U.S. Department of Transportation
National Highway Traffic Safety Administration

In cooperation with

U.S. Department of Health & Human Services
Public Health Service
HRSA
Health Resources & Services Administration
Maternal & Child Health Bureau

EMT-PARAMEDIC

National Standard Curriculum

EMT-PARAMEDIC: NATIONAL STANDARD CURRICULUM

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PREFACE

The National Highway Traffic Safety Administration (NHTSA) has assumed responsibility for the development of training courses that are responsive to the standards established by the Highway Safety Act of 1966 (amended). Since these courses are designed to provide national guidelines for training, it is NHTSA's intention that they be of the highest quality and be maintained in a current and up-to-date status from the point of view of both technical content and instructional strategy.

To this end, NHTSA supported the current project which involved revision of the 1985 *Emergency Medical Technician-Paramedic: National Standard Curriculum*, deemed of high value to the states in carrying out their annual training programs. This curriculum was developed to be consistent with the recommendations of the *National Emergency Medical Services Education and Practice Blueprint*, the *EMT and Paramedic Practice Analysis*, and the *EMS Agenda for the Future*. This course is one of a series of courses making up a National EMS training program for prehospital care. The *EMT-Paramedic: National Standard Curriculum*, represents the highest level of education in EMS prehospital training.

The EMT-Paramedic: National Standard Curriculum represents the minimum required information to be presented within a course leading to certification as a Paramedic. It is recognized that there is additional specific education that will be required of Paramedics who operate in the field, i.e. ambulance driving, heavy and light rescue, basic extrication, special needs, and so on. It is also recognized that this information might differ from locality to locality, and that each training program or system should identify and provide special instruction for these training requirements. This curriculum is intended to prepare a medically competent Paramedic to operate in the field. Enrichment programs and continuing education will help fulfill other specific needs for the Paramedic's education.

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From the very beginning of this revision project, the Department of Transportation relied on the knowledge, attitudes, and skills from hundreds of experts and organizations. These individuals and organizations sought their own level of involvement toward accomplishing the goals of this project. These contributions varied from individual to individual, and regardless of the level of involvement, everyone played a significant role in the development of the curriculum. It is essential that those who have assisted with the achievement of this worthy educational endeavor be recognized for their efforts. For every person named, there are many more individuals who should be identified for their contributions. For all who have contributed, named and unnamed, thank you for sharing your vision. Your efforts have helped assure that the educational/training needs of Paramedics are met so that they can provide appropriate and effective patient care.

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THE EMT-PARAMEDIC: NATIONAL STANDARD CURRICULUM

History

The last revision of the EMT-Paramedic: National Standard Curriculum occurred in the early 1980s with a completed curriculum published in 1985. This current revision came about as a result of the National Highway Traffic Safety Administration's (NHTSA) January 1990 *Consensus Workshop on Emergency Medical Services Training Programs*. Participants discussed the national training curricula needs of Emergency Medical Service (EMS) providers. Using a nominal group process, the participants identified the top priority needs for EMS training in the United States.

The top priorities identified at that meeting led to revision of the EMT-Basic: National Standard Curriculum in 1994 and the First Responder: National Standard Curriculum in 1995. Upon the completion of these curricula, NHTSA funded a project to revise the EMT-Paramedic: National Standard Curriculum, EMT-Intermediate: National Standard Curriculum, and Associated Refresher programs. This curriculum is a result of that contract.

As stated in the contract, this curriculum is specifically designed to address the educational needs of the traditional paramedic. It is not intended to expand the scope of practice of the Paramedic. It is designed to provide a solid foundation for professional practice and additional education with a heavy emphasis on clinical problems solving and decision making.

The development utilized a variety of resources to help in curricular decision making. They included, but were not limited to: National Emergency Medical Services Education and Practice Blueprint, ASTM F1489-93, A Standard Guide for Performance of Patient Assessment by the EMT-Paramedic, Institute of Medicine's Report - Emergency Medical Services for Children, The EMS Agenda for the Future, The EMT and EMT-Paramedic Practice Analysis. These resources provided invaluable insight and assistance throughout the curriculum development.

The Curriculum Development Process

Because of the size of this project, many individuals were brought together to develop the curriculum. These extraordinarily talented individuals were organized into groups and teams. The Administrative Team's primary responsibility was to assure that the project was proceeding according to plan and to serve as a "hub" for the various groups and individuals involved in the many aspects of curriculum development.

The content of this curriculum was developed by writing teams that were each assigned a unit of the curriculum. Each writing team consisted of at least one author, one subject matter expert, and up to eight adjunct writers. These writing teams consisted of some of the most experienced educators and clinicians in emergency medicine. The authors were responsible for coordinating the writing group and actually developing the materials. The subject matter experts were responsible for the accuracy of each section. The subject matter experts were nationally recognized content experts. For all medical areas, the subject matter expert was a physician. The adjunct writers contributed to the development and review of the material.

The peer reviewers of the curriculum represented professionals from around the country who expressed an interest in participating in the curriculum development process. They had the opportunity to submit comments about each draft of the curriculum to the writing team for consideration. The National Review

Team consisted of representatives from national EMS organizations. The National Review team received every draft of the curriculum, and had the opportunity to register organizational opinions. Additionally, the National Review Team had two face-to-face meetings. These meetings were instrumental in developing consensus opinions on controversial issues.

The National Association of State EMS Directors and the National Council of State EMS Training Coordinators made extraordinary contributions to the overall design, development, and content of the curriculum throughout the project. More importantly, these organizations will assume the responsibility for implementing the curriculum in the coming years.

One pilot of the paramedic curriculum was conducted by the Center for Emergency Medicine in Pittsburgh, Pennsylvania. As part of their in-kind service to the project, the Joint Review Committee of Educational Programs for the EMT-Paramedic selected sites from around the country to serve as field test. These sites were asked to implement a draft of the curriculum and provide feedback to the administrative team. Both the pilot test and the field test sites were an important component of the curriculum development. The project team gained valuable insight into the implementation of this curriculum.

The National Registry of EMTs' support of this project was extraordinary. The National Registry contributed to the design and development of the examinations and final evaluation tools that were used in the pilot program, as well as the tabulation and evaluation of scores. They contributed significantly to the design and development of the skill sheets that are contained within this curriculum. The National Registry provided financial support for meetings of the group leaders.

The Joint Review Committee on Educational Programs for the EMT-Paramedic conducted surveys that were used to establish the clinical requirements. They also developed the affective evaluation tools.

Curriculum Goal and Approach

A curriculum is only one component of the educational process. Alone, it cannot assure competence. The goal of this curriculum is to be part of an educational system that produces a competent entry level paramedic. For the purpose of this project, competence was defined relative to the Description of the Profession.

Description of the Profession

The first step in the curriculum design phase of the project was to define the profession in terms of general competencies and expectations. The Description of the Profession was drafted and underwent extensive community and peer review. It was designed to be both practical and visionary, so as to not limit the growth and evolution of the profession. Ultimately it served as the guiding document for the curriculum development. The Description of the Profession also provided the philosophical justification of the depth and breadth of coverage of material. The Description of the Profession for the Paramedic is attached as Appendix A.

Educational Model

From the Description of the Profession, an Educational Model was developed to achieve the goals of the course. This Educational Model also went thought extensive community and peer review. This is a graphical representation of the major components of the curriculum. The Paramedic Educational Model was designed to be consistent with, and build upon, the Educational Model for the EMT-Basic.

The Educational Model is not intended to imply a rigid order or sequence of the material. Course planners and educators should adapt and modify the order of the material to best meet their needs and those of their students.

Much of the material in the preparatory section sets the stage for the rest of the course. Although there is no requirement to adhere to the order of the model, most educators agreed that this information should be presented early in the course. Additionally, Airway and Ventilation and Patient Assessment are fundamental skills and knowledge areas and should be presented toward the beginning of the course of study. In the Educational Model, the Medical and Trauma modules appear on either side Patient Assessment. In general, it is assumed that most programs will cover this material after the Preparatory, Airway, and Patient Assessment material.

The Model is also designed to emphasize the role of professional education as part of life long learning (fig. 1).

Continuum of Life Long Learning

Basic Education ➔Competencies/Prerequisites ➔ Professional Education ➔ Continuing Education

The EMT-Paramedic: National Standard Curriculum Diagram of Educational Model is attached as Appendix B.

Competencies

Paramedic program directors often comment that poor basic skills become problematic when attempting to teach many parts of the paramedic course. Deficiencies in basic skills are difficult to overcome throughout the course, but are most evident when teaching communication skills, documentation, and pharmacology math skills. It is not the intent of professional education to teach basic skills, but rather build on an existing base of academic competencies. The Paramedic curriculum assumes competence in English and math prior to beginning the course.

Documentation skills rely far more heavily on spelling, grammar, vocabulary and syntax than on the mastery of the specialized form of report writing that is found in health care. If, through program evaluation, a program identifies less than satisfactory results in documentation skills, it should raise the prerequisite level of English competence.

Similarly, if a program has difficulty with the student's pharmacology math skills, it is suggested that the prerequisite level of math competence be increased, rather than attempting to remediate these basic skills in the context of paramedic education.

The Functional Job Description of the Paramedic (appendix C), conducted by the National Registry of EMTs in 1997 identifies competence in math at the high school level and reading at the post high school level is necessary to perform as an entry level Paramedic. It is suggested that programs assess

applicant's basic skills prior to entry into training. If the competence of the applicant falls below this level, the student should be encouraged to remediate the deficiency prior to pursuing paramedic certification. If the program chooses to enroll students below these basic skills levels, it is the program's responsibility to provide individual tutoring, increase course time, provide remedial education, or require co-requisite course work to improve the candidates basic skills prior to graduation.

Course Length

Basic academic skills play a very important role in course length and attrition rate. Attrition rate is a function of the groups basic academic skills and the length of the course. If course length remains constant, and the basic skills of the applicants decreases, the attrition rate will rise. Correspondingly, if a program seeks to decrease its attrition rate or increase examination performance, it may do so by increasing the basic academic skills of its students, increasing course length, or both. This information should be taken into account in course planning.

The emphasis of paramedic education should be competence of the graduate, not the amount of education that they receive. The time involved in educating a paramedic to an acceptable level of competence depends on many variables. Based on the experience in the pilot and field testing of this curriculum, it is expected that the average program, with average students, will achieve average results in approximately 1000-1200 hours of instruction. The length of this course will vary according to a number of factors, including, but not limited to:

-student's basic academic skills competence
-faculty to student ratio
-student motivation
-the student's prior emergency/health care experience
-prior academic achievements
-clinical and academic resources available
-quality of the overall educational program

Appendix D is a summary of the time that each of the eight field test sites needed to cover a draft of the curriculum. These times are meant only as a guide to help in program planing. Training institutes MUST adjust these times based on their individual needs, goals and objectives. These times are only recommendations, and should NOT be interpreted as minimums or maximums. Those agencies responsible for program oversight are cautioned against using these hours as a measure of program quality or having satisfied minimum standards. Competence of the graduate, not adherence to arbitrary time frames, is the only measure of program quality.

Prerequisites

There are two prerequisites for the Paramedic curriculum: EMT-Basic and Anatomy and Physiology.

<u>EMT-Basic</u>
It has been a long held tradition to use EMT-Basic certification as a prerequisite for more advanced EMS education, and this curriculum continues that tradition. It is important to note that some educators have questioned the practice of using EMT-Basic as a required certification prior to enrollment in Paramedic education. In fact, no studies have been able to verify EMT-Basic certification or experience as a predictor of success in paramedic education. Of course, paramedics are required to be competent in *all* of the skills and knowledge of and EMT-Basic, and this knowledge base and skills competence should be verified during paramedic education.

Although this curriculum identifies EMT-Basic as a prerequisite, we have done so in the absence of empirical data suggesting that this is appropriate. We encourage flexibility in approaching the issue of EMT-Basic as a prerequisite to paramedic education. We also recognize that it may be possible to incorporate all of the material of an EMT-Basic class into a paramedic program, eliminating the need for it as a prerequisite. Clearly, more research is needed.

Anatomy and Physiology

The Paramedic curriculum has identified course work in anatomy and physiology as either a pre- or co-requisite. A mastery of anatomy and physiology, beyond that covered in the anatomy and physiology review of each section of the curriculum is assumed throughout this curriculum. EMS educational programs have many options to address anatomy and physiology in paramedic education. For programs that have access to formal anatomy and physiology classes, an appropriate level course can be identified as a pre or co-requisite to paramedic training. For other programs, anatomy and physiology can be "front loaded" in the paramedic course, or presented throughout the course.

There are many resources to aid EMS training sites and instructors in teaching an appropriate level of anatomy and physiology to current or prospective paramedic students. These texts and materials are available from many health care, medical and nursing publishers. Publishers usually have significant instructor and program support materials, usually including: textbooks, student workbooks, lesson plans, audiovisual materials, test banks, etc.

A list of objectives has been derived from many of the currently available resources in anatomy and physiology instruction. All of these objectives were consistently found in allied health educational programs or other non-science curricula. A list of the anatomy and physiology objectives that are considered pre- or co-requisite to paramedic education is found in appendix E. Paramedic programs should select courses or textbooks which cover this level of material.

Life Long Learning/Continuing Education

Continuing education is an integral component of any professional education process and the paramedic must be committed to life-long learning. The Paramedic curriculum must fit within the context of a continuing educational system. This is necessary due to the continually changing dynamics and evolution of medical knowledge.

This curriculum is designed to provide the student with the essentials to serve as an entry level paramedic. We recognize that enrichment and continuing education will be needed in some cases to bring the student to full competency. We strongly urge employers and service chiefs to integrate new graduates into specific orientation training programs.

It is important to recognize that this curriculum does not provide students with extensive knowledge in hazardous materials, blood-borne pathogens, emergency vehicle operations or rescue practices in unusual environments. These areas are not core elements of education and practice as identified in the *National EMS Education and Practice Blueprint*. Identified areas of competency not specifically designed within the EMT-Paramedic: National Standard Curriculum should be taught in conjunction with this program as a local or state option.

PARAMEDIC EDUCATION

Society is becoming more demanding in all areas in education. The current trend in professional education is to demonstrate, in quantitative ways, the value and quality of the program. Simply adhering to standards is no longer adequate to convince the stake holders that educational programs are satisfying the needs of its constituency. Government, society, and the profession are demanding that educational programs are held accountable for the product that they are producing. This section of the curriculum briefly describes critical components, along with adherence to the Paramedic: National Standard Curriculum, that will enable programs to objectively demonstrate their value and quality.

Sponsorship

Paramedic education should take place in an academic environment. An academic environment has services such as a library, student counseling (education, academic, psychological, career, crisis intervention), admissions, financial aid, learning skills centers, student health services, etc. Additionally, an academic environment offers such advantages as admissions screening, standardized student selection criteria, registrar, record keeping, bursar, student activities, collegial environment, formal academic credit, medial resources, and vast institutional resources.

The financial resources should be adequate for the continued operation of the educational program to ensured each class of students is funded to complete the course. The budget should reflect sound educational priorities including those related to the improvement of the educational process.

Admissions of students should be made in accordance with clearly defined and published practices of the instruction. Specific academic, health related, and/or technical requirements for admission shall be clearly defined and published. The standards and /or prerequisited must be made know to all potential applicants.

