85-87%. The group that started on August 2007 and finished on August 2008 obtained an average of 83-87% in the evaluation performed by the clinical practice instructors, in all rotation areas.

**Measure 5:** More than 90% of the students will obtain a score of 4 or higher in questions No. 1-9, 17-19 and 25-29 of the evaluation of their clinical practice performance.

**Measure 5 Results:** 92-100% of the students from the group that started on March 2007 and finished on February 2008 obtained a score of 4 or higher in questions No. 1-9, 17-19 and 25-29 of the evaluation of their clinical practice performance. **Only on question 18, in the Hematology and Blood Bank practice, 76% and 85% of the students obtained a score of 4 or higher.** 91-100% of the students from the group
that started on August 2007 and finished on August 2008 obtained a score of 4 or higher in questions No. 1-9, 17-19 and 25-29 of the evaluation of their clinical practice performance. Only on question 29, of the clinical chemistry practice, the 88% of the students obtained a score of 4 or higher.

Results

The two groups did not meet target measures 1- 2 and 4, for the assessment period 2007-08. On the measure 3 one of the groups (August) did not meet target measure.

Analysis

All of the factors that might influence a successful execution were analyzed. Three major factors were identified that could explain the results that were obtained: 1) the number of student vs. the number of student taking the certification in a year, 2) students not following Program’s policies about when to take the final exam for each clinical rotation and who did not obtain a high score in 3 of 7 of the questions in the clinical practice evaluation, and 3) the students did not take the certification exam immediately after the completion of the degree.

Recommendations

Strengthen student mentoring to guide students to follow a study schedule and ensure that they take exams on time, and emphasize that they have only three opportunities to pass the practice test for each rotation. There was a need to adopt new measurements to be increase the student performance in this area.

Actions taken

A new parameter to measure the execution of the students’ performance in the Final Practice Test was adopted;

Measure 6: 80% or more of the graduates of each group will approve the Program Final Practice Test in the first attempt.

Person responsible: The Program Director and the Faculty
Priority: High
Target Due Date: March 31, 2009.

Assessment Period: 2008-09

Goal 1: To prepare competent medical technologists or clinical laboratory scientists that possess the knowledge, skills, and attitudes needed to initiate as a professional of the clinical laboratory sciences.
At the completion of the Program, it is expected that students be able to:

1. Develop, implement and evaluate procedures needed to collect process and analyze biological samples and other substances, keeping the samples’ integrity.
2. Perform clinical analysis in fluids, cells and other substances.
3. Integrate and correlate data generated by different clinical departments and make decisions related to possible discrepancies.
4. Confirm abnormal laboratory results, verify and execute quality control procedures and develop solutions to problems produced by discrepancies on laboratory results.
5. Make decisions regarding quality control results and the quality control program and implement adequate procedures in order to maintain them accurate and precise.
6. Establish and execute preventive and corrective maintenance procedures for the instruments and equipment and identify appropriate source to repair them.
7. Develop, evaluate and select new methods, instruments and techniques, considering its practical use in the laboratory context, the personnel, space, equipment, and the available resources.
8. Demonstrate a professional behavior in the interaction with patients, laboratory personnel, allied health personnel, and general public.
9. Establish and maintain a continuous education program to assure the professional growth and competency.
10. Become a leader in the education of allied health professionals and to the community.
11. Apply administration, safety and supervision principles.
12. Apply methodological education principles.
13. Apply information system principles.

Measures Evaluated

**Measure 1:** In the Medical Laboratory Scientists Certification Examination, 80% or more of the graduates of each group will approve the certification.

**Measure 1 Results:** 61% of the graduates from the group that was on March 2008 and finished on February 2009 approved the Medical Laboratory Scientists Certification. 58% of the graduates from the group on August 2008 and finished on August 2009 approved the Medical Laboratory Scientists Certification. The annual average of the groups was 60%.

**Measure 2:** The average program performance score in the Board of Registry of the ASCP (MPS) will be equal or above of the Nation’s mean score.
**Measure 2 Results**: The average score of the Board of Registry of the ASCP (MPS) of the February 2008-09 group was 460 and the Nation’s mean score was 489. The average score of the Board of Registry of the ASCP (MPS) of the August 2008-09 group was 437 and the Nation’s mean score was 489.

**Measure 3**: 80% or more of the graduates of each group will approve the Program Final Test in the first attempt.

**Measure 3 Results**: 60% of the graduates from the group that start on March 2008 and finished on February 2009 approved the Program Final Test in the first attempt. 60% of the graduates from the group that start on August 2008 and finished on August 2009 approved the Program Final Test in the first attempt. The annual average of the groups was 60%.

**Measure 4**: The students will obtain good grades in the evaluation of their clinical practice performance. The group will obtain an average of 90% or more in the evaluation performed by the clinical practice instructors, in all rotation areas.