The program should be responsible for establishing a procedure for determining that the applicant's or students' health will permit them to meet the written technical standards of the program. Students should be informed of and have access to health services. The health and safety of students, faculty, and patients associated with educational activities must be adequately safeguarded.

Accurate information regarding program requirements, tuition and fees, institutional and programmatic policies, procedures, and supportive services shall be available to all prospective students and provided to all enrolled students. There should be a descriptive synopsis of the current curriculum on field and available to candidates and enrolled students. There should be a statement of course objectives, copies of course outlines, class and laboratory schedules, clinical and field internship experience schedules, and teaching plans on file and available.

Student and faculty recruitment and student admission and faculty employment practices shall be non-discriminatory with respect to race, color, creed, sex, age, disabling conditions, and national origin. The program and sponsoring institution should have a defined and published policy and procedure for processing student and faculty grievances.

Policies and processes for student withdrawal and for refunds of tuition and fees shall be published and made known to all applicants. Polices by which student may perform service work while enrolled in the

program must be published and made known to all concerned in order to avoid practices in which students are substituted for regular staff.
Student records shall be maintained for student admissions, attendance, academic counseling and evaluation. Grades and credits for courses shall be recorded and permanently maintained by the sponsoring institution.

Program Planning/Communities of Interest

As with all professional education, it is critically important that Paramedic education programs are planned, executed and evaluated in a continuous quality improvement model. Only through a thorough assessment of the needs of the community, the establishment of goals to meet those needs, and program evaluation relative to those needs, will a program be able to demonstrate its quality and value.

Every professional education program is designed and conducted to serve a number of communities of interest. It is incumbent on the program directors to identify who is being served by the program, and adapt the program to best meet those needs. The program's goal statement should help to clarify the communities that the program serves. Although students are the consumer of the educational program, they are not the customer of the product. Ultimately, the program serves the employers of graduates, not students. Typically, the communities of interest include directors, managers, and medical directors who hire or supervise graduates. Other communities of interest might include: colleagues, government officials, hospital administrators, insurance companies, patients, and the public.

As part of the planning process, the program should regularly assess the communities of interest, and establish objectives to best serve them. One way to survey the communities of interest is to establish an advisory board consisting of representatives from various communities of interest and regularly question them as to their expectations of entry level Paramedics. The program would use this information for program planning. Specifically, the program should use this information to clarify how to achieve their program goals and objectives.

Program Goal

Each paramedic program should have a program goal. The program goal is a statement of the desired outcome of the program, and typically references graduating competent entry-level providers. By design, program goals are broad based, but establish the parameters by which the effectiveness of the program will be evaluated. A program may have multiple goals, but most use one for clarity. For example, a typical program goals statement might read:

> The goal of the ABC Paramedic Education program is to produce competent, entry level Paramedics to serve in career and volunteer positions in XYZ county.

If the program provided additional training that is clearly not within the definition of the entry level practitioner, then additional information should be included in the goal. Education planning should be based on the program goal, the mission of the sponsoring institution, and the expectations of the health care community. The goal should be made know to all members of the communities of interest, especially the students and faculty.

The goal will be used to select appropriate curricular materials, clinical experiences, and many other aspects of program planning.
Program Objectives

Objectives are more specific statements of the outcomes of the program, and are derived from the program goal in conjunction with the communities of interest. The program can establish as many objectives as they see fit to accurately reflect the program goal. Often, programs find it useful to establish objective along the three domains of learning. Examples might include:

> Program Cognitive Objective:
> At the completion of the program, the graduate of the ABC Paramedic Education Program will demonstrate the ability to comprehend, apply, and evaluate the clinical information relative to his role as an entry level paramedic in XYZ county.
>
> Program Psychomotor Objective:
> At the completion of the program, the student will demonstrate technical proficiency in all skills necessary to fulfill the role of entry level paramedic in XYZ county
>
> Program Affective Objective:
> At the completion of the program, the student will demonstrate personal behaviors consistent with professional and employer expectations for the entry level paramedic in XYZ county.

Goals and objectives must be consistent with the needs of the communities of interest, e.g. the program sponsors, employers, students, medical community, and profession. There may be some goals that are important institutional goals that are not useful program goals. The only goals that are considered program goals are those that relate specifically to the competencies attained in the program.

Use of the Goals and Objectives in Program Evaluation

Program goals and objectives form the basis for program assessment. Once the goals and objectives are established, they serve as a mechanism to evaluate the effectiveness of the program. By utilizing a variety of evaluation methodologies (performance of graduates on certification exams, graduate surveys, employer surveys, medical director surveys, patient surveys) the program can evaluate their effectiveness at achieving each objective. For example, if graduates consistently perform poorly on the cardiac section of certification exams, and graduates, employers, and medical directors all state that students are weak in cardiology, the program should critically evaluate this section of their curriculum.

Programs are encouraged to evaluate each objective in as many ways as possible. For example, graduate cognitive skills could be evaluated by performance on standardized tests, certification exams, graduate surveys, employer surveys, and medical director surveys. This provides much more information than using one source of data.

Course Design

The paramedic program should consist of four components of instruction: didactic instruction, skills laboratory, clinical education, and field internship. The first three typically occur concurrently, and the field internship serves as a verification that the student is serving as a competent, entry level practitioner.

<u>Didactic Instruction</u>

The didactic instruction represents the delivery of primarily cognitive material. Although this is often delivered as lecture material, instructors are strongly encouraged to utilize alternate delivery methods (video, discussion, demonstration, simulation, etc.) as an adjunct to traditional classroom instruction. The continued development and increased sophistication of computer aided instruction offers many options for the creative instructor. It is not the responsibility of the instructor to cover all of the material in a purely didactic format, but it is the responsibility of the program director to assure that all students are competent over the material identified by the declarative section.

Skills Laboratory

The skills laboratory is the section of the curriculum that provides the student with the opportunity to develop the psychomotor skills of the paramedic. The skills laboratory should be integrated into the curriculum in such a way as to present skills in a sequential, building fashion. Initially, the skills are typically taught in isolation, and then integrated into simulated patient care situations. Toward the latter part of the program, the skills lab should be used to present instructional scenarios to emphasize the application and integration of didactic and skills into patient management.

Clinical Education

Clinical education represents the most important component of paramedic education since this is where the student learns to synthesize cognitive and psychomotor skills. To be effective, clinical education should integrate and reinforce the didactic and skills laboratory components of the program. Clinical instruction should follow sound educational principles, be logically sequenced to proceed from simple to complex tasks, have specific objectives, and be closely supervised and evaluated. Students should not be simply sent to clinical environments with poorly planned activities and be expected to benefit from the experience.

The ability to serve in the capacity of an entry level paramedic requires experience with actual patients. This process enables the student to build a database of patient experiences that serves to help in clinical decision making and pattern recognition. A skilled clinical educator must point out pertinent findings and focus the beginner's attention.

Program directors should be cautioned against using time as a criteria to determine the quantity of clinical education. More than any other phase of paramedic education, minimum amounts of patient contacts and frequency of skills performed must be established for clinical education. It is acceptable to use a time based system to help in program planning, but a system must be used to assure that every student satisfies each and every clinical objective.

Typically, clinical education for the paramedic takes place in both the hospital and field environments:

> Hospital Clinical - Because of the unpredictable nature of emergency medicine, the hospital environment offers two advantages in paramedic education: volume and specificity. In the hospital setting, the paramedic student can see many more patients than is possible in the field. This is a very important component in building up a "library" of patient care experiences to draw upon in clinical decision making.
>
> The use of multiple departments within the hospital enables the student to see an adequate distribution of patient situations. In addition to emergency departments, which most closely approximate the types of patients that paramedics should see, clinical education should take advantage of critical care units, OB/GYN, operating rooms/anesthesia, recovery, pediatrics,

psychiatric, etc. This will help assure a variety of patient presentations and complaints. These also provide a more holistic view of health care and an appreciation for the care that their patients will undergo throughout their recovery. This places emergency care within context.

Paramedic programs throughout the country have created clinical learning experiences in many environments. There is application to emergency medical care in almost any patient care setting. When a particular location lacks access to some patient populations, educational programs have created innovative solutions. Programs are encouraged to be creative and seek out clinical learning experiences in many settings. Examples include: morgues, hospices, nursing homes, primary care settings, doctor's offices, clinics, laboratories, pharmacies, day care centers, well baby clinics, and community and public health centers.

Field Clinical - It is unreasonable to expect students to derive benefit from being placed into a field environment and performing. Field clinical represents the phase of instruction where the student learns how to apply cognitive knowledge and the skills developed in skills laboratory and hospital clinical to the field environment. In most cases, field clinical should be held concurrently with didactic and hospital clinical instruction.

Field instruction, as well as hospital clinical, should follow a logical progression. In general, students should progress from observer to participant to team leader. The amount of time that a student will have to spend in each phase will be variable and depend on many individual factors. One of the largest factors will be the amount and quality of previous emergency care experience. With the trend toward less and less EMT experience prior to paramedic education, program directors must adjust the amount of field experience to the experience of the students.

Clinical affiliations shall be established and confirmed in written affiliation agreements with institutions and agencies that provide clinical experience under appropriate medical direction and clinical supervision. Students should have access to patients who present common problems encourage in the delivery of advanced emergency distributed by age and sex. Supervision should be provided by instructors or preceptors appointed by the program. The clinical site should be periodically evaluated with respect to its continued appropriateness and efficacy in meeting the expectations of the programs. Clinical affiliates should be accredited by the Joint Commission on Accreditation of Healthcare Organizations.

Field Internship

The final ability to integrate all of the didactic, psychomotor skills, and clinical instruction into the ability to serve as an entry level paramedic is conducted during the field internship phase of the program. The field internship in not an instructional, but rather an evaluative, phase of the program. The field internship should occur toward the end of the program, with enough coming after the completion of all other instruction to assure that the student is able to serve as an entry level paramedic. During the field internship the student should be under the close supervision of an evaluator.

Field internship must occur within an emergency medical service which demonstrates medical accountability. Medical accountability exists when there is good evidence that the EMS providers is not operating as an independent practitioner, and when field personnel are under direct medical control of on-line physicians or in a system utilizing standing orders where timely medical audit and review provide quality improvement.

Quality improvement is also a required component of EMS training. The role of medical direction is paramount in assuring the provision of highest quality out-of-hospital care. Medical Directors should work

with individuals and systems to review out-of-hospital cases and strive to achieve a sound method of continuous quality improvement.

Student Assessment

Any educational program must include several methods for assessing student achievement. As mentioned before, quizzes of the cognitive and psychomotor domains should be provided regularly and frequently enough to provide the students and the faculty with valid and timely indicators of the student's progress toward and the achievement of the competencies and objectives stated in the curriculum. Ultimately, the program director is responsible for the design, development, administration and grading of all written and practical examinations. This task is often delegated to others. Some programs use outside agency developed or professionally published evaluation instruments. This does not alleviate the program's responsibility to assure the appropriateness of these exam materials. All examinations used within the program must have demonstrated validity and reliability and conform to psychometric standards. Programs are encouraged to use outside sources to validate examinations and/or as a source of classroom examination items.

The primary purpose of this course is to meet the entry-level job expectations as indicated in the job description. Each student, therefore, must demonstrate attainment of knowledge, attitude, and skills in each area taught in the course. It is the responsibility of the educational institution, program director, medical director, and faculty to assure that students obtain proficiency in all content areas. If after counseling and remediation a student fails to demonstrate the ability to learn specific knowledge, attitudes and skills, the program director should not hesitate to dismiss the student. The level of knowledge, attitudes and skills attained by a student in the program will be reflected in his performance on the job as a paramedic. This is ultimately a reflection on the program director, primary instructor, medical director and educational institution. It is not the responsibility of the certifying examination to assure competency over successful completion of the course. Program directors should only recommend qualified candidates for licensure, certification or registration.

Requirements for successful completion of the course are as follows:

> Cognitive - Students must demonstrate competency of all content areas. This is most often done using quizzes, regular topical exams, and some combination of comprehensive exams (mid terms and finals). Cognitive evaluations must be reliable and viable. Programs should incorporate psychometric principles whenever possible. For example, item analysis should be utilized to assure discrimination on achievement tests. Scores on tests of known validity and reliability should be correlated to teacher made examinations. Medical director should take examinations and provide content validity input. Examinations should be balanced to areas within the course. Pass/fail scores should be established with an understanding of standard setting. Decisions regarding the continuation of students in class need to be made following a pattern of performance. One test failure should not result in failure from the program. Grading practices should be standardized to prevent bias by instructional staff. Essay and open ended questions should be clearly written and acceptable answers should be known before the examination is administered. Test should be kept secure and reviewed by students during class time. Programs should investigate methods to Special remedial sessions may be utilized to assist in the completion of a unit or module of instruction. Scoring should be in accordance with accepted practices.
>
> Affective - Students must demonstrate professionalism, conscientiousness and interest in learning. The affective evaluation instruments contained within this curriculum were developed using a valid process and their use is strongly recommended. Just as with cognitive material, the program cannot hold a student responsible for professional behaviors that were not clearly taught. The professional attributes evaluated using this

instrument references the material in the Roles and Responsibilities of the Paramedic section of the curriculum. The instruments can be incorporated into all four components of the program: didactic, practical laboratory, clinical and field internship. Students who fail to do so should be counseled while the course is in progress in order to provide them the opportunity to develop and exhibit the proper attitude expected of a paramedic. See appendix F.

Psychomotor - Students must demonstrate proficiency in all skills. A complete list of skill competencies expected to be completed within the program should be available to each student. Students should know pass/fail score of any instrument utilized within an educational program. Whenever possible multiple evaluators recording performance of a student should be made. Scenarios should be medically accurate and flow as they would in a typical EMS call. In clinical and field internship all instructional staff must be familiar with psychomotor instruments and expectations. Inter-rater reliability between various instructional staff must be monitored by the program. Clinical and field instructional staff orientations may help resolve issues of inter-rater reliability. Course ending skills examinations should be administered. Special remedial sessions may be utilized to assist in the completion of a unit or module of instruction. Pass/fail scores should be in accordance with accepted practices. It is strongly recommended that program utilize the skills evaluation instruments provided in this curriculum. See appendix G.

Students should be evaluated in all three domains in didactic, practical laboratory, clinical and field internship. For example, the students cognitive knowledge can be evaluated in the clinical setting by direct questioning or discussions. Secondly, if an IV is started on a patient, the psychomotor skill should be evaluated. Finally, the affective domain, their professional attributes can be measured. This example also applies to skills laboratories. In the skills laboratory, the cognitive domain can be measured by asking questions about the skill, and the affective domain can be measured by their attitude in learning and practicing the skills.

Program Personnel

There are typically many individuals involved in the planning and execution of a paramedic program. For clarity, the following terms are defined as they will be used throughout this document.

These identified roles and responsibilities are a necessary part of each paramedic program. The individuals carrying them out may vary from program to program and from locality to locality as the exact roles interface and overlap. In fact, one person, if qualified, may serve in multiple roles.

Program Director

The Program Director is the individual responsible for course planning, organization, administration, periodic review, program evaluation, continued development, and effectiveness. The program should have a full-time Program Director while the program is in progress, whose primary responsibility is to the educational program. The program Director should contribute an adequate amount of time to assure the success of the program. The program director shall actively solicit and require the cooperative involvement of the medical director of the program.

The program director must have appropriate training and experience to fulfill the role. They should have at lease equivalent academic training and preparation and hold all credentials for which the students are

being prepared, or hold comparable credentials which demonstrate at least equivalent training and experience.

The program director should have training and education in education and evaluation and be knowledgeable in administration of education and related legislative issues for paramedic education. The program director should assume ultimate responsibility for the administration of the didactic, clinical, and field internship phases of the program. It is the program directors responsibility to monitor all phases of the program and assure that they are appropriate and successful.

Program Faculty

The depth and breadth of paramedic education has evolved through the years and expanded considerably from the early days of emergency medicine. It is no longer reasonable to assume that one individual possesses the required depth of knowledge to be able to teach the entire program. As a result the Program Director and/or Course Coordinator should use content area experts extensively through the program.

Course Medical Director

Medical direction of the paramedic is an essential component of out-of-hospital training. Physician involvement should be in place for all aspects of EMS education. The Course Medical Director of the paramedic program should be a local physician with emergency medical experience who will act as the ultimate medical authority regarding course content, procedures, and protocols. All of the program faculty should work closely together in the preparation and presentation of the program.

The Course Medical Director can assist in recruiting physicians to present materials in class, settling questions of medical protocol and acting as a liaison between the course and the medical community. During the program the Medical Director will be responsible for reviewing the quality of care rendered by the paramedic student in the clinical and field setting. The Course Medical Director should review all course content material and examinations. The medical director should periodically observe lectures and practical laboratories, field and clinical internships. The medical director should participate in clinical instruction, student counseling, psychomotor and oral testing, and summative evaluation.

Most importantly, the Course Medical Director is responsible to verify student competence in the cognitive, affective and psychomotor domains. Students should not be awarded course ending certificates unless the medical director and program director can assure through documentation of completion of terminal competencies that each student has completed the full complement of education. Documentation of completion of course competencies should be affixed to the student file with signatures of the medical director and program director at the completion of the course.

Licensure, Certification and Registration

State regulatory agencies may require specific evaluation of cognitive and psychomotor performance prior to official licensure, certification or registration as a Paramedic. This is in addition to course completion and may be required by state regulations. The National Registry of EMTs is a recognized agency that provides examinations for certification and registration that may be required by your state. The program director should contact the State Office of Emergency Medical Services for licensure, certification or registration information.

Program Evaluation

On-going evaluation must be initiated to identify instructional or organizational deficiencies which affect student performance. The evaluation process should include both objective and subjective methods. Main methods of objective evaluation generally used are: 1) Graduates' performance on standardized examinations, and 2) Graduates' performance in practice in accordance with established standards of care. Group and individual deficiencies may indicate problems in conducting the education program.

Subjective evaluation should be conducted at regular intervals by providing students with written questions on their opinions of the program's strengths and weaknesses. Students should be given the opportunity to comment on the instruction, presentation style and effectiveness. Students should also be asked to comment on the program's compliance with the specified course of instruction, the quality and quantity of psychomotor skills labs, clinical rotations, and the validity of the examinations.

The purpose of this evaluation process is to strengthen future educational efforts. All information obtained as part of the subjective evaluation should be reviewed for legitimacy and possible incorporation into the course. Due to the important nature of this educational program, every effort should be made to ensure the highest quality instruction.

Facilities

The physical environment for the provision of the paramedic program is a critical component for the success of the overall program. The facility should sufficient space for seating all students. Abundant space should be made available for demonstration during the presentation of the course material. Additional rooms or adequate space should be available to serve as a practice area. The facility should be well lit for adequate viewing of various types of visual aids and demonstrations. Heating and ventilation should assure student and instructor comfort and the seats should be comfortable with availability of desk tops or tables for taking notes. There should be an adequate number of tables for display of equipment, medical supplies, and training aids. A chalkboard (flip chart, grease board) should be in the main hall. A projection screen and appropriate audio visual equipment should be located in the presentation facility. Practice areas should be carpeted and large enough to accommodate six students, one instructor, and the necessary equipment and medical supplies. Tables should be available for practice areas, with appropriate and sufficient equipment and medical supplies.

Equipment and Supplies

Sufficient supplies and equipment to be used in the provision of instruction shall be available and consistent with the needs of the curriculum and adequate for the students enrolled. The equipment must be in proper working order and sufficient to demonstrate skills of patients in various age groups. It is recommended that all the required equipment for the program be stored at the facility to assure availability for its use.

HOW TO USE THE CURRICULUM

There are eight modules of instruction in the core content. There are 52 sections within the eight modules. Each section has the following components:

Unit Terminal Objective

The unit terminal objective represents the desired outcome of completion of the block of instruction. In most cases it is a very high level objective, which can make it difficult to evaluate. This global objective represents the desired competency following completion of the section. Although this objective may be viewed as the aggregate of lower level objectives, in many cases, the whole is greater than the sum of the parts.

Objectives

These are the individual objectives of the curriculum. Mastery of each of these objectives provides the foundation for the higher order learning that is expected of the entry level provider. The instructor and student should strive to understand the complex interrelationships between the objectives. These objectives are not discrete, disconnected bits of knowledge, but rather fit together in a mosaic that is inherently interdependent. The objectives are divided into three categories: Cognitive, Affective, and Psychomotor.

Cognitive	Affective	Psychomotor
mental process--	emotional process--	physical process--
perception	feelings	muscular activity
reasoning		
intuition		

To assist with the design and development of a specific unit, each objective has a numerical value, e.g., 3-2.1. The first number is the module of instruction, followed by a hyphen and the number of the specific unit. For example, 3-2.1 is:

Module 3:	Patient Assessment
Unit 3-2:	The Initial Assessment
Objective 3-2.1	Summarize the reasons for forming a general impression of the patient. (C-1)

At the end of each objective is a letter for the type of objective: C = Cognitive; A = Affective; and P = Psychomotor. (The example above is cognitive). The number following the type of objective represents the level of objective: 1 = Knowledge; 2 = Application; and 3 = Problem Solving. (The example above is knowledge).

Declarative

This material is designed to provide program directors and faculty with clarification on the depth and breadth of material expected of the entry level paramedic. **The declarative material is not all inclusive. The declarative section of the curriculum lack much of the specific information that must be added by the instructor.** The declarative information represents the bare minimum that should be covered, but the instructor must elaborate on the material listed. Every attempt has been made in development of the declarative material to avoid specific treatment protocols, drug dosages or other material that changes over time and has regional variations. It is the responsibility of the instructors to provide this information.

Specifically, the declarative material is used to help instructors develop lesson plans and instructional strategies. It is also designed to assist examination and publishers in developing appropriate evaluation materials and instructional support materials. **It is of upmost importance to note that the declarative material is not designed to be used as a lesson plan, but rather it should be used by instructors to help develop their own lesson plans.**

Clinical Rotations

The clinical rotations that appear in the EMT-Paramedic: National Standard Curriculum represent a stark departure from previous clinical education recommendations. In the past, clinical competence was determined simply by the number of hours spent in various clinical environments. As there is no assurance that time produced an adequate number of clinical exposures resulting in entry level clinical competence, a different approach was taken with this curriculum. In-kind services were provided by the Joint Review Committee for EMT-Paramedic Program Accreditation (JRC).

The JRC survey all existing accredited programs and asked them to identify the number of psychomotor skills, patient age groups, pathologies, patient complaints and team leader skills they were currently utilizing in order to identify competent entry level Paramedics. The results of the survey were then presented to the JRC sponsoring organization committee members who possess expertise in cardiology, pediatrics, anesthesia, surgery, emergency medicine and Paramedic education. Using both subject matter expertise and the results of the surveys of accredited programs, the JRC established the clinical rotation goals presented in this curriculum. Items presented in bold are essentials and must be completed by each student within the program. Items in italics are recommendations to achieve the essential.

Although these patient exposures cover a wide domain of skills, pathologies, complaints and ages, they can be achieved in either the clinical or field internship. For example, a student may demonstrate the ability to perform a comprehensive assessment, formulate and implement an treatment plan for patients with chest pain in either a hospital critical care unit or during an encounter in the field. If the patient in this example was not experiencing chest pain at the time of the student evaluation, but had experienced chest pain which resulted in admission to the critical care unit. This interaction would suffice for meeting the clinical rotation for one encounter with a chest pain patient. During this experience the student should complete an evaluated physical examination, a history based upon the initial and present condition of the patient and formulate a treatment plan for the patient based upon initial field or admission findings. This same principle of encountering patients who have identified pathologies or complaints within the past 48 hours will suffice for meeting the clinical rotation requirement.

Some categories can be counted more than once. For example if a student in the field internship encounter a patient with chest pain who was 68 years old and start an IV, the student would obtain credit for a complaint, an age and a skill. The established IV and chest pain assessment, and treatment and implementation plan must be evaluated and the patient age group credit must be recorded. Encounters without evaluation and recording should not be awarded credit.

Obviously during the education the best experience would occur in the field setting which most approximates the function of the job. Recognizing the extended field time that would be necessary to see the recommend variety of patient conditions and skills would be infeasible, the curriculum permits students to obtain these experiences in either hospital clinical or field. The team leaders skills can not be met during hospital rotations. The JRC recommends that a student will obtain credit for one patient for each encounter. For example if a patient has both chest pain and a syncope episode, the student can utilize this experience for either a chest pain patient or a syncope patient, but not for both. The program must

develop a clinical rotation patient tracking system in order to assure that each student encounters the recommended number of skills, ages, pathologies, complaints and team leader skills.

The clinical rotations contained within this curriculum are being accomplished by Paramedic education programs at the time of the curriculum revision. These rotations do not represent an increase in clinical requirements. The program director along with the community of interest should use feedback loops that are part of the program evaluation process to either increase or decrease the number of patient exposures based upon valid measurement instruments utilized in graduate surveys. If employers or graduates indicate the need for increased patient encounters in order to bring current graduates to the level of competency then the program should increase the number of encounters to correspond to this need. Likewise if graduates and employers indicate some rotations provided more than competent experience the program may reduce the number of patient encounters within the recognized category.

Although the categories were researched by the JRC, a program director, medical director or community of interest may add different encounters in order to meet community needs. For example if a program is located in an area with a large geriatric population, the program may increase the number of encounters with geriatric patients to correspond to community needs.

EDUCATING PROFESSIONALS

It has long been recognized that paramedics, as an integral part of the health care team, are health care professionals. As such, the education of paramedics should follow a professional, rather than purely technical, model of instruction. Employers and patients are significantly increasing their expectations of paramedics, and EMS education will need to respond.

In *Responsive Professional Education*, Stark, Lowther, and Hagerty (1986), propose that professional preparation is a combination of developing both professional competence and professional attitudes.

Historically, most EMS education has focused primarily on technical competence. Technical competence is only one component of professional competence. Professional competence includes six subcategories:

> *Conceptual competence* - Understanding the theoretical foundations of the profession
> *Technical competence* - Ability to perform tasks required of the profession
> *Interpersonal competence* - Ability to use written and oral communications effectively
> *Contextual competence* - Understanding the societal context (environment) in which the profession is practiced
> *Integrative competence* - Ability to meld theory and technical skills in actual practice
> *Adaptive competence* - Ability to anticipate and accommodate changes (e.g. technological changes) important to the profession.

The main areas of focus of the National Standard Curriculum are on conceptual and technical competence. This revision of the paramedic curriculum is the first to address the strategies of interpersonal and therapeutic communication. Unfortunately, conceptual, technical, and interpersonal competencies are only part of the competencies required for reflective practice.

It is incumbent on the program to keep contextual, integrative and adaptive competence in mind through the entire program. These are not discreet topic areas and do not easily lend themselves to behavioral objectives. Programs and faculty members must constantly weave these issues into the conceptual and technical components of the course.

Contextual competence is an appreciation for how the professional's practice fits into larger pictures. Professional practice in not conducted in a vacuum, but impacts, and is impacted upon, by many forces. Of course, entry level paramedics understand how their practice affects individual patients. In addition, they must appreciate how their actions impact the EMS system where the work, the overall EMS system, the profession, the health care system, and society in general.

Teaching to improve contextual competence requires constant reinforcement of the interdependent nature of professional practice. Faculty must have a clear understanding of the relationship that EMS has with the health care system, the environment and society in general. Faculty must strive to repeatedly emphasize the "big picture" and not to fall into the trap of considering the individual practitioner, or the EMS profession, as a separate entity.

Integrative competence is generally built by having a strong mastery of the theoretical base of the content material. Students can often memorize treatment protocols (practice) without having a grasp of the underlying pathophysiology. In the short term, this enables them to pass the test, but results in poor ability to integrate the material. Eventually, this shortfall manifests itself as poor decision making and problem solving skills. Medical education must balance theory and practice and constantly emphasize the relationship between the two. Theory and practice are not discreet, mutually exclusive concepts, but rather the flip sides of the same coin.

Another way to improve integrative competence is to broaden the base of educational exposures of the student. It has been repeatedly demonstrated that a broad distribution of course work, typical in liberal studies educational approach, increases integrative competence. Although not always possible, programs which are not satisfied with their graduates' ability to integrate theory and practice may find that adding additional courses from other disciplines will improve the students higher level cognitive skills.

It is effectively impossible for a centrally developed curriculum to identify specific objective and declarative material for contextual, integrative and adaptive competence, but their importance cannot be overstated. Individual instructors and programs must keep these competencies in mind as they are developing instruction strategies to build entry level competence. These competencies are often the result of leadership, mentoring, role modeling, a focus on high level cognition, motivation and the other teaching skills of the faculty.

Professional attitudes, in large part, represent the affective objectives of the program. Unfortunately the development of true professional attitudes are much more than the aggregate sum of the individual objectives. These attitudes represent the social climate, moral and ethical identity of the individual and the profession. These attitudes are influenced and shaped, through role modeling, mentoring, and leading by example. It is very difficulty to "teach" in a didactic sense and this is often interpreted by students as preaching. Generally, professional attitudes are best nurtured through leadership and mentoring. Faculty are encouraged to provide a positive role model for the development of professional attitudes in all interactions with students. Paramedic programs should take seriously their responsibility to develop the following professional attitudes:

Professional identity - The degree to which a graduate internalized the norms of a professional
Ethical standards - The degree to which a graduate internalizes the ethics of a profession
Scholarly concern for improvement - The degree to which a graduate recognizes the need to increase knowledge in the profession through research
Motivation for continued learning - The degree to which a graduate desires to continue to update knowledge and skills.

Career marketability - The degree to which a graduate becomes marketable as a result of acquired training

Emergency medicine, like all professions, has a professional culture, personality, behaviors and attitudes that we consider acceptable. The opinion that others have about our profession are profoundly influenced by the professional identity of each of our members. It is very important that we shape our identity consciously, or run the risk of being misunderstood by others. The degree to which new graduates adopt the behaviors and attitudes that the profession considers to be acceptable is a measure of our success in shaping each student's professional identity.

Ethical behavior is one of the cornerstones of professional attitudes. Ethics involves the critical evaluation of complex problems and decision making that takes into account the ambiguity that is most often present in professional decisions. Ethical behavior and decision making involves the ability to consider the greater social ramifications of your actions.