**Measure 4 Results**: The group on March 2008 and finished on February 2009 obtained an average of 82-87% in the evaluation performed by the clinical practice instructors, in all rotation areas. The group on August 2008 and finished on August 2009 obtained an average of 83-87% in the evaluation performed by the clinical practice instructors, in all rotation areas.

**Measure 5**: More than 90% of the students will obtain a score of 4 or higher in questions No. 1-9, 17-19 and 25-29 of the evaluation of their clinical practice performance.

**Measure 5 Results**: 94-100% % of the students from the group on March 2008 and finished on February 2009 obtained a score of 4 or higher in questions No. 1-9, 17-19 and 25-29 of the evaluation of their clinical practice performance. 95-100% of the students from the group on August 2008 and finished on August 2009 obtained a score of 4 or higher in questions No. 1-9, 17-19 and 25-29 of the evaluation of their clinical practice performance. However, on question 18 of Bacteriology Practice 86% only obtained a score of 4 or higher.

**Measure 6**: 80% or more of the graduates of each group will approve the Program Final Practice Test in the first attempt.

**Measure 6 Results**: 19% of the graduates from the group on March 2008 and finished on February 2009 approved the Program Final Practice Test in the first attempt. 24% of the graduates from the group on August 2008 and finished on August 2009 approved the Program Final Practice Test in the first attempt. The annual average of the groups was 21%.
Results

The two groups of the assessment period 2008-09 did not meet the target measures 1-4 and 6. On measure 5, one group (August) did not meet the target measure on question 18 of bacteriology practice.

Analysis

These groups have a similar performance behavior to those of the groups of year 07-08. Only a small change was observed, despite the efforts done to improve student performance measures at a given time in the Final Practice Test. It should be noted that still the Program was experiencing a decrease in students’ applications. This fact led to a situation where the groups were not as competitive as those before the decrease in admission started. A change in the student’s profile was observed.

Recommendations

Establish a new measurement that will strengthen the fulfillment of this goal for the next periods. A new curriculum revision was initiated to address the measures. It was proposed to evaluate the possibility of incorporating as a requirement, an admission test to increase competitiveness between the students applying to the Program. The test will should be implanted to the group initiating on March 2011-12. The results of this measure would be reflected at the end of the year 2012.

Actions

An additional parameter was developed to measure the actions taken to improve the execution of the graduates;

Measure 7: Increase the number of student’s applications to at least 40, and the number of student admission would be kept in 25. A new formula for admission and selection of the students was established for March 2011, incorporating the admission test as an admission requirement.

Person responsible: The Program Director and the Faculty

Priority: High

Target Due Date: March, 2011.

Assessment Period: 2009-10

Goal 1: To prepare competent medical technologists or clinical laboratory scientists that possess the knowledge, skills, and attitudes needed to initiate as a professional of the clinical laboratory sciences.
1. Develop, implement and evaluate procedures needed to collect process and analyze biological samples and other substances, keeping the samples' integrity.
2. Perform clinical analysis in fluids, cells and other substances.
3. Integrate and correlate data generated by different clinical departments and make decisions related to possible discrepancies.
4. Confirm abnormal laboratory results, verify and execute quality control procedures and develop solutions to problems produced by discrepancies on laboratory results.
5. Make decisions regarding quality control results and the quality control program and implement adequate procedures in order to maintain them accurate and precise.
6. Establish and execute preventive and corrective maintenance procedures for the instruments and equipment and identify appropriate source to repair them.
7. Develop, evaluate and select new methods, instruments and techniques, considering its practical use in the laboratory context, the personnel, space, equipment, and the available resources.
8. Demonstrate a professional behavior in the interaction with patients, laboratory personnel, allied health personnel, and general public.
9. Establish and maintain a continuous education program to assure the professional growth and competency.
10. Become a leader in the education of allied health professionals and to the community.
11. Apply administration, safety and supervision principles.
12. Apply methodological education principles.
13. Apply information system principles.

Measures Considered

Measure 1: 80% or more of the graduates of each group will approve the Medical Laboratory Scientists Certification Examination.

Measure 1 Results: 67% of the graduates from the group admitted on March 2009 and finished on February 2010 approved the Medical Laboratory Scientists Certification. 82% of the graduates from the group admitted on August 2009 and finished on August 2010 approved the Medical Laboratory Scientists Certification. The annual average of the groups was 73%.

Measure 2: The average program performance score in the Board of Registry of the ASCP (MPS) will be equal or above of the Nation’s mean score.

Measure 2 Results: The average score of the Board of Registry of the ASCP (MPS) of the February 2009-10 group was 432 and the Nation’s mean score was 494.
average score of the Board of Registry of the ASCP (MPS) of the August 2009-10 group was 514 and the Nation’s mean score was 494.

**Measure 3:** 80% or more of the graduates of each group will approve the Program Final Test in the first attempt

**Measure 3 Results:** 79% of the graduates from the group that started on March 2009 and finished on February 2010 approved the Program Final Test in the first attempt. 64% of the graduates from the group that started on August 2009 and finished on August 2010 approved the Program Final Test in the first attempt. The annual average of the groups was 71%.

**Measure 4:** The students will obtain good grades in the evaluation of their clinical Practice performance. The group will obtain an average of 90% or more in the evaluation performed by the clinical practice instructors, in all rotation areas.

**Measure 4 Results:** The group that admitted on March 2009 and finished on February 2010 obtained an average of 84-87% in the evaluation performed by the clinical practice instructors, in all rotation areas. The group admitted on August 2009 and finished on August 2010 obtained an average of 83-89% in the evaluation performed by the clinical practice instructors, in all rotation areas.

**Measure 5:** More than 90% of the students will obtain a score of 4 or higher in questions No. 1-9, 17-19 and 25-29 of the evaluation of their clinical practice performance.

**Measure 5 Results:** 91-100% of the students from the group admitted on March 2009 and finished on February 2010 obtained a score of 4 or higher in questions No. 1-9, 17-19 and 25-29 of the evaluation of their clinical practice performance. 92-100% of the students from the group admitted on August 2009 and finished on August 2010 obtained a score of 4 or higher in questions No. 1-9, 17-19 and 25-29 of the evaluation of their clinical practice performance.

**Measure 6:** 80% or more of the graduates of each group will approve the Program Final Practice Test in the first attempt.

**Measure 6 Results:** 46% of the graduates from the group admitted on March 2009 and finished on February 2010 approved the Program Final Practice Test in the first attempt. 40% of the graduates from the group admitted on August 2009 and finished on August 2010 approved the Program Final Practice Test in the first attempt. The annual average of the groups was 43%.

**Measure 7:** Increase the number of student’s applications to 40 applications, and the number of student admitted would be kept in 25.
**Measure 7 Results:** The number of student applications from the group admitted on March 2009 and finished on February 2010 was 39 and the number of admissions was 25. The number of student applications from the group admitted on August 2009 and finished on August 2010 was 58 and the number of students admitted was 25.

**Results**

The group admitted on March 2009 and finished on February 2010 did not meet the target measures 1- 2, 4 and 6. They only met measures 3, 5 and 7. The group admitted on August 2009 and finished on August 2010 did not meet the target measures, and only met measures 3, 4 and 6. The August group met all others measures.

**Analysis**

Although the group that finished on February 2010 did not meet most of the target measures, results showed improved when compared to other groups in the previous year, in measure 6 and measure 3. The number of students passing the final practice test increased and the number of students passing the Program Final Test also improved. However, the performance in the certification test did not improve. The performance of the August 2010 group did improve, a fulfillment of the goal with the group of August 2010, in spite that the measure 3, 4 and 6 were not met. After analyzing the teaching and learning process, and the factors that influence in a successful execution; it was concluded that, as far as measure 6 increased, measure 4 increased, too. To fulfill measure 3, changes have been done such as, adding and changing some of the questions and also changing the passing grade, that could had probably influenced the percent of approval of the test.

**Recommendations**

Follow up to measure 6.

**Actions**

Continuation of the mentoring of students to make a study schedule, takes exams on time, and emphasize that they have only three chances for reposition of test.

Person responsible: The Program Director and the Faculty

Priority: High

Target Due Date: March 1, 2011.

**Assessment Period:** 2010-11
Goal 1: To provide an academic education of excellence to the medical technology students by developing the knowledge, skills and attitudes needed in their profession.

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<td><strong>Measure 1:</strong> 80% or more of the graduates of each group will approve the Medical Laboratory Scientists Certification Examination,</td>
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**Measure 1 Results:** 100% of the graduates from the group admitted on March 2010 and finished on February 2011 approved the Medical Laboratory Scientists Certification. The graduates from group admitted on August 2010 and finished on August 2011 are in the process of taking the Medical Laboratory Scientists Certification Test.

**Measure 2:** The average score of the Board of Registry of the ASCP (MPS) will be equal or above of the Nation’s mean score.

**Measure 2 Results:** The average score of the Board of Registry of the ASCP (MPS) of the March 2010 group was 567 and the Nation’s mean score was 502. These results are preliminary, since the year is still in progress, these numbers do not represent the whole year.

**Measure 3:** 80% or more of the graduates of each group will approve the Program Final Test in the first attempt

**Measure 3 Results:** 77% of the graduates from the group admitted on March 2010 and finished on February 2011 approved the Program Final Test in the first attempt. 78% of
the graduates from the group admitted on August 2010 and finished on August 2011 approved the Program Final Test in the first attempt. The annual average of the groups was 77%.

**Measure 4:** The students will obtain good grades in the evaluation of their clinical practice performance. The group will obtain an average of 90% or more in the evaluation performed by the clinical practice instructors, in all rotation areas.

**Measure 4 Results:** The group admitted on March 2010 and finished on February 2011 obtained an average of 85-88% in the evaluation performed by the clinical practice instructors, in all rotation areas. The group admitted on August 2010 and finished on August 2011 obtained an average of 85-88% in the evaluation performed by the clinical practice instructors, in all rotation areas.