It is becoming increasingly important to have empirical data to validate clinical decisions. This fact is significantly increasing the role of research in medicine. Every medical professional must understand and appreciate the role of research in the future of health care. Of course, not all health care providers will be conducting research, but everyone must be committed to the concept of research as the foundation for decision making.

Primary professional education is just the beginning of a life long journey. The art and science of medicine changes over time. This requires that the professional adopt, from the beginning of practice, a sincere commitment to personal growth and continual improvement.

The last professional attitude is really a function of all that we have discussed. An individual's career marketability is a function of his ability to integrate professional competencies and professional attitudes into his own practice and work habits. Not only will this affect the ability to gain initial employment, but they will significantly impact his promotion potential. It is a very real and practical responsibility of education to prepare professionals for the work place and position them to be able to progressively be promoted. This keeps quality individuals intellectually stimulated, professionally challenged, and financially satisfied so they will not feel a need to leave the profession.

Professional education is a journey; not a destination. It is impossible, and fruitless, to dissect professionalism into increasingly smaller objectives. Mastery of hundreds or thousands of individual objectives does not assure that the graduate will integrate these objectives into professional behaviors. Like Humpty Dumpty, all of the parts may not be able to be assembled into a meaningful whole. There are many people who have mastered various parts of professional competence, but are not able to integrate and synthesize the skills into effective practice. This is the art of medicine, and is not taught specifically, but nurtured and allowed to grow through the creation of a supportive and positive environment.

Appendix A

EMT-Paramedic: Description of the Profession

Paramedic

Paramedics have fulfilled prescribed requirements by a credentialing agency to practice the art and science of out-of-hospital medicine in conjunction with medical direction. Through performance of assessments and providing medical care, their goal is to prevent and reduce mortality and morbidity due to illness and injury. Paramedics primarily provide care to emergency patients in an out-of-hospital setting.

Paramedics possess the knowledge, skills and attitudes consistent with the expectations of the public and the profession. Paramedics recognize that they are an essential component of the continuum of care and serve as linkages among health resources.

Paramedics strive to maintain high quality, reasonable cost health care by delivering patients directly to appropriate facilities. As an advocate for patients, paramedics seek to be proactive in affecting long term health care by working in conjunction with other provider agencies, networks, and organizations. The emerging roles and responsibilities of the Paramedic include public education, health promotion, and participation in injury and illness prevention programs. As the scope of service continues to expand, the Paramedic will function as a facilitator of access to care, as well as an initial treatment provider.

Paramedics are responsible and accountable to medical direction, the public, and their peers. Paramedics recognize the importance of research and actively participate in the design, development, evaluation and publication of research. Paramedics seek to take part in life-long professional development, peer evaluation, and assume an active role in professional and community organizations.

Appendix B

EMT-Paramedic: Educational Model

EMT-PARAMEDIC: NATIONAL STANDARD CURRICULUM
DIAGRAM OF EDUCATIONAL MODEL

COMPETENCIES

Mathematics, reading, and writing

PRE- or CO-REQUISITE

EMT or EMT-Basic
Human Anatomy and Physiology

Clinical/Field

PREPARATORY

EMS Systems/The Roles and Responsibilities of the Paramedic
The Well-Being of the Paramedic
Illness and Injury Prevention
Medical / Legal Issues
Ethics
General Principles of Pathophysiology
Pharmacology
Venous Access and Medication Administration
Therapeutic Communications
Life Span Development

Clinical/Field

AIRWAY MANAGEMENT AND VENTILATION

MEDICAL

Pulmonary
Cardiology
Neurology
Endocrinology
Allergies and Anaphylaxis
Gastroenterology
Renal/Urology
Toxicology
Hematology
Environmental Conditions
Infectious and Communicable Diseases
Behavioral and Psychiatric Disorders
Gynecology
Obstetrics

PATIENT ASSESSMENT

History Taking
Techniques of Physical Examination
Patient Assessment
Clinical Decision Making
Communications
Documentation

TRAUMA

Trauma Systems/Mechanism of Injury
Hemorrhage and Shock
Soft Tissue Trauma
Burns
Head and Facial Trauma
Spinal Trauma
Thoracic Trauma
Abdominal Trauma
Musculoskeletal Trauma

Clinical/Field

SPECIAL CONSIDERATIONS

Neonatology
Pediatrics
Geriatrics
Abuse and Assault
Patients with Special Challenges
Acute Interventions for the Chronic Care Patient

Clinical/Field

ASSESSMENT BASED MANAGEMENT

OPERATIONS
Ambulance Operations Medical Incident Command Rescue Awareness and Operations Hazardous Materials Incidents Crime Scene Awareness
LIFE LONG LEARNING
Continuing Education

Appendix C
Paramedic: Functional Job Analysis

Functional Job Analysis

Paramedic Characteristics

The Paramedic must be a confident leader who can accept the challenge and high degree of responsibility entailed in the position. The Paramedic must have excellent judgement and be able to prioritize decisions and act quickly in the best interest of the patient, must be self disciplined, able to develop patient rapport, interview hostile patients, maintain safe distance, and recognize and utilize communication unique to diverse multicultural groups and ages within those groups. Must be able to function independently at optimum level in a non-structured environment that is constantly changing.

Even though the Paramedic is generally part of a two- person team generally working with a lower skill and knowledge level Basic EMT, it is the Paramedic who is held responsible for safe and therapeutic administration of drugs including narcotics. Therefore, the Paramedic must not only be knowledge about medications but must be able to apply this knowledge in a practical sense. Knowledge and practical application of medications include thoroughly knowing and understanding the general properties of all types of drugs including analgesics, anesthetics, anti-anxiety drugs, sedatives and hypnotics, anti-convulsants, central nervous stimulants, psychotherapeutics which include antidepressants, and other anti-psychotics, anticholerginics, cholergenics, muscle relaxants, anti-dysrythmics, anti-hypertensives, anticoagulants, diuretics, bronchodilators, opthalmics, pituitary drugs, gastro-intestinal drugs, hormones, antibiotics, antifungals, antiinflammatories, serums, vaccines, anti-parasitics, and others.

The Paramedic is personally responsible, legally, ethically, and morally for each drug administered, for using correct precautions and techniques, observing and documenting the effects of the drugs administered, keeping one's own pharmacological knowledge- base current as to changes and trends in administration and use, keeping abreast of all contraindications to administration of specific drugs to patients based on their constitutional make-up, and using drug reference literature.

The responsibility of the Paramedic includes obtaining a comprehensive drug history from the patient that includes names of drugs, strength, daily usage and dosage. The Paramedic must take into consideration that many factors, in relation to the history given, can affect the type medication to be given. For example, some patients may be taking several medications prescribed by several different doctors and some may lose track of what they have or have not taken. Some may be using non-prescription/over the counter drugs. Awareness of drug reactions and the synergistic effects of drugs combined with other medicines and in some instances, food, is imperative. The Paramedic must also take into consideration the possible risks of medication administered to a pregnant mother and the fetus, keeping in mind that drugs may cross the placenta.

The Paramedic must be cognizant of the impact of medications on pediatric patients based on size and weight, special concerns related to newborns, geriatric patients and the physiological effects of aging such as the way skin can tear in the geriatric population with relatively little to no pressure. There must be an awareness of the high abuse potential of controlled substances and the potential for addiction, therefore, the Paramedic must be thorough in report writing and able to justify why a particular narcotic was used and why a particular amount was given. The ability to measure and re-measure drip rates for controlled substances/medications is essential. Once medication is stopped or not used, the Paramedic must send back unused portions to proper inventory arena.

The Paramedic must be able to apply basic principles of mathematics to the calculation of problems associated with medication dosages, perform conversion problems, differentiate temperature reading between centigrade and Fahrenheit scales, be able to use proper advanced life support equipment

and supplies (i.e. proper size of intravenous needles) based on patient's age and condition of veins, and be able to locate sites for obtaining blood samples and perform this task, administer medication intravenously, administer medications by gastric tube, administer oral medications, administer rectal medications, and comply with universal pre-cautions and body substance isolation, disposing of contaminated items and equipment properly.

The Paramedic must be able to apply knowledge and skills to assist overdosed patients to overcome trauma through antidotes, and have knowledge of poisons and be able to administer treatment. The Paramedic must be knowledgeable as to the stages drugs/medications go through once they have entered the patient's system and be cognizant that route of administration is critical in relation to patient's needs and the effect that occurs.

The Paramedic must also be capable of providing advanced life support emergency medical services to patients including conducting of and interpreting electrocardiograms (EKGs), electrical interventions to support the cardiac functions, performing advanced endotracheal intubations in airway management and relief of pneumothorax and administering of appropriate intravenous fluids and drugs under direction of off-site designated physician.

The Paramedic is a person who must not only remain calm while working in difficult and stressful circumstances, but must be capable of staying focused while assuming the leadership role inherent in carrying out the functions of the position. Good judgement along with advanced knowledge and technical skills are essential in directing other team members to assist as needed. The Paramedic must be able to provide top quality care, concurrently handle high levels of stress, and be willing to take on the personal responsibility required of the position. This includes not only all legal ramifications for precise documentation, but also the responsibility for using the knowledge and skills acquired in real life threatening emergency situations.

The Paramedic must be able to deal with adverse and often dangerous situations which include responding to calls in districts known to have high crime and mortality rates. Self-confidence is critical, as is a desire to work with people, solid emotional stability, a tolerance for high stress, and the ability to meet the physical, intellectual, and cognitive requirements demanded by this position.

Physical Demands

Aptitudes required for work of this nature are good physical stamina, endurance, and body condition that would not be adversely affected by frequently having to walk, stand, lift, carry, and balance at times, in excess of 125 pounds. Motor coordination is necessary because over uneven terrain, the patient's, the Paramedic's, and other workers' well being must not be jeopardized.

Comments

The Paramedic provides the most extensive pre-hospital care and may work for fire departments, private ambulance services, police departments or hospitals. Response times for nature of work are dependent upon nature of call. For example, a Paramedic working for a private ambulance service that transports the elderly from nursing homes to routine medical appointments and check-ups may endure somewhat less stressful circumstances than the Paramedic who works primarily with 911 calls in a districts known to have high crime rates. Thus, the particular stresses inherent in the role of the Paramedic can vary, depending on place and type of employment.

However, in general, in the analyst's opinion, the Paramedic must be flexible to meet the demands of the ever-changing emergency scene. When emergencies exists, the situation can be complex and care of the patient must be started immediately. In essence, the Paramedic in the EMS system uses advanced training and equipment to extend emergency physician services to the ambulance. The Paramedic must be able to make accurate independent judgements while following oral directives. The ability to perform duties in a timely manner is essential, as it could mean the difference between life and death for the patient.

Use of the telephone or radio dispatch for coordination of prompt emergency services is required, as is a pager, depending on place of employment. Accurately discerning street names through map reading, and correctly distinguishing house numbers or business addresses are essential to task completion in the most expedient manner. Concisely and accurately describing orally to dispatcher and other concerned staff, one's impression of patient's condition, is critical as the Paramedic works in emergency conditions where there may not be time for deliberation. The Paramedic must also be able to accurately report orally and in writing, all relevant patient data. At times, reporting may require a detailed narrative on extenuating circumstances or conditions that go beyond what is required on a prescribed form. In some instances, the Paramedic must enter data on computer from a laptop in ambulance. Verbal skills and reasoning skills are used extensively.

Job Analysis Schedule

1. Establish Job Title: Emergency Medical Technician—Paramedic
2. D. O. T. Title, Industry Designation and Code 079.374.010
3. WTA Group: Occupations in medicine and health,
4. SIC Code
5. SOC Code 3690 Emergency medical technicians
6. GOE 10.03.02 (medical services)

7. Job Summary: In emergency situations, administers all facets of basic and advanced life support medical services to injured and sick persons in pre-hospital settings as directed by physician.

8. Work Performed Estimates:

Worker Functions	Data	People	Things
	3	7	4

3. Compiling
7. Serving
4. Manipulating

Work Field: 294 Health, Caring, and Medical
M.P.S.M.S. 920 (Materials, Products, Subject Matter, and Services)
Medical and other health services.

9. Worker Traits Ratings:

General Education Development (GED) encompasses three broad areas which are rated independently in relation to the occupation being assessed: **Reasoning Development, Mathematical Development, and Language Development**. General Educational Development (GED) embraces those aspects of education (both formal and informal) which contribute to the worker's reasoning development, the ability to follow instructions, and to the acquisition of "tool" knowledge such as language and mathematical skills. This is education of a general nature which does not have a recognized, fairly specific occupational objective. Ordinarily, such education is obtained in elementary school, high school, or college. However, it may be obtained from experience and self study.
Description of rating on the GED Scale: Level 1= lowest level; Level 6 = highest level.

Low					High
1	2	3	**Math 4**	**Reasoning 5** **Language 5**	6

Bolded and underlined areas define the analyst's rating for the Paramedic. (Other numbers are shown for informational purposes only). A detailed explanation follows:

Reasoning development (R)
Level 5
Two relevant examples from text are provided for assignment to Level 5 for the Paramedic:

Example from text: Level R-5:5

Prepares and conducts in service training for company personnel. Evaluates training needs in order to develop educational materials for improving performance standards. Performs research relating to course preparation and presentation. Compiles data for use in writing manuals, handbooks, and other training aids. Develops teaching outlines and lesson plans, determines content and duration of courses, and selects appropriate instructional procedures based on analyses of training requirements of company personnel.

Example from text: Level R 5:6

Renders general nursing care to patients in hospital, infirmary, sanitarium, or similar institution. Administers prescribed medications and treatments in accordance with approved techniques. Prepares equipment and aids physician during treatments or examination of patients. Observes, records, and reports to supervisor or physician patient conditions, reactions to drugs, treatments, and significant incidents.

Examples of job duties of the Paramedic that align themselves with the above examples related to "Reasoning" include:

Visually inspects and assesses or "sizes up" the scene upon arrival to determine if scene is safe, determines the mechanism of illness or injury, the total number of patients involved, and remains calm and confident while demonstrating leadership and responsibility. Reports verbally to the responding EMS unit or communications center as to the nature and extent of injuries and the number of patients. Recognizes hazards. Conducts triage, sorting out and classifying

priorities for most immediate need for treatment Uses excellent judgement to identify priorities based on the most critical needs for patient survival. Directs Basic EMT to assist.

Determines nature and extent of illness or injury in patient, takes pulse, blood pressure, and temperature, visually observes patient, recognizes the mechanisms of injury and takes comprehensive medical history of patient, including patient's current usage of prescribed and non-prescribed medications/drugs.

Accepts primary responsibility for all aspects of advanced life support given to the patient, including use of advanced life support equipment and administration of medication that includes narcotics; responsible for thorough written documentation of all activity related to patient care and medication dispensation. Uses good judgement to draw conclusions with often, limited information; verbally communicates effectively to provide quality treatment to diverse age and cultural groups. Provides family support, manages the difficult patient, conducts fundamental mental status assessment, retrains patient, and intervenes pharmacologically.