**Measure 5:** 90% of the students will obtain a score of 4 or higher in questions No. 1-9, 17-19 and 25-29 of the evaluation of their clinical practice performance.

**Measure 5 Results:** 91-100% of the students from the group admitted on March 2010 and finished on February 2011 obtained a score of 4 or higher in questions No. 1-9, 17-19 and 25-29 of the evaluation of their clinical practice performance. 92-100% of the students from the group admitted on August 2010 and finished on August 2011 obtained a score of 4 or higher in questions No. 1-9, 17-19 and 25-29 of the evaluation of their clinical practice performance.

**Measure 6:** 80% or more of the graduates of each group will approve the Program Final Practice Test in the first attempt.

**Measure 6 Results:** 65% of the graduates from the group admitted on March 2010 and finished on February 2011 approved the Program Final Practice Test in the first attempt. 61% of the graduates from the group admitted on August 2010 and finished on August 2011 approved the Program Final Practice Test in the first attempt. The annual average of the groups was 63%.

**Measure 7:** Increase the number of students’ applications to 40 applications, and the number of would be returned to 25 in a competency.

**Measure 7 Results:** The number of student applications from the group admitted on March 2010 and finished on February 2011 was 54 and the number of students was 25. The number of students’ applications from the group admitted on August 2010 and finished on August 2011 was 71 and the number of students was 25.

**Goal 1:** To provide an academic education of excellence to the medical technologists by developing the knowledge, skills and attitudes needed in their profession.
Student Learning Outcome:
   1. To establish and maintain a continuing education program to keep the professional development of the medical technologist. (A)

Measure 10: A) 90% of the students will agree or strongly agree with the sentence “I feel prepared and well trained to perform a good work as a medical technologist”, in a Questionnaire of Program graduates. B) 80% or more of the graduates who answered the survey are working as medical technologists and will require periodic actualization of the profession.

Measure 10 Results: A) 100% of the students agreed or strongly agreed with the sentence “I feel prepared and well trained to perform a good work as a medical technologist” in a Questionnaire of Program graduates. B) 81% of students are working as medical technologists from NAACLS survey, and from the Questionnaire of Program graduates, the 100%.

Measure 11: 90% or more of the employers will agree that the graduates possess the knowledge; the skills and values needed for a good performance as medical technologists.

Measure 11 Results: 100% of the employers agreed that the graduates possess the knowledge, the skills, and values needed for a good performance as medical technologists, through the selection of outstanding or superior on a standard scale of graduate performance

Goal 2: To develop professionals able to communicate and interact effectively with patients, peers, and other health professionals and complying with the ethical principles and the laws that regulates the laboratory and the medical technology profession.

Student learning outcomes:
   1. To apply moral and ethical principles in relationship with patients, peers and the community (K).
   2. To explain to students, peers and other professionals, the procedures used to collect and analyze a clinical sample; to evaluate or revise the established procedures to reject a sample or to collect the samples timely. (S)
   3. To demonstrate flexibility and adaptability to the most recent technologic and administrative changes. (S)
   4. To practice security and confidentiality laws and assume the responsibility to revise abnormal laboratory results. (A)
      To demonstrate a professional conduct to patients, laboratory personnel other health professionals and to the public. (A)

Measure 5: Presented Above
**Measure 9:** 90% of the group of the students or higher will obtain a score of 4 or more on the questions used to evaluate their laboratory skills on the clinical practice.

**Measure 9 Results:** In all practices the students obtained an average of 4.9, which represent the 98% of the group.

**Measure 12:** The students of each group will obtain a score of 80% or more on the rubrics of the activities of the course MEDT 4595.

**Measure 12 Results:** 81.5% was the score obtained by the group that started on August 2010 and finished on August 2011, on the rubrics of the activities of the course MEDT 4595.

**Goal 3:** To prepare qualified professionals entrepreneurs with an education in the sciences of the clinical laboratory that allows them to perform properly as clinical instructors, consultants, supervisors, administrators, educators, researchers, among other activities, by means of an innovative curriculum that pursue the clinical research.

**Student Learning Outcomes:**
1. To criticize scientific research articles related to medical technology. (K)
2. To design research proposals following appropriate guidelines. (K)
3. To apply the principles of information systems (S)
4. To apply administrative, security and supervision principles. (S)
5. To select appropriate literature using the available library resources. (S)
6. To design a methodology for data collection. (S)
7. To organize the results obtained to deliver an oral and written presentation. (S)
8. To demonstrate ability to prepare lectures, applying the knowledge acquired of teaching methods and evaluation. (S)
9. To practice leadership in the education of other health professionals and to the community. (A)
10. To work in research projects or as a clinical consultant. (A)

**Measure 10: Presented Above**

**Measure 12: Presented Above**

**Measure 13:** 50% of the program’s graduate groups meets at least with one of these categories: 1) laboratory owners 2) have participated at least as peers or student’s instructors, 3) have been members of at least one of the commissions of the College of Medical Technologists of PR, or 4) participate as clinical consultants or in Research Projects.