Uses advanced life support equipment and administers medication through the patient's most appropriate body route, including intravenous. Provides pre-hospital emergency care of simple and multiple system trauma such as controlling hemorrhage, bandaging wounds, manually stabilizing painful, swollen joints and injured extremities, and immobilizing spine. Uses automatic defibrillator apparatus in application of electric shock to heart, manages amputation, uses anti-shock garment, conducts peripheral venous access, intra-osseous infusion, manual defibrillation, interprets EKGs, manually stabilizes neck and body of child and adult, immobilizes extremities, straightens selected fractures, and reduces selected dislocations. Delivers newborn. Complies with practices and policies, established protocols within organization of employment according to state regulations.

Maintains confidentiality, responsible for the safe and therapeutic administration of drugs including narcotics, must be able to apply this knowledge in a practical through a thorough knowledge and understanding of the general properties of all types of drugs including analgesics, anesthetics, anti-anxiety drugs, sedatives and hypnotics, anti-convulsants, central nervous stimulants, psychotherapeutics which include antidepressants, and other anti-psychotics, anticholerginics, cholergenics, muscle relaxants anti-dysrythmics, anti-hypertensives, anticoagulants, diuretics, bronchodilators, opthalmics, pituitary drugs,

gastro-intestinal drugs, hormones, antibiotics, antifungals, antiinflammatories, serums, vaccines, anti-parasitics, and others.

The Paramedic is personally responsible legally, ethically, morally for each drug administered, using correct precautions and techniques, observing and documenting the effects of the drugs administered, keeping one's own pharmacological knowledge base current as to changes and trends in administration and use, keeping abreast of all contraindications to administration of specific drugs to patients based on their constitutional make-up, and using drug reference literature.

Note: In the analyst's opinion, while many aspects of Level 4 "Reasoning" are pertinent to the Paramedic role such as "using rational systems to solve practical problems where limited standardization exists", and "cares for patients and children in private homes, hospitals, sanitariums, and similar institutions, takes and records temperature, pulse and respiration rate, sterilizes equipment and supplies using germicides, sterilizer or autoclave", this definition is somewhat limiting. There are also many abstract variables with which the Paramedic must contend on a regular basis. Strong reasoning ability is required to deal with the complexity and variety of the situations in which the Paramedic works. This includes not only the aspects of providing quality advanced emergency medical care requiring the use of logic and reason to define problems and arrive at solutions on a practical basis, but also contributing to the Paramedic profession by using reasoning to define and analyze problems and arrive at solutions to enhance the field through teaching, and contributing to research through written media/journals. Thus, the reasoning level for the Paramedic is more like a level 5 than a level 4.

Mathematical development (M)
Level 4
Example from text: Shop math: Practical application of fractions, percentages, ratio and proportion, and measurement.

Examples of the above level (math) in relation to work performed by the Paramedic include:

Calculating correctly the amount of medication to be given in relation to patient's weight, age, and other factors that warrant adjustment of volume. Measuring and re-measuring drip rates of medications/controlled substances administered intravenously. Sending back to inventory area, any unused portions. Completing log sheets that detail the numbers and totals of services provided and amounts of medications used.

Note: The Paramedic is legally accountable and responsible for maintaining Class I Medications (narcotics) and must keep accurate count and inventory of such items.

Language development (L)

Level 5

Reading-Read literature, book and play reviews, scientific and technical journals, abstracts, financial reports and legal documents.

Examples of job duties that align themselves with the above examples in relation to the reading level assigned include that:

The Paramedic must be able to accurately read a Drug Reference Manual to determine not only the name of the drug on a label, but to recognize that a generic name and a brand name may not always appear on a prescription label, thus the need for cross/referencing through written reference materials. The Paramedic needs to know what type of drug(s) the patient is taking, how long ago it was taken, how long the effects are expected to remain in the body based on the patient's constitutional make-up, what condition for which it was prescribed, general information, cautions and warnings, possible side effects, possible adverse side effects, drug and food interactions, the usual dosage an duration of dosage for adult and child, antidotes for overdoses, and other special information.

The Paramedic also takes a comprehensive medical history of patient, including patient's current usage of prescribed and non-prescribed medications/drugs. At times, the patient does not know when or if he/she took a certain medication. Often, many individuals are taking multiple medications simultaneously and it will be up to the Paramedic to read from the medication bottles or containers the exact names of the medications and the dosages. It is absolutely essential that the Paramedic read correctly and expediently. For example, the drug "Milontin" must not be construed as "Melatonin". Milontin, a drug used for control of petit mal seizures may be associated with severe reduction in white blood cell platelet counts and when used alone for both grand mal and petit mal seizures may increase the number of grand mal seizures and necessitate more medicine to control the seizures. It can also cause a person's urine to turn pink or brown. Although the discoloration is harmless, it could cause alarm in the patient. In addition, sudden stoppage of this medication may bring on more seizures. While it is a good idea for patients using this drug to wear identification, they may or may not be. On the other hand, Melatonin, a currently popular over the counter remedy purported to improve sleep and general well being has none of the ramifications as Miltonin. The preceding is but one example. There are numerous examples of names of medications which if not read correctly, could

mean the difference in the treatment administered, and ultimately, whether or not the patient lives or dies.

The Paramedic must also be able to read and interpret EKGs. In addition, as a basic part of emergency care, the Paramedic searches for medical clues/identification on a patient. These are generally in written form on a bracelet. In addition, the Paramedic gathers demographic patient information that must be recorded during the interview. At times, if the patient has poor vision and cannot see, hear or cannot read, and there is no family member to assist, the Paramedic may be asked to gather pertinent data through reading such documents as a driver's license, a health care provider form or human services agency card. The Paramedic must be able to accurately read a street map, both for name of street and number of building/residence location.

Detailed written reports are an essential part of the Paramedic's job and the Paramedic must be able to review the narrative he/she writes to verify for accuracy. Legally, the Paramedic is accountable for what is written.

It is ideal that the Paramedic read professional journals to keep current with his/her profession. However, it is mandatory that the Paramedic keep abreast of new equipment, techniques for using the equipment and new medications on the market. Information of this nature is generally transmitted through written literature and manuals. The Paramedic, in practice, will refer to algorithms and basic care protocols (which do vary), in much the same manner that a physician uses the Physicians' Desk Reference or a licensed professional therapist uses the Diagnostic & Statistical Manual IV. The Paramedic must successfully complete continuing education programs that involve accurate reading of course materials to update skills and competencies as required by employers, medical direction, and licensing or certifying agencies.

The Paramedic is personally responsible legally, ethically, and morally for each drug administered, reading the labels, using correct precautions and techniques, observing and documenting the effects of the drugs administered, keeping one's own pharmacological knowledge base current as to changes and trends in administration and use, keeping abreast of all contraindications to administration of specific drugs to patients based on their constitutional make-up, and using up to date drug reference literature.

Writing - Write novels, plays, editorials, journals, speeches, manuals, critiques, poetry, and songs.

Example from text: L5-4

> Write service manuals and related technical publications concerned with installation, operation, and maintenance of electrical, electronic mechanical and other equipment. Interviews workers to acquire or verify technical knowledge of a subject. Rewrites articles, bulletins, manuals or similar publications.

Examples of the above (writing) in relation to work performed by the Paramedic:

> Writes detailed comprehensive narrative report on patient care given. Writes professional journal articles for Emergency Medical Technician literature. Writes and prepares lesson plans, manuals and curriculum for instructional purposes.

Speaking - Conversant in the theory, principles, and methods of effective and persuasive speaking, voice and diction, phonetics, and discussion and debate.

Examples of the above (speaking) in relation to work performed by the Paramedic:

> Answers verbally to telephone or radio emergency calls from dispatcher to provide advanced efficient and immediate emergency medical care to critically ill and injured persons.
>
> Interviews patient and or significant others to gain comprehensive understanding of patient's condition for development of workable patient diagnosis. Adjusts/alters verbal communication with patient and family/significant others to reflect and ensure adequate and appropriate care and treatment with respect to the age of the patient, i.e. child, adolescent, or geriatric, and cultural status.

Provides family support through good communication and responding appropriately verbally, manages the difficult patient through use of voice and choice of words, conducts fundamental mental status assessment by asking pertinent questions, restrains patient often using persuasive verbal techniques to which patient can relate. Teaches curriculum to other EMTs, communicates with other EMS providers, physicians, hospital staff, police departments, fire departments, and relays findings verbally.

Note: With respect to Language Development, there are components of both "Level 4" and "Level 5" in the role of the Paramedic, such as Level 4's " reading novels, poems, newspapers, periodicals, journals, manuals, dictionaries, thesauruses, and encyclopedias; writing and preparing business letters, expositions, summaries and reports, using prescribed format and conforming to all rules of punctuation, grammar, diction and style; and speaking by participating in panel discussions, dramas and debates, and speaking extemporaneously on a variety of subjects". However, there are more Level 5 components as are shown above, than there are Level 4, thus it is deemed to be at Level 5.

10. FORMAL EDUCATION: High school diploma/GED with advanced training and certification

11. SPECIAL VOCATIONAL PREPARATION (SVP) (Time requirement of an additional 900-1200 classroom hours beyond the 110 hours acquired at the Basic EMT level SVP is defined as the amount of lapsed time required by a typical worker to learn the techniques, acquire the information, and develop the facility needed for average performance in a specific job worker situation. Level 6 is the approximate time ascribed for completion of preparation for a Paramedic (other numbers are listed for informational purposes only).

SVP	1	2	3	4	5	***6***	7	8	9

Explanation of scale:

Level	**Time[1]**
1	Short demonstration only
2	Anything beyond short demonstration up to and including one month
3	Over one month up to and including three months

4 Over three months up to and including six months
5 Over six months up to and including one year
6 Over one year up to and including two years
7 Over two years up to and including four years
8 Over four years up to and including ten years
9 Over ten years

NOTE: The levels of this scale are mutually exclusive and do not overlap

[1] Time that applies to General Educational Development is not considered in estimating SVP

APTITUDES

Aptitudes, a component of Worker Characteristics, are the capacities or specific abilities which an individual must have in order to learn a given work activity. There are 11 Aptitudes used for job analysis. Aptitude estimates are useful as analytic and descriptive tools and can be expressed in terms of the following levels or categories which reflect the amounts of the aptitudes possessed by the segments of the working population.

These ratings are explained by the number preceding the rating.

1. The top 10 % of the population. This segment of the population possesses an extremely high degree of the aptitude.
2. The highest third exclusive of the top 10% of the population. This segment of the population possesses an above average or high degree of the aptitude.
3. The middle third of the population. This segment of the population possesses a medium degree of the aptitude, ranging from slightly below to slightly above average.
4. The lowest third exclusive of the bottom 10 % of the population. This segment of the population possesses a below average degree of the aptitude.
5. The lowest 10% of the population. This segment of the population possesses a negligible degree of the aptitude.

Level 1 indicates a higher degree of particular aptitude whereas Level 5 indicates a lower degree of an aptitude pertinent to a job. If an aptitude is rated as a Level 5, it means that for the job under study, the amount of aptitude required is negligible or not required at all. The ratings for aptitudes for the Paramedic are as follows and are explained below in further detail: **C1 G 2 P 2 K 2 M 2 E 2 V 3 N 3 S 3 Q 3**

1. Highest 10 % of the population has this aptitude	C= Color Discrimination
2. Highest middle third	G= General Learning Ability P= Form Perception

	K= Motor Coordination M= Manual Dexterity E= Eye, Hand, Foot Coordination
3. Middle middle third	V= Verbal N= Numerical S= Spatial Q= Clerical
4. Lower middle third	N/A
5. Lowest 10 % of the population has this aptitude	N/A

The following is an explanation of each of the above aptitude ratings.

G - Intelligence (General Learning Ability)

Level 2 Represents a high degree of aptitude or ability. This ranks the Paramedic in the highest third of the population, excluding the top 10 percent.

Note: Level 2 and Level 3 overlap, thus a rating judgement must be made. Level 3 represents the middle third of the population and includes aptitudes that run slightly above and slightly below average. It is the analyst's opinion that intelligence/general learning aptitude is at least average to slightly above average for the Paramedic position. While with Level 3, intelligence is required to learn and apply principles of anatomy, physiology, microbiology, nutrition, psychology, and patient care used in nursing; to make independent judgements in absence of doctor and to determine methods and treatments to use when caring for patients with injuries or illnesses, Level 2, which is higher, is more appropriate based on the following related, but not specific example:

Example from text G: 2

Compounds and dispenses medications, following prescriptions: understands the composition and effects of drugs and is able to test them for strength and purity. Checks prescriptions to determine whether dosages are reasonable and the drugs chemically and physiologically compatible. Must be able to compound ingredients to form powders, pills, ointments and solutions. Must make sterile solutions, buy medical supplies, and advise medical staff on the selection and effects of drugs.

Another related example from text is G2-5

Intelligence is required to learn the basic principles relating to biochemistry, microbiology, parasitology, blood cells, body cells, viruses, serum and vaccines and the preparation and examination of tissues.

Note: Overall, general intelligence (learning ability) must be of the level required for the Paramedic to acquire the skills and knowledge necessary in applying principles of advanced patient life support in emergency medical situations through extensive knowledge of pharmacological principles. Thus intelligence is more like a Level 2 than a Level 3.

V - Verbal Aptitude

Level 2 Fairly high degree of aptitude required.

No text illustrations in medical area.
Closely related skills appear comparable to text example, V2-3: Studies origin, relationship, development, anatomy, and other basic principles of plant and animal life, usually specializing in research centering around a particular plant, animal or aspect of biology: Verbal aptitude is required to read and comprehend information concerning biological sciences and to express orally or in writing findings from investigations in various fields such as agriculture, animal or plant life, genetics, pharmacology and microbiology.

On the job:
The most relevant applications of the above are speaking, writing, and communicating with physicians, nurses, and other EMS systems, and the findings pertinent to patients in emergency medical situations.

N - Numerical Aptitude (Perform arithmetic operations quickly and accurately)

Level 3 Average degree of aptitude required. No illustrations in medical area.

Somewhat related is text Example N2-3 whereby numerical aptitude is required to compute size of individual portions needed to obtain required nutritional values for regular or special diets, and to calculate total quantity of foodstuffs needed for specific period based on number to be fed, menus for period and individual quantities needed. Numerical aptitude is also required to break down total into number of units by standard sizes to prepare requisitions for vendors, and to maintain and analyze food cost records.

On the job:
Calculates in expedient manner, the amount of supplies/medications needed immediately, especially when occasions of multiple injuries occur. Calculates the amount of medication to be given in relation to patient's weight, age, and other factors that warrant adjustment of volume using oral, auto-injection, sublingual, inhalation, subcutaneous, intramuscular, intraosseous, transcutaneous, rectal, endotracheal, and central intravenous routes, as well as infusion pumps to administer medications. Administers in practical sense, the amount calculated. Tracks and logs all medications/narcotics administered.

S - Spatial Aptitude (Comprehend forms in space and understand relationships to plane and solid objects)

Level 3

Example from text: Level S - 3:1
Spatial aptitude is required to visualize anatomic positions and the relationship between the point of application of forces and the area affected (as in traction); and to place treatment devices or administer manual treatment in relationship to the affected body part.

On the job :
Mobilizes spine, sets select fractures and dislocations. Sets up and administers intravenous medications and narcotics. Applies manual and advanced life support techniques to resuscitate patient. Carefully transports patient as to avoid further injury.