**Measure 13 Results:** This measure will be addressed next year
Results

The group admitted on March 2010 and finished on February 2011 meets with all measures except measure 4 and 6. The group admitted on August 2010 and finished on August 2011 only meets with measure 5 and 7, but this group is taking the certification test now. The other measure will not be ready until the completion of the certification test.

Analysis

We have observed the fulfillment of this goal with the March-February 2011 group, even though the measure 4 and 6 were not met. After analyzing the teaching – learning procedures, and the factors that influence in a successful execution, we conclude that when measure 6 increased, measure 4 also increased. The number of students passing the final practice test (measure 6) continues to improve and the number of students passing the Program Final Test increased, too. The March-February 2011 group was a great group. The group that started on August 2010 and finished on August 2011 only met with measure 5, but this group is in the process of the certification, now. The others measures will not be ready until the completion of the certification test. This group did not met measure 3, and measure 6 was obtaining a lower score than the average of the last group. This fact corroborates the correlation between the measure 3 and 6 in the success of the measure 1. Although the August 2010 -11 group has not completed the certification, this Goal has not been met for 2010-11.

Recommendations

To consider the establishment of a new measure that guarantees the fulfillment of this goal for the next periods. To incorporate a midterm test order to be able to identify the level of learning to measure student progress and areas that need strengthening so that students have a greater opportunity of meeting the standards.

Actions

The mid term will be incorporated. Develop new parameters that can measure the actions taken to improve the execution of the graduates.

Measure 8: 80% or more of the students of each group will approve the Midterm Test in the first attempt.

Person responsible: The Program Director and the Faculty

Priority: High

Target Due Date: March 1, 2012.
IV. Reflection and Action Plan:

The assessment plan has been centered in the evaluation of student performance at the end of the completion of course requirements and graduate performance in certification tests. Changes have been made based on outcomes results. Multi factorial factors that influence student performance have been identified as a result of the assessment results and actions have been taken to strengthen student learning and program quality.

The Assessment Plan has been modified to incorporate additional measures, including the measurement of student learning at a midpoint at the end of the theory portion, as part of their progress in the program. During the year 2007-08, three main factors were identified that could be contributing to the failure in meeting four of the five measures. These factors were: 1) the number of student admitted vs. the number students taking the certification test in a year, 2) lack of correlation between a high score obtained at the final evaluation of each clinical practice with the performance in some questions 3 of 7 areas; in some questions of the measure 3 of 7 score in some questions of 3 of 7 areas and in some questions of 3 of 7 areas of clinical 3) Students not taking the certification exam immediately after the completion of the degree.

In year 2007-08, as remedial action, a mentoring was incorporated regarding strategies that must be taken to prepare a study schedule and stimulate them to take exams on time. We have developed a new parameter intended to measure the actions taken to improve the execution of the graduates. Measure 6: 80% or more of the graduates of each group will approve the Program Final Practice Test in the first attempt was incorporated.

On year 08-09, the groups had a similar behavior of the group of 2007-08. Despite of the efforts made to achieve the goal that students take the practical final test on time, only a small change was observed. There was a decreased in the number of students applying to the program. This fact had the effect that the student profile of entrance students. In year 2008-09, a curricular revision was in initiated. As part of the revision, an admission test was incorporated as a requirement. The test was proposed to be implanted to the group for March 2011-12 admissions. The results of the measure implanted will be seen at the end of year 2012.

On year 2009-10, the group showed a change that had a significant impact on the ASCP Board test. After analyzing the teaching and learning strategies and the factors that influence in a successful execution it was concluded that, as far as measure 6 increased, measure 3 and 4 increased too. The recommendation was to give a follow up to the measure 6.

On year 2010-11 the groups showed a change that have had a significant impact on the ASCP Board test. Also, the group improved on measures. This fact indicates the correlation between the measures 3 and 6 in the success of the measure 1 and 2. The
recommendation for that year was give a midterm test. The test will be implanted in order to assure that the students meet with the measures, all the times.

Graph 1: Program Pass Percent vs. Nation: The graph has shown a significant increase in the last three groups in the results of the ASCP Board Test.

Graph 2: Comparison of the Program and Nation Mean Scores: The graph shows a significant increase in the last three groups in the results of the ASCP Board Test.
Graph 3: **Student Performance by Learning Outcomes 1, 3, 6 and 7**: This graph indicates the correlation between the measures 3, 6 and 7 in the success of the measure 1.
Universidad Interamericana de Puerto Rico  
Recinto Metropolitano  
Facultad de Ciencias y Tecnología  
Escuela de Tecnología Médica

ESTUDIO DE EGRESADOS

A. Información General  N=23, 150 cuestionarios, 15%

1. ¿Actualmente, esta usted empleado como tecnólogo médico?
   a. Si  100%
   b. No

Si contesto con un NO a la pregunta numero 1, favor de pasar a la pregunta numero 9.

2. ¿Cuál es su función en este momento?
   a. Tecnólogo Médico Generalista  78.26%
   b. Especialista en Hematología
   c. Especialista en Microbiología  4.35%
   d. Especialista en Química  4.35%
   e. Especialista en Inmunología/Serología
   f. Especialista en Banco de Sangre  13.04%
   g. Especialista en Orina/Parasitología

3. ¿Tiene alguna posición de supervisión o administrativa?
   a. Encargado de departamento  17.39%
   b. líder del turno  13.04%
   c. Otra 69.57%
4. ¿En qué turno trabaja regularmente?
   a. Día 65.22%
   b. Tarde 21.74%
   c. Noche

5. ¿Trabaja en otros turnos o laboratorios (hace guardias aparte)?
   a. Sí 82.61%
   b. No 17.39%

6. ¿En qué tipo de facilidad está trabajando?
   a. Laboratorio de hospital 91.30%
   b. Laboratorio de referencia
   c. Laboratorio privado 8.70%
   d. Otro

7. Si trabaja en hospital favor de indicar el número de camas que tiene.
   a. 100-200 30.43%
   b. 200-300 13.04%
   c. 300-500 34.78%
   d. mayor de 500 4.35%
   e. No aplica

8. ¿Cuántos tecnólogos médicos trabajan en la facilidad en la cual está empleado?
   a. 1-5 4.35%
   b. 6-10 8.70%
   c. 11-20 34.78%
   d. 21-50 52.17

9. Actualmente, ¿Cuál es su trabajo?
a. Administrativo pero no en laboratorio
b. Científico de la industria
c. Técnico de laboratorio de investigación o industria
d. Director programa Tecnología Médica
e. Instructor o Catedrático en programa de Tecnología Médica
f. Profesor en universidad o escuela
g. Tecnólogo Médico 100%
h. No trabaja
i. Continúo estudiando
j. Otro

10. ¿Cree que el haber estudiado Tecnología Médica le prepara para la posición que ocupa actualmente?
   a. Si 95.65%
   b. No 4.35%

11. ¿En cuánto tiempo obtuvo trabajo luego de obtener la licencia para ejercer la profesión de Tecnología Médica?
   a. Inmediatamente 91.30%
   b. Seis meses 8.70%
   c. 1 año
   d. Más de 1 año
   e. No he conseguido trabajo
   f. No es mi interés trabajar
   g. Continúo estudiando

B. Preparación recibida por el programa

12. ¿Los conocimientos obtenidos en la teoría facilitaron el entendimiento de la práctica clínica?
   a. Grandemente 73.91%
   b. Moderadamente 17.39%
   c. Mínimo 8.70%
13. ¿Hasta que punto su práctica clínica fortaleció el aprendizaje provisto durante la porción didáctica del Programa?

   a. Grandemente  **73.91%**
   b. Moderadamente  **17.39%**
   c. Mínimo  **8.70%**
   d. Inadecuadamente

14. Si te compararas con tecnólogos médicos graduados de otros programas que trabajan han trabajado contigo, en términos de cuán bien preparados están para iniciarte como tecnólogo médico, ¿coméclasificarías?

   a. Muy bien  **82.61%**
   b. Bastante Bien  **17.39%**
   c. No muy bien
   d. Muy mal
   e. No aplica en su caso

15. En términos generales, ¿coméstevalora su satisfacción en cuanto a su selección de la carrera de tecnólogo médico en nuestro recinto?

   a. Bien Satisfecho  **78.26%**
   b. Satisfecho  **17.39%**
   c. No muy satisfecho  **8.70%**
   d. Totalmente Insatisfecho

16. ¿Esta de acuerdo con la siguiente oración: "Me siento muy bien preparado para mi primera posición de trabajocometecnólogo médico"?

   a. Bien Satisfecho  **73.9%**
   b. Satisfecho  **26.09%**
   c. No muy satisfecho
   d. Totalmente Insatisfecho
17. En términos generales, ¿comó usted evaluarías un nivel de confianza en cuanto a su habilidad de funcionar como tecnólogo(a) médico(a) después de años de graduado?

   a. Exactamente confiable 82.61%
   b. Bien confiable 17.39%
   c. Algo confiable
   d. Nada confiable

18. ¿Se siente usted motivado a iniciar estudios graduados?

   a. Sí 52.17%
   b. No 47.83%

19. ¿Recomendaría usted el Programa de Tecnología Médica de la Inter-Metro a otros?

   a. Sí 100%
   b. No

C. Preguntas para escribir su contestación o comentario

20. ¿En cual de los centros afiliados realizó su práctica clínica?

   ____________________________________________________________

21. ¿Tienes algunas sugerencias o como mejorar la práctica clínica?

   ______________________________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________

22. ¿Qué fortaleza(s) considera usted que tiene el Programa de Tecnología Médica de la Universidad Interamericana, Recinto Metropolitano?