P - Form Perception (Ability to make visual comparisons and discriminations and see slight differences in shapes and shadings of figures and widths and lengths of lines)

Level 2 High degree of aptitude required

Example from text:

P - 2:6 Form perception is required to perceive pertinent details of size, shape, and form in skeletal structure, organs, tissue, and specimens of various animals.

On the job:
Conducts patient assessment through visually observing any changes in size of pupils, swelling, shrinking, or dislocations/protrusions of all body parts. Checks for most appropriate vein to administer medication.

Q - Clerical Perception (Ability to perceive pertinent detail in verbal or tabular material-proof read)

Level 3

Example from text: Q - 3:13
Assists in care of hospital patients under direction of nursing and medical staff. Clerical perception is required to read and report such data as temperatures, pulse rate and respiration rate, to report patient's food and fluid intake and output, and to read charts and instructions accurately. Generally completes documentation of relevant data on pre-printed form. Must be able to read form accurately and report patient information in appropriate allocated space. Occasionally, may be required to submit short narrative report.

On the job:
Takes and records vital signs, reads EKGs and compiles log of work performed.

K - Motor Coordination (Ability to make a movement response quickly and accurately and coordinate eye-hand)

Level 2 High degree of aptitude required

Example from text: K - 2:5
Renders general nursing care to patients in hospital, infirmary, sanitarium, or similar institution.

On the job:
Coordinates vision, finger and hand movements in taking vital signs, freeing airway including surgery, performing CPR, administering medication/narcotics through grasping of and inserting needle into skin, delivering newborn, setting up equipment, turning equipment off and on, balancing self when lifting /moving or stabilizing patients, and other.

F - Finger Dexterity (Ability to move fingers and manipulate small objects rapidly and quickly)

Level 2 High degree of aptitude required

No illustrations in medical field.

On the job:
Recommended due to necessity of positioning needle for injection, opening and maintaining airway, ventilating patient, controlling hemorrhage, bandaging wounds, administer medications, manually stabilizing painful swollen and deformed extremities, and performing other basic and advanced life support functions.

M - Manual Dexterity (Ability to move the hands easily and skillfully)

Level 2 High degree of aptitude required

On the job:
No illustrations given. Recommended due to nature of work which involves moving the hands skillfully and quickly to perform essential functions of advanced/ skilled emergency patient care.

E - Eye-Hand-Foot Coordination (Ability to coordinate these)

Level 2 High degree of aptitude required

No text illustrations given.

On the job:
Recommended as job may require balancing on ladders, stairs, or walking on uneven terrain while assisting in carrying patients. In the interest of time and safety, may be required to move quickly.

C - Color Discrimination (Ability to perceive difference in colors, shades, or harmonious combinations, or to match colors)

Level 1 Highest degree of aptitude and ability required.

Example from text: C-1:4 Uses color discrimination and color memory in making diagnosis of patients' affliction or condition, by recognizing any deviations in color of diseased tissue from healthy tissue; evaluating color characteristics such as hue and saturation of affected body parts; and making determination as to extent or origin of condition.

Temperament

D	**R**	**I**	**V**	**E**	**A**	**S**	**T**	**U**	**P**	**J**	**M**

Explanation of terms:
Terms bolded and underlined above are those deemed most pertinent to temperament of the Paramedic when performing the job a Paramedic is expected to perform. Temperaments are the adaptability requirements made on the worker by specific types of jobs. Below is a list of various temperament factor definitions. The shaded areas are those deemed applicable to the role of the Paramedic.

D	**Directing**, controlling, or planning the activities of others
R	Performing **repetitive** or short cycle work
I	**Influencing** people in their opinions, attitudes or judgments
V	Performing a **variety** of duties
E	Expressing personal feelings
A	Working **alone** or in part in physical isolation from others
S	Performing effectively under **stress**
T	Attaining precise set limits, **tolerances**, and standards
U	Working **under** specific instructions
P	Dealing with **people**
J	Adaptability to making **judgments** and decisions based on sensory or judgmental criteria
M	Adaptability to making judgements based on measurable or verifiable criteria

Interests

Interests	1a	1b	2a	**2b**	3a	3b	**4a**	4b	5a	5b

The Paramedic is seen as having interests that relate to:
4a - A preference for working for the presumed good of the people.
2b - A preference for activities of a scientific and technical nature

Physical Demands

Physical Demands	S	L	M	H	**V**	**2**	**3**	**4**	**5**	**6**

The Paramedic's job involves very heavy lifting (50 pounds frequently, no maximum) and involves climbing, balancing, stooping, kneeling, crouching, crawling, reaching, handling, fingering, feeling, talking, hearing, and seeing on a frequent basis. Shaded, underlined, bolded areas above are applicable to the job of the Paramedic.

Explanation of terms:

1. Strengths
   S = Sedentary (10 pounds maximum)
   L = Light work (10 pounds frequently, 20 pounds maximum)
   M = Medium work (25 pounds frequently, 50 pounds maximum)
   H = Heavy work (50 pounds frequently, 100 pounds maximum)
   V = Very heavy work (50 pounds frequently, no maximum)
2. Climbing and/or balancing
3. Stooping, kneeling, crouching and crawling
4. Reaching, handling, fingering and/or feeling
5. Talking and hearing
6. Seeing

Environmental Conditions

Working Conditions	Location
1. Exposure to weather (outside atmospheric conditions)	Indoors, Outdoors, Both
2. Extreme cold with or without temperature changes (Exposure to non-weather related cold temperatures)	Indoors, Outdoors, Both
3. Extreme heat with or without temperature changes (Exposure to non-weather related hot temperatures)	Indoors, Outdoors, Both
4. Wet and humid (Contact with water or other liquids or exposure to non-weather related humid conditions)	Indoors, Outdoors, Both
5. Noise intensity levels (Can range from very quiet, quiet, moderate, loud to very loud)	Indoors, Outdoors, Both
6. Vibration (Exposure to a shaking object or surface)	Indoors, Outdoors, Both

7.	Atmospheric conditions (Exposure to conditions such as fumes, noxious odors, dusts, mists, gases, and poor ventilation that affect the respiratory system, eyes or the skin)	Indoors, Outdoors, Both
8.	Proximity to moving mechanical parts (Exposure to possible bodily injury from moving mechanical parts of equipment, tools, or machinery)	Indoors, Outdoors, Both
9.	Exposure to electrical shock (Exposure to possible bodily injury from electrical shock)	Indoors, Outdoors, Both
10.	Working in high exposed places (Exposure to possible bodily injury from falling)	Indoors, Outdoors, Both
11.	Other environmental conditions: mines, slopes, fumes, smoke, dust, high crime neighborhoods, darkness, law violators	Indoors, Outdoors, Both

Note: In the analyst's opinion, the general environmental conditions in which the Paramedic works cannot be adequately assessed in an indoor evaluative environment. The Paramedic in an actual work situation can be exposed to any working condition listed above. Because of the variance in climate, environmental conditions and locations in the United States and the infinite possibilities in which a Paramedic is expected to provide advanced life support, working conditions, at best, may be less than optimal. The Paramedic must be able to focus on providing the best care possible in often adverse and dangerous situations. This can include servicing neighborhoods known to have high crime rates and performing optimally in situations where multiple incidents and trauma exist, i.e. a major highway accident that involves numerous persons and vehicles. The Paramedic may be required frequently to walk, climb, crawl, bend, pull, push, or lift and balance over less than ideal terrain, such as an icy highway, muddy ground, dilapidated stairs/flooring and any other scenario or combination of scenarios. There may be exposure to a variety of noise levels, which at times can be quite high, particularly when multiple sirens are sounding, and crowds/bystanders/families are upset and may be screaming, crying hysterically, and making demands that may or may not be reasonable.

U. S. Department of Labor
Manpower Administration

Analyst: Cathy Cain, Ph. D. **Date: 2/16/98**

Physical Demands and Environmental Conditions

ESTAB. JOB TITLE Paramedic **ESTAB. & SCHED. NO.**
DOT TITLE & CODE 079.010
GOE CODE & TITLE 100302 Medical services; SOC 3690

Code:
F = Frequently
O = Occasionally
NP = Not Present
C = Constantly

Job Summary: In emergency medical situations, takes leadership role and assumes responsibility for applying specific knowledge and skills related to basic and advanced life support to patients; provides advanced life support to patients under supervision of physician and directs lower level EMTs to assist based on their levels of competency within their scope of practice.

	Physical Demands				**Comments**
1.	**Strength**				
a.	Standing	47 %	1a	Walking and standing are major components of this job. Sitting is necessary for transportation to and from scene of emergency.	
	Walking	50 %			
	Sitting	3 %			
b.	Lifting	F	1b	The Paramedic is required to assist in lifting and carrying injured or sick persons to ambulance and from ambulance into hospital. May be required to engage in pushing and/or pulling to assist other EMS providers to	
	Carrying	F			
	Pushing	O			

	Pulling	O		extricate patient from scenes to include but not limited to closed upright vehicles, patient in closed overturned vehicle, patient pinned beneath vehicle, pinned inside vehicle, in vehicles with electrical hazards.
2.	**Climbing**	F	2	Climbing and balancing may be required to gain access to site of emergency, i.e., stairs, hillsides, ladders, and in safely assisting in transporting patient.
	Balancing	F		
3.	**Stooping**	F	3	Patients are often found injured or sick in locations where assessment of patient is possible only through the Paramedic's stooping, kneeling, crouching, or crawling.
	Kneeling	F		
	Crouching	F		
	Crawling	F		
4.	Reaching	F	4	Required for assessing pulse, assessing breathing, blocking nose and checking ventilation, lifting chin, head, or jaw for opening airway, following angle of ribs to determine correct position for hands after each ventilation, compressing sternum, and assisting in lifting of patient, administering medications through intravenous therapy or other means, and handling of advanced life support equipment, such as mirror airway devices. Extension of arms to use hands and fingers to assess vital signs, feeling and touching of patient's skin to assess body warmth, handling limited equipment, and transporting of patient are important aspects of this position. Finger dexterity needed to insert needle, and prepare fluids/medication for administration and to operate equipment.
	Hadeling	F		
	Fingering	F		
	Feeling	F		
5.	**Talking**		5	Responding to patients, physicians, and co-workers through hearing is necessary in transmitting patient information and following directions. May be required to shout for help and additional assistance.
	Ordinary	F		
	Other	O		
	Hearing		5	Verbally responding to dispatcher's message

	Ordinary conversation	F		on phone or radio is necessary for quick, efficient service that can be vital to life in emergency situations. Communication on scene is critical for interviewing patient and in some instances, significant others, and in relaying this information in most expedient manner. Sounds of vehicles may alert Paramedic that additional help is on the way. Other sounds can alert the Paramedic that other persons may be hurt or injured, i.e., someone thrown behind a bush in a vehicle accident who cannot be seen and whose voice may be barely audible.
	Other	F		
6.	**Seeing**		6	Sight is used to drive ambulance to scene of injury or illness, to visually inspect patient and area, to read map, to read small print on medication/prescription containers, to read drug reference manuals, and to administer treatment.
	Acuity, Near	F		
	Acuity, Far	F		
	Depth Perception	F		
	Accommodation	F		
	Color Vision	F		
	Field of Vision	F		

7. General Education: High school graduation or equivalency is required.
8. **Vocational Preparation:**
   a. **College:** None
   2. Vocational Education Courses: An additional 900-1200 hours of education beyond the 110 required for the Basic EMT.
   c. **Apprenticeship:** None
   d. **In-plant Training:** None
   5. On-the-Job-Training: During course of training, the Paramedic in training status will spend varying amounts of time in supervised clinical work in hospital and field settings.
   6. Performance on Other Jobs: None required; however, training in the military as a medic is seen as beneficial.
9. Experience: None

10. Orientation:

11. Licenses, Etc.: Certification as Emergency Medical Technician: Paramedic, ACLS and CPR. Must maintain annual certification through continuing education.

12. Relation to Other Jobs and Workers:

Promotion: In some locations, Paramedics may become instructors, dispatchers or administrators.

Transfers: None

Supervision Received: Physician

Supervision Given: Some to lower level Basic EMTs.

13. Machines, Tools, Equipment, and Work Aids: Ambulance, radio/telephone/pager, blood pressure cuff, thermometer, extrication devices, esophageal airway obturator, ventilation mask, spinal boards, intravenous therapy equipment: needles and fluids, anti-shock garments, wheelchairs, and stretchers, EKG machines, defibrillator, visual airway intubation and other complex equipment, and sometimes, a computer for documentation.

14. Materials and Products: Broad range of medications including narcotics, disposable latex gloves, bandages, universal dressings such as gauze pads, tape, blankets, pillows and sheets, oxygen, drugs, and intravenous fluids.

Description of tasks
(encompasses the range of all tasks performed by lower level EMTs)

1. Answers verbally to telephone or radio emergency calls from dispatcher to provide advanced efficient and immediate emergency medical care to critically ill and injured persons using a full range of equipment.

2. Drives ambulance to scene of emergency, reads map, responds safely and quickly to the address or location as directed by radio dispatcher. observes traffic ordinances and regulations. Visually inspects and assesses or "sizes up" the scene upon arrival to determine if scene is safe, determines the mechanism of illness or injury, the total number of patients involved, and remains calm and confident while demonstrating leadership and responsibility.

3. Radios dispatcher for additional help or special rescue and /or utility services. Reports verbally to the responding EMS unit or communications center as to the nature and extent of injuries and the number of patients. Recognizes hazards. Conducts triage, sorting out and classifying priorities for most immediate need for treatment. Uses excellent judgement to identify priorities based on the most critical needs for patient survival.

4. searches for medical identification as clue in providing emergency care, i.e. identification bracelet for patient who is diabetic. Reassures patient and bystanders while working in a confident and efficient manner, avoids misunderstandings and undue haste while working expeditiously to accomplish the task. Extricates patient from entrapment, works with other EMS providers in rendering emergency care and protection to the entrapped patient. Performs emergency moves, assists other EMS providers in the use of prescribed techniques and appliances for safe removal of the patient.

5. Determines nature and extent of illness or injury in patient, takes pulse, blood pressure, and temperature, visually observes patient, recognizes the mechanisms of injury, takes comprehensive medical history of patient, including patient's current usage of prescribed and non-prescribed medications/drugs. Communicates with and provides verbal direction to Basic EMT to assist with tasks within the Basic's scope of practice. Obtains consent and refusal. Uses good judgement to draw conclusions with often, limited information; verbally communicates effectively to provide quality treatment to diverse age and cultural groups. Provides family support, manages the difficult patient, conducts fundamental mental status assessment, restrains patient, and intervenes pharmacologically.

6. Positions unresponsive patient, protects the seizing patient, identifies and treats the hypoglycemic patient, provides heating/cooling interventions, manages burns

and exposures, overdoses, conducts ingestion management. Manually stabilizes neck and body of child and adult, immobilizes extremities, straightens selected fractures and reduces selected dislocations. Delivers newborn. Provides pre-hospital emergency care of simple and multiple system trauma such as controlling hemorrhage, bandaging wounds, manually stabilizing painful, swollen joints and injured extremities, and immobilizing spine.

7. Uses basic and advanced life support equipment to open airway and upper airway adjuncts, removes foreign bodies, uses upper airway suction devices, performs orotracheal intubation, nasotracheal intubation, oral intubation with pharmacological assistance and surgery on airway. Uses dual or single lumen airway devices. Provides mouth to mouth barrier device ventilation, oxygen administration, chest injury management, bag-valve mask resuscitation. Uses powered ventilation devices, hand held aerosol nebulizer. Performs cardio-pulmonary resuscitation, uses automatic defibrillator apparatus in application of electric shock to heart, manages amputation, uses anti-shock garment, conducts peripheral venous access, intraosseous infusion, manual defibrillation, interprets EKGs, uses external pacemaker.
8. Administers medication (narcotics), determines the patient's most appropriate body route based on patient diagnosis. Calculates amount of medication to be given in relation to patient's weight, age, and other factors that warrant adjustment of volume. Uses oral, auto-injection, sublingual, inhalation, subcutaneous, intramuscular, intraosseous, transcutaneous, rectal, endotracheal, and intravenous routes including central and peripheral lines and venesection as well as infusion pumps to administer medications.

9. Assists other EMS providers in lifting patient onto stretcher, places patient in ambulance, secures stretcher. Continues to monitor patient en route to hospital.

10. Checks, maintains vehicles, and provides mechanical report. Restocks and replaces used supplies, uses appropriate disinfecting procedures to clean equipment, checks all equipment to insure adequate working condition for next response. Takes inventory of and accounts for all medications (narcotics) given. Keeps log of all transactions. Prepares accurate and legible medical reports. Provides medical reports to staff.

11. Transports non-emergency patients to regularly scheduled appointments, for example, transport geriatric patients in nursing homes. Uses computer to enter data for EMS reports.

12. Supervises the activities and educational experiences of assigned observers and students. Complies with regulations in handling the deceased.

13. Functions as the primary direct care provider of emergency health care services to sick and injured patients in pre-hospital settings. Works primarily in advanced

life support units affiliated with fire departments, police departments, rescue squads, hospitals, or private ambulance services under the off-site supervision of a physician, usually through radio communication, is usually the senior level member of a two person team, working in conjunction with a Basic EMT.

14. Accepts primary responsibility for all aspects of advanced life support given to the patient, including use of advanced life support equipment and administration of medication that includes narcotics; responsible for thorough written documentation of all activity related to patient care and medication dispensation. Successfully completes continuing education and refresher courses as required by employers, medical direction, and licensing or certifying agencies. Meets qualifications within the functional job analysis.

Qualifications

Must be at least 18 years of age and be a high school graduate or equivalent. Must have proof of valid driver's license. Ability to communicate verbally; via telephone and radio equipment; ability to lift, carry, and balance up to 125 pounds (250 with assistance); ability to interpret and respond to written, oral, and diagnostic form instructions; ability to use good judgment and remain calm in high-stress situations and take on role of "leader".

Must have the ability to read road maps; drive vehicle, accurately discern street signs and address numbers, read medication/prescription labels and directions for usage in quick, accurate, and expedient manner, ability to communicate verbally with patients and significant others in diverse cultural and age groups to interview patient, family members, and bystanders, and ability to discern deviations/changes in eye/skin coloration due to patient's condition and to the treatment given. Must be able to document, in writing, all relevant information in prescribed format in light of legal ramifications of such; ability to converse with dispatcher and EMS providers via phone or radio as to status of patient.

Good manual dexterity with ability to perform all tasks related to advanced emergency patient care and documentation. Ability to bend, stoop, balance, and crawl on uneven terrain; and the ability to withstand varied environmental conditions such as extreme heat, cold, and moisture. Ability to perform quickly, precise, practical mathematical calculations pertinent to ratio and proportion of medication and supplies used in emergency patient care. Must be independent, confident, able to work independently without defined structure, have good stable reasoning ability with ability to draw valid conclusions expediently relevant to patient's condition, often, using limited information. Must have knowledge and skills relevant to position and be able to implement them in stressful situations. Must be cognizant of all legal, ethical, and moral obligations inherent within scope of practice.

Must be able to perform mathematical calculations/ratios and apply them in expedient, practical manner. Must be independent, confident, able to work independently without structure, have good stable reasoning ability and able to draw valid conclusions quickly

relevant to patient's condition, often, using limited information. Must have knowledge and skills relevant to position and be able to implement them in practical fashion in stressful situations. Must be cognizant of all legal, ethical, and moral obligations inherent within scope of practice.

Must have successful completion of approved curriculum with achievement of passing scores on written and practical certification examinations as defined by programmatic guidelines. Re-certification is dependent upon an individual's successful completion of inter-agency approved Paramedic continuing education fresher courses. At any given time, performs any or all tasks performed by a lower level EMT. May supervise activities of students or interns, and/or may engage in writing of journal articles or teach. Meets qualifications within the functional job analysis.

Appendix D
Field Test Program Hours

Appendix D includes information to help program directors make decisions about the length of the program. A pilot test of the curriculum was conducted and all of the cognitive, psychomotor, and clinical objectives were completed in 1122 hours (435 classroom, 171 practical laboratory, clinical/field 516). The following information represents the amount of time needed to complete the course objectives by the pilot and field test sites.

For each unit, we have reported the range, average, standard deviation (SD),and median number of hours spent in didactic and practical laboratory.

Based on this information, and the performance of students in the pilot and field test program, it is recommended that the course be planned for approximately 1000-1200 total hours of instruction (500-600 classroom/practical laboratory, 250-300 clinical, 250-300 field internship.)

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FIELD AND PILOT TEST DIDACTIC AND PRACTICAL LABORATORY
HOURS REPORT

	Didactic					Practical Laboratory				
	Min. (hours)	Max. (hours)	Ave. (hours)	Stand. Dev.	Median	Min (hours)	Max (hours)	Ave. (hours)	Stand. Dev.	Median
Preparatory										
Well Being Paramedic	1.00	11.00	3.97	3.73	2.00	1.00	1.00	1.00	N/A	1.00
Roles & Responsibilities	1.00	5.50	2.81	1.56	2.00	1.00	1.00	1.00	N/A	1.00
Illness/Injury Prevention	0.00	4.00	2.14	1.36	2.00	1.00	1.00	1.00	N/A	1.00
Medical/Legal	2.00	5.00	3.22	0.97	3.00	1.00	2.00	1.50	0.71	1.50
Ethics	0.00	3.50	1.44	0.98	1.00	1.00	1.00	1.00	0.00	1.00
Pathophysiology	8.00	35.00	18.06	8.72	20.00	2.00	8.50	6.17	3.62	8.00
Pharmacology	8.00	45.00	26.33	13.08	22.50	4.00	18.75	10.25	7.63	8.00
Medication Administration	2.00	24.00	9.63	6.80	8.50	2.00	20.00	9.86	6.54	9.00
Thera. Communication	1.00	4.50	2.28	1.20	2.00	1.00	2.00	1.50	0.71	1.50
Life Span Development	2.00	10.00	3.75	2.50	3.00	1.00	1.00	1.00	N/A	1.00
Module Totals	*38.00*	*101.00*	*72.56*	*19.84*	*73.00*	*0.00*	*36.25*	*14.47*	*10.95*	*12.00*
Airway Management & Ventilation										
Airway and Ventilation	5.00	16.00	10.58	4.16	12.00	8.00	20.00	11.88	4.16	10.50
Module Totals	*5.00*	*16.00*	*10.58*	*4.16*	*12.00*	*0.00*	*20.00*	*10.56*	*5.55*	*10.00*
Patient Assessment										
History Taking	1.50	4.00	2.47	0.83	2.00	1.00	4.00	2.75	1.50	3.00
Technique of PE	1.00	31.50	8.72	10.41	4.00	2.00	22.00	8.29	7.78	4.00
Patient Assessment	4.00	15.50	6.92	3.68	6.00	4.00	12.00	6.25	2.92	5.00
Clinical Decision Making	0.00	4.00	1.88	1.25	2.00	2.00	6.00	3.33	2.31	2.00
Communications	1.00	4.00	1.94	1.01	2.00	1.00	5.00	3.00	1.83	3.00
Documentation	1.00	4.00	1.94	1.01	2.00	1.00	5.00	2.60	1.82	2.00
Module Totals	*12.00*	*42.00*	*23.67*	*9.11*	*25.00*	*6.00*	*26.00*	*17.11*	*7.15*	*20.00*
Trauma										
Trauma System/ MOI	1.00	4.00	2.75	1.39	3.00	1.00	4.00	2.75	1.50	3.00
Hemorrhage and Shock	4.00	14.00	6.78	4.04	5.00	4.00	30.25	11.85	10.75	8.00
Soft Tissue Trauma	1.00	5.00	3.06	1.43	3.50	1.00	3.00	2.20	0.84	2.00
Burns	1.00	4.00	3.06	1.15	3.50	2.00	16.00	6.25	6.55	3.50
Head and Face Trauma	2.00	7.00	4.31	1.79	4.00	1.00	4.00	3.20	1.30	4.00
Spinal Trauma	2.00	6.00	3.31	1.39	3.25	1.00	5.00	3.33	1.51	4.00
Thoracic Trauma	2.00	6.00	3.69	1.16	3.75	2.00	7.25	3.85	2.15	4.00
Abdominal Trauma	1.50	4.00	2.69	1.10	2.00	1.00	4.00	2.50	1.38	2.50
Musculoskeletal Trauma	2.00	8.50	4.13	1.90	4.00	1.00	7.25	3.71	2.05	3.50

	Didactic					Practical Laboratory				
	Min. (hours)	Max. (hours)	Ave. (hours)	Stand. Dev.	Median	Min (hours)	Max (hours)	Ave. (hours)	Stand. Dev.	Median
Module Totals	*0.00*	*44.00*	*30.03*	*14.02*	*36.00*	*0.00*	*73.75*	*22.08*	*23.66*	*16.00*
Medical										
Pulmonology	4.00	20.00	11.25	5.73	10.00	1.00	12.00	6.00	4.04	4.00
Cardiology	24.00	126.75	51.31	32.63	38.00	8.00	108.00	34.89	32.10	26.00
Neurology	4.00	22.50	10.50	5.52	8.00	1.00	5.00	2.67	2.08	2.00
Endocrinology	2.00	6.00	4.47	1.38	4.00	1.00	3.00	2.00	1.00	2.00
Allergies & Anaphylaxis	1.00	4.00	3.16	1.09	3.50	0.50	2.00	1.17	0.76	1.00
Gastroeneterology	2.00	12.00	5.69	3.25	4.00	1.00	2.00	1.50	0.71	1.50
Urology	1.00	4.00	2.72	1.03	2.88	1.00	2.00	1.50	0.71	1.50
Toxicology	3.00	18.50	7.03	5.05	5.75	1.00	3.00	2.00	1.41	2.00
Environmental Conditions	2.00	9.00	5.14	2.00	5.00	0.50	3.00	1.50	1.32	1.00
Infectious & Comm	1.00	10.50	5.67	2.82	5.00	1.00	3.00	2.00	1.41	2.00
Behavioral/Psychiatric	3.00	9.75	5.03	2.64	4.00	0.50	8.75	3.42	4.63	1.00
Hematology	1.00	4.00	3.16	1.13	3.63	1.00	2.00	1.50	0.71	1.50
Gynecology	4.00	16.00	7.69	4.74	6.00	1.00	16.75	8.88	11.14	8.88
Obstetrics	4.00	12.00	7.00	3.55	6.00	1.00	10.00	5.00	4.58	4.00
Module Totals	*74.00*	*237.75*	*125.42*	*48.59*	*122.00*	*9.50*	*138.50*	*48.67*	*46.00*	*30.00*
Special Considerations										
Neonatology	2.00	8.00	5.63	2.00	6.00	1.00	9.00	4.60	3.65	3.00
Pediatrics	4.00	32.00	16.38	10.34	16.00	2.00	29.00	11.00	10.77	8.00
Geriatrics	4.00	12.00	6.66	2.78	6.63	1.00	6.00	3.00	2.16	2.50
Abuse & Assault	1.00	4.00	2.75	1.39	3.00	1.00	2.00	1.50	0.71	1.50
Pts with Sp. Challenges	2.00	6.00	3.59	1.30	3.88	1.00	2.00	1.50	0.71	1.50
Acute Int in CCP	3.00	4.00	3.69	0.46	4.00	2.00	2.00	2.00	0.00	2.00
Module Total	*0.00*	*54.00*	*34.39*	*17.33*	*40.00*	*0.00*	*40.00*	*11.11*	*13.19*	*8.00*
Assessment Based Management										
Assess Based Mgmt	2.00	8.00	4.40	2.19	4.00	2.00	28.00	10.00	12.11	5.00
Module Totals	*0.00*	*8.00*	*2.44*	*2.79*	*2.00*	*0.00*	*28.00*	*4.44*	*9.10*	*0.00*
Operations										
Medical Incident Cmnd.	2.00	6.00	3.50	1.41	4.00	2.00	9.00	4.67	3.79	3.00
Rescue A & O	2.00	36.25	9.66	11.50	4.00	2.00	45.00	26.33	22.05	32.00
Haz Mat Incidents	2.00	16.00	6.50	5.10	4.00	2.00	12.00	6.00	5.29	4.00
Crime Scene Awareness	1.00	5.00	3.39	1.38	4.00	2.00	2.00	2.00	0.00	2.00
Module Totals	*0.00*	*58.00*	*20.11*	*18.07*	*16.00*	*0.00*	*60.00*	*12.78*	*23.46*	*0.00*
Miscellaneous Classroom Time										
Exams & Reviews	16.00	59.00	32.86	15.32	32.00	8.00	91.50	34.88	38.31	20.00
Final Testing	4.00	40.00	14.64	12.63	8.00	4.00	52.00	17.00	23.41	6.00

	Didactic					Practical Laboratory				
	Min. (hours)	Max. (hours)	Ave. (hours)	Stand. Dev.	Median	Min (hours)	Max (hours)	Ave. (hours)	Stand. Dev.	Median
BLS Labs	8.00	78.00	42.00	35.04	40.00	15.00	101.00	51.50	37.93	45.00
Misc Total	*0.00*	*159.50*	*50.94*	*50.07*	*32.00*	*0.00*	*244.50*	*45.94*	*80.29*	*12.00*

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	Min. (hours)	Max. (hours)	Average (hours)	Standard Deviation	Median
Clinical Rotations					
Anesthesia	6.00	52.00	17.75	15.02	14.00
Critical Care	8.00	80.00	32.00	22.63	24.00
Emergency Department	80.00	256.00	137.25	57.58	116.00
Triage	8.00	12.00	9.60	2.19	8.00
IV Team	8.00	12.00	9.00	2.00	8.00
Morgue	4.00	6.00	4.67	1.15	4.00
Operating Room Observation	6.00	16.00	9.00	4.76	7.00
Pediatric ED	16.00	48.00	29.33	16.65	24.00
Pediatric OR	4.00	4.00	4.00	N/A	4.00
Pediatric PAR	4.00	8.00	6.00	2.83	6.00
Psychiatrics	6.00	8.00	7.60	0.89	8.00
Labor & Delivery	8.00	39.00	15.88	10.80	12.00
Elective/Miscellaneous	16.00	56.00	30.40	17.34	24.00
Field Internship	108.00	1160.00	347.88	345.39	260.00
Field Summative Evaluation	8.00	240.00	118.40	85.30	120.00
Clinical Total	*0.00*	*1731.00*	*602.89*	*474.06*	*516.00*

Appendix E

Anatomy and Physiology Prerequisite Objectives

The following list of objectives have been derived from many of the currently available resources in anatomy and physiology instruction that are typically part of allied health educational programs or other non-science curricula. The objectives that are listed below are in common with most of these programs. Paramedic education program should select courses or textbooks which cover this level of material.