   ______________________________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________
23. ¿Considera usted que el Programa tiene alguna(s) debilidad(es)?

______________________________________________________________________

______________________________________________________________________

______________________________________________________________________

Muchas Gracias!

INTER AMERICAN UNIVERSITY OF PUERTO RICO
METROPOLITAN CAMPUS
SCIENCE AND TECHNOLOGY FACULTY
MEDICAL TECHNOLOGY SCHOOL
ESTUDIO DE PATRONOS
GRADUATE PERFORMANCE EVALUATION

Please fill out one questionnaire for each graduate program  
N=6

1. Type of laboratory/Organization:
   a. Hospital Lab 83.3%  
   b. Technical Services Company  
   c. Private Independent Lab 16.67%  
   d. Reference Lab  
   e. Research Lab  
   f. Laboratory/Hospital Supply Company  
   g. Other (Please specify) ____________

2. Number of employees:
   a. 1 -5  
   b. 6 -10  
   c. 11-20 100%  
   d. 21-50  
   e. 51 -100  
   f. over 100  

3. Primary Position of the Graduate: (Check only the one most representative)
   a. Staff Medical Technologist 66.67%  
   b. Assistant to Supervisor  
   c. Department Head or Supervisor 33.33%  
   d. Technical Supervisor  
   e. General Supervisor  
   f. Shift Supervisor  
   g. Sales Representative  
   h. Technical Service Representative  
   i. Other (Please specify)

4. Graduate is a:
   a. Full-Time employee 100%  
   b. Part-time employee.

5. Please specify time in employment in (years)
   a. 0-1 16.67%  
   b. 2-5  
   c. 6-10  
   d. 16-25 33.33%  
   e. >25
c. 6-15\textbf{50\%}

6. Please specify your position (evaluator):
   a. Department Supervisor
   b. General Supervisor
   c. Chief Technologist
   d. Technical Supervisor
   e. Laboratory Manager
   f. Chief Administrator/President/Manager
   g. Other (Please specify) 83.33 \%

7. Length of time you have been in this position (years)
   a. 0-1
   b. 2-5
   c. 6-15 \textbf{83.33\%}
   d. 16-25 \textbf{16.67\%}

\textbf{GENERAL ENTRY LEVEL COMPETENCIES}: Using the standard scale below. Please indicate with an X the appropriate space that your appraisal of the graduate’s ability to accomplish the following:

Standard Scale of graduate performance in terms of how well prepared is the graduate in comparison with peers or co-workers:

\begin{itemize}
  \item A = Outstanding, consistently displays this characteristic to a high degree;
  \item B = Superior. Usually displays this characteristic to a greater degree than most other peers in the section;
  \item C= Average, Usually displays this characteristic;
  \item D = Deficient. Cannot be depended on to display this characteristic consistently;
  \item E= Unsatisfactory, Does not meet acceptable standards with respect to this characteristic:
  \item F = No basis for judgment
\end{itemize}

\begin{tabular}{|l|c|c|c|c|c|c|}
\hline
General Competency & A & B & C & D & E & F \\
\hline 8. Performs and reports routine and/or complex clinical laboratory tests in an area or areas of the laboratory, including tests requiring routine and/or complex instrumentation as assigned, within the required standards of accuracy, neatness, and thoroughness. & 33.3 & 50 & 16.6 & & & \\
\hline 9. Demonstrates and maintains adequate technical knowledge to understand the principle and techniques of each clinical laboratory procedure. & 66.7 & 16.7 & 16.7 & & & \\
\hline 10. Performs quality control to ensure proper functioning of instruments, reagents, and procedures. Validates and reports results of tests performed. & 83.3 & 16.7 & & & & \\
11. Calibrates, standardizes, and maintains instruments following established procedures. & 83.3 & 16.7 & & & & \\
\hline 12. Recognizes instrument malfunction and out-of-control tests results and takes corrective action & 50.0 & 33.3 & 16.7 & & & \\
\hline
\end{tabular}
13. Recognizes the need to repeat a test when the results did not correlate with other findings or when an abnormal value is obtained. 83.3 16.7
14. Performs work without close supervision or assistance. 83.3 16.7
15. Presents new ideas, suggests need for procedure improvement or otherwise demonstrate an awareness of need for change. 33.3 50 16.7
16. Establishes effective working relationships when dealing with supervisors, peers and/or the public. 50 83.3 16.7
17. Adapt to emergency situations. 50 50
18. Accepts positive criticism from peers and supervisors. 66.7 33.3
19. Handle stress in the work place. 66.7 33.3
20. Demonstrate a caring attitude toward patients. 50 50
21. Demonstrates a professional attitude. 33.3 66.7
22. Organize work efficiently. 83.3 16.7
23. Recognize the need to seek advice from a peer, supervisor, or others. 83.3 16.7
24. Comply with established laboratory rules and regulations. 66.7 33.3
25. Maintains satisfactory attendance in regard to tardiness, early departures, and/or absences. 50 50
26. Adapts to new situations and changes in routines, workload, and/or work assignments. 83.3 16.7
27. Apply management principles to specific job situations. 66.7 16.7 16.7
28. How would you rate your general level of confidence in the graduate's ability to function as a medical technologist?

A) __ Very confident (B) 83.33_ confident (C) __ somewhat confident (D) __ no confidence

Specialty Area Competencies - Please evaluate, how well prepared the graduate has been overall in each of each of the following specialties, if applicable, using the scale below. If applicable, identify any specific task for which the graduate was not prepared, that is did not possess the minimum competencies expected of a recent graduate and suggest how the curriculum can be modified to meet this need.

Standard Scale of graduate performance in terms of how well prepared is the graduate in comparison with peers or co-workers:

A = Outstanding, consistently performs/displays this task/characteristic to a high degree:
B = Superior, usually performs/displays this task/characteristic to a greater degree than most other peers in the section:
C = Average, usually performs/displays this task/characteristics:
D = Deficient, cannot be depended on to perform/display this task/characteristics consistently:
E = Unsatisfactory, does not meet acceptable standards with respect to this task/characteristic:
F = No basis for judgment.

<table>
<thead>
<tr>
<th>Specialty Area Competencies</th>
<th>A</th>
<th>B</th>
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<th>D</th>
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<tbody>
<tr>
<td>29. Microbiology: Performance of routine cultures for the isolation and identification of aerobic bacteria from clinical specimens,</td>
<td>66.7</td>
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<td>specimen processing, inoculation of appropriate media, preparation and staining of smears using appropriate stain, aerobic and anaerobic cultures of patient's specimen, as applicable, using appropriate media and incubation for isolation and identification of bacteria, systems interpretation and report of results, quality control, as well as isolation, interpretation of biochemical systems results and the identification of organisms by genus and species and preparation and delivery of patients report, within required standards of accuracy and reliability.</td>
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<td><strong>30. IMMUNOLOGY/SEROLOGY/BLOOD:</strong> Performance, quality assurance including quality control, interpretation of results and report of results of routine serological tests; syphilis tests, rheumatoid arthritis tests, mono test, CRP tests, EIA tests, streptozyme or other test for streptococcal antibodies, routine and screen procedures in blood bank; crossmatches, OAT, compatibility tests and determination of compatible blood for problem crossmatches, etc., following rules, procedures and standards as established by the laboratory.</td>
<td>16.7</td>
<td>66.7</td>
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<tr>
<td><strong>31. CLINICAL CHEMISTRY:</strong> Performance, quality assurance, including quality control of routine tests, EIA using suitable instrumentation, setting up and interpret and report laboratory results for other special tests within the required standards of accuracy, precision as established by the laboratory, as Well as recognition of abnormal values, recognition of tests as liver, heart, thyroid, or kidney profiles.</td>
<td>16.7</td>
<td>66.7</td>
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<td><strong>32. HEMATOLOGY:</strong> Performance and interpretation of red blood cell, white blood cells and platelet automated and/or manual counts, WBC differentials, hematocrit and hemoglobin, reticulocyte counts, recognition of abnormal morphology of cells and its inclusions, performance of coagulation tests, quality control etc, quality control, validation of test results and report of patient's results.</td>
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<td>83.3</td>
<td>16.7</td>
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<td><strong>33. URINALYSIS/BODY FLUIDS:</strong> Performance of routine physical, biochemical, microscopic examination, performance of confirmatory testing, when indicated, identification of crystals and cellular elements, knowledge of storage and I collection procedures and staining, quality control, interpretation and report of laboratory results, within the required standards of accuracy and reliability.</td>
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<td><strong>34. PARASITOLOGY:</strong> Processing and performance of laboratory procedures for stool specimen concentration, recognition and identification of ova and parasites present, performance of special stains,</td>
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<td>83.3</td>
<td>16.7</td>
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</table>
Specialty Area Competencies

and report of results following standards as established in the laboratory.

35. **MICROLOGY AND Virology:** Processing and isolation of fungi and virus from patient's specimen, special stains, identification of yeast, identification of fungal cultures, biochemical and serological techniques for the proper identification and report of laboratory results.

<table>
<thead>
<tr>
<th>Specialty Area Competencies</th>
<th>A</th>
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36. What do you consider the major strengths of the medical technology program at Inter American University of Puerto Rico -Metropolitan Campus?

_____________________________________________________________________________________
_____________________________________________________________________________________

37. Have you identified major weaknesses of the program? __Yes __No :Please specify:

_____________________________________________________________________________________

38. Would you consider hiring another graduate of IAU -Metro Campus, if you had a position available?

    __Yes __No

39. Do you have any suggestions that would help us to prepare better-qualified employees for your organization?

_____________________________________________________________________________________
_____________________________________________________________________________________

_____________________________________________________________________________________