OBJECTIVES:
Define anatomy, physiology, and pathophysiology
Name the levels of organization of the body and explain each
Name the organ systems of the body
Define homeostasis and give an example of a typical homeostatic mechanism
Describe the anatomical position
Describe the sagittal, midsagittal, transverse and frontal planes
Use proper terminology to describe the location of body parts with respect to one another
Name the body cavities, their membranes and some organs within each cavity
Explain the four quadrants of the abdomen and name the organs in those areas
Define matter, element, atom, proton, neutron, and electron
Using symbols, name some common elements found in the body
Describe the purpose of ionic, covalent and hydrogen bonds in the body
Describe what happens in synthesis and decomposition reactions
Explain the importance of water to the function of the body
Describe where water is found in the body
Explain the roles of oxygen and carbon dioxide in cell respiration
Explain pH and state normal pH ranges in body fluids
Explain how a buffer system resists major pH changes
Describe the functions and types of sugars, fats, and proteins
Explain how enzymes function as catalysts
Describe the function of DNA, RNA and ATP
Name the organic molecules that make up the cell membrane and state their functions
State the arrangement of the molecules in the cell membrane
State the five functions of proteins in the cell membrane
Describe the cytoplasm
Describe how the cell membrane regulates the composition of the cytoplasm
Explain isotonic, hypotonic, and hypertonic solutions and their effects on the cell
State the function of the nucleus and chromosomes
Describe the function of the cell organelles
Define each of these cellular transport mechanisms and give an example of the role of each in the body: diffusion, osmosis, facilitated diffusion, active transport, filtration, phagocytosis and pinocytosis
Describe what happens in mitosis and meiosis and describe the importance of each
Describe the four major categories of tissues and give general characteristics of each
Describe the function of epithelial tissue depending on their location
Describe the functions of connective tissue and relate them to the function of the body or an organ system
Explain the basic differences between smooth, skeletal and cardiac muscle
Describe in brief nervous tissue
Name the organs made of nerve tissue
Describe the location of pleural membranes, pericardial membranes, and the perineum-mesentery
State the location of mucous membranes and state the function of mucus
Name some membranes made of connective tissue
State the three functions of the integumentary system
Name the two layers of skin
State the location and function of the stratum corneum and the stratum germinativum
Describe the function of melanocytes and melanin
Describe the function of hair and nails
Describe the functions of the secretions of sebaceous glands, ceruminous glands and eccrine sweat glands
Describe how the arterioles in the dermis respond to heat, cold, and stress
Name the tissues that make up the subcutaneous tissue and describe their functions
Describe the function of the skeleton

Explain how bones are classified and give an example of each
Describe how the embryonic skeleton is replaced by bone
State the nutrients necessary for bone growth
Name the hormones involved in bone growth and maintenance
Explain what is meant by exercise for bones and explain its importance
Identify the two major subdivisions of the skeleton and list the bones in each area
Explain how joints are classified; give an example of each and describe the movements possible
Describe the parts of a synovial joint and explain their function
Describe muscle structure in terms of muscle cells, tendons and bones
Describe the difference between antagonistic and synergistic muscles
Name the energy sources for muscle contraction and state the simple equation for cell respiration
Explain the importance of hemoglobin and myoglobin and oxygen debt and lactic acid
Describe the neuromuscular junction and explain the function for each part
Describe the structure of a sarcomere
Explain polarization, depolarization and repolarization in terms of ions and charges
Describe the sliding filament theory of muscle contraction
State the major muscles of the body and their functions
Name the divisions of the nervous system and state the general functions of each
Name the parts of a neuron and the function of each
Explain the importance of Schwann cells in the peripheral nervous system and neuroglia in the central nervous system
Describe the electrical nerve impulse and impulse transmission at the synapse
Describe the types of neurons, nerves and nerve tracts
Explain the importance of stretch reflexes and flexor reflexes
Describe the reflex arc
State the functions of the parts of the brain and locate each part on a diagram
Name the meninges and describe their locations
State the locations and functions of cerebrospinal fluid
Explain the general purpose of sensations
Name the parts of the sensory pathway and the general functions of each part
Describe the characteristics of sensations
Name the cutaneous senses and explain their purpose
Explain referred pain and explain its importance
Explain the importance of proprioception, or muscle sense
Describe the pathways for the senses of smell and taste and explain how these senses are interrelated
Name the parts of the eye and explain their function in sight
Name the parts of the ear and explain their function in hearing
Describe the physiology of equilibrium
Distinguish between endocrine and exocrine glands
Define hormone and prostaglandin
Identify the primary endocrine glands and list the major hormones secreted by each
Explain the roles of positive and negative feedback mechanisms in hormone secretions
Describe the relationship between parathyroid hormone and calcitonin
Describe the relationship between insulin and glucagon
Explain what prostaglandins are made of and state some of their functions
Explain how protein hormones are believed to exert their effects
Explain how steroid hormones are believed to exert their effects
Describe the primary functions of blood
List the formed elements of blood and state the primary functions of each
Name the hemopoietic tissues and the kinds of blood cells each produces
Describe what happens to red blood cells at the end of their life span including the fate of hemoglobin
Explain the ABO and Rh blood types
Name the five kinds of white blood cells and the functions of each
State what platelets are and explain how they are involved in hemostasis
Describe the three stages of blood clotting
Explain how abnormal clotting is prevented in the vascular system
Describe the location of the heart in terms of body cavities and relationship to other structures

Name the chambers of the heart and the vessels that enter or leave each
State the valves of the heart and their function
State how heart sounds are created
Trace the pathway of a blood cell throughout the body
Describe coronary circulation
Describe the cardiac conduction pathway and its relationship to a normal electrocardiogram
Explain stroke volume, cardiac output and Starling's law of the heart
Explain how the nervous system regulates the function of the heart
Describe the structure and function of each of the blood vessels: arteries, veins and capillaries
Describe the exchange of gases that occur at the capillary level
Name the major systemic arteries and the parts of the body they nourish
Name the major systemic veins and the parts of the body they drain of blood
Define blood pressure and state the normal ranges for the systolic and diastolic indices
Describe the functions of the lymphatic system
State how lymph is formed
Describe the system of lymph vessels and explain how lymph is returned to the blood
State the location and function of lymph nodules and nodes
State the location and function of the spleen
Define immunity
Explain the role of the thymus in immunity
Explain the differences between humoral immunity and cell mediated immunity
Compare and contrast the development and function of B cells and T cells
Describe the differences between acquired immunity and genetic immunity
Explain how vaccines work
State the general function of the respiratory system
State the pathway of the respiratory system including nasal cavities, pharynx and larynx
State the function of the turbinates in the nasal cavity
Describe the structure and function of the larynx and the speaking mechanism
State the roles of the visceral and parietal pleura in respiration
State the changes in air pressure within the thoracic cavity during respiration
Explain the diffusion of gases in external and internal respiration
Describe how oxygen and carbon dioxide are transported in the blood
Explain the nervous and chemical mechanisms that regulate respiration
Explain how respiration affects the pH of certain body fluids
Describe the general function of the digestive system and name the major divisions
Identify the accessory organs of digestion
Explain the difference between mechanical and chemical digestion
Describe the structure and function of the teeth and tongue
Explain the function of saliva
Describe the location and function of the pharynx and esophagus
List and describe the four layers of the alimentary canal
Describe the difference in absorption between the large and small intestine
Describe the function of the normal flora in the colon
Define peristalsis
Define chyme
State the normal range of body temperature
Define metabolism, catabolism and anabolism
State the different ways heat is generated and lost in the body
State why the hypothalamus is the thermostat of the body
State what the products of cell respiration are and how the body disposes of them
Describe the metabolic roles of fats, glucose and proteins
Describe basal metabolic rate and the factors that affect it
Define kilocalories
Describe the water compartments and the name for the water in each
Explain how water moves between the compartments
Explain how water is taken in by the body and exits the body
Describe the location and general function of each organ in the urinary system

Name the parts of a nephron
Define glomerular filtration rate
Describe how the kidneys function in maintaining normal blood volume and pressure
Describe how the kidneys help to maintain normal blood pH and electrolyte balance
State the hormones that affect kidney function
Explain the interaction between capillary blood pressure and blood proteins
Describe the characteristics of normal urine
Define diploid and haploid
Describe the difference between spermatogenesis and oogenesis
Define gametes
Name the hormones necessary for the formation of gametes
List the essential and accessory organs of the male and female, give the general function of each
Identify and describe the structures that constitute external genitals in both sexes
Name the parts of a sperm cell
Define endometrium
Briefly describe the life cycle of an oocyte
Describe the menstrual cycle in terms of change sin hormone levels and the condition of the endometrium
Beginning with fertilization, describe the major developmental changes during gestation
Describe the structure and function of the placenta and umbilical cord
Describe the difference between fetal circulation/respiration and adult circulation/respiration
State the length of an average gestation period
Describe the states of labor
Describe the major changes that take place in an infant at birth
Explain how microorganisms are named and classified
Describe the distribution of and the benefits of normal flora
Explain what is meant by infectious disease
Describe the different methods by which infectious diseases are spread
List some important infectious diseases
Define genetic disease
Explain how genes can cause disease
Define homologous chromosomes, autosomes, sex chromosomes and genes
Define alleles, genotype, phenotype, homozygous, and heterozygous
Discuss the difference between dominant and recessive traits
List some important genetic diseases

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Appendix F
Affective Evaluations

INSTRUCTIONS FOR AFFECTIVE STUDENT EVALUATIONS

There are two primary purposes of an affective evaluation system: 1) to verify competence in the affective domain, and 2) to serve as a method to change behavior. Although affective evaluation can be used to ultimately dismiss a student for unacceptable patterns of behavior, that is not the primary purpose of these forms. It is also recognized that there is some behavior that is so serious (abuse of a patient, gross insubordination, illegal activity, reporting for duty under the influence of drugs or alcohol, etc) that it would result in immediate dismissal from the educational program.

The two forms included in the EMT-Paramedic: National Standard Curricula were developed by the Joint Review Committee on Educational Programs for the EMT-Paramedic. They represent extensive experience in the evaluation of student's affective domain. The nature of this type of evaluation makes it impossible to achieve complete objectivity, but these forms attempt to decrease the subjectivity and document affective evaluations.

In attempting to change behavior it is necessary to identify, evaluate, and document the behavior that you want. The eleven affective characteristics that form the basis of this evaluation system refer to content in the Roles and Responsibilities of the Paramedic unit of the curriculum. Typically, this information is presented early in the course and serves to inform the students what type of behavior that is expected of them. It is important that the instructor is clear about these expectations.

Cognitive and psychomotor objectives are relatively easy to operationalize in behavioral terms. Unfortunately, the nature of the affective domain makes it practically impossible to enumerate all of the possible behaviors that represent professional behavior in each of the eleven areas. For this reason, the instructor should give examples of acceptable and unacceptable behavior in each of the eleven attributes, but emphasize that these are examples and do not represent an all inclusive list.

The affective evaluation instruments included in this curriculum take two forms: A Professional Behavior Evaluation and a Professional Behavior Counseling Record. The Professional Behavior Evaluation should be completed regularly (i.e. every other week, once a month, etc.) by faculty and preceptors about each student. It is recommended that this form be completed by as many people as practically possible and that it becomes part of the students record. The more independent evaluations of the student, the more reliable are the results.

The only two options for rating the student on this form are "competent" and "not yet competent". For each attribute, a short list of behavioral markers is listed that indicates what is generally considered a demonstration of competence for entry level paramedics. This is not an all inclusive list, but serves to help the evaluator in making judgements. Clearly there are behaviors which warrant a "not yet competent" evaluation that are not listed. Any ratings of "not yet competent" require explanation in the space provided.

Establishing a cut score to use in conjunction with the Professional Behavior Evaluation instrument is important. A cut score can be established by judgement of the local programs community of interest. The question the community should ask is, what percent score do we expect of graduates of our education program to achieve in the affective domain in order to demonstrate entry level competency for a (first month, second semester, graduate, etc.) level student?

When the cut score judgement is made on acceptability or deviation of competent behavior for each characteristic a percent score can be achieved. For example, a student may received 10 competent checks out of 11 (10 of 11 = 91%), or 5 of 7 (because 4 areas were not evaluated) for a score of 71%. This student may then continue to obtain scores of 91%, 91% 82%, etc and have a term grade of 86% in

the affective domain. Each student in the program would receive an average score. Results of multiple evaluations throughout the program would indicate if the score set by the community of interest was too high or too low. When a number of evaluations had evolved adjustments in acceptable score would yield a standard for the community. This standard coupled with community of interest judgements based upon graduate student and employer survey feedbacks would identify additional validity evidence for the cut score each year. A valid cut score based upon years of investigation could then be used as a determining factor on future participation in the education program.

For all affective evaluations, the faculty member should focus on patterns of behavior, not isolated instances that fall outside the students normal performance. For example, a student who is consistently on time and prepared for class may have demonstrated competence in time management and should not be penalized for an isolated emergency that makes him late for one class. On the other hand, if the student is constantly late for class, they should be counseled and if the behavior continues, rated as “not yet competent” in time management. Continued behavior may result in disciplinary action.

The second form, the Professional Behavior Counseling form is used to clearly communicate to the student that their affective performance is unacceptable. This form should be used during counseling sessions in response to specific incidents (i.e. cheating, lying, falsification of documentation, disrespect/insubordination, etc.) or patterns of unacceptable behavior. As noted before, their is some behavior that is so egregious as to result in immediate disciplinary action or dismissal. In the case of such serious incidents, thorough documentation is needed to justify the disciplinary action. For less serious incidents, the Professional Behavior Counseling form can serve as an important tracking mechanism to verify competence or patterns of uncorrected behavior.

On the Professional Behavior Counseling form, the evaluator checks all of the areas that the infraction affects in the left hand column (most incidents affect more than one area) and documents the nature of the incident(s) in the right hand column. Space is provided to document any follow-up. This should include specific expectations, clearly defined positive behavior, actions that will be taken if the behavior continues, and dates of future counseling sessions.

Using a combination of these forms helps to enable the program to demonstrate that graduating students have demonstrated competence in the affective domain. This is achieved by having many independent evaluations, by different faculty members at different times, stating that the student was competent. These forms can also be used to help correct unacceptable behavior. Finally, these forms enable programs to build a strong case for dismissing students following a repeated pattern of unacceptable behavior. Having numerous, uncoberrated evaluations by faculty members documenting unacceptable behavior, and continuation of that behavior after remediation, is usually adequate grounds for dismissal.

PROFESSIONAL BEHAVIOR EVALUATION

Student's Name: _____

Date of evaluation: _____

1. INTEGRITY	Competent [ ]	Not yet competent [ ]
Examples of professional behavior include, but are not limited to: Consistent honesty; being able to be trusted with the property of others; can be trusted with confidential information; complete and accurate documentation of patient care and learning activities.		
2. EMPATHY	Competent [ ]	Not yet competent [ ]
Examples of professional behavior include, but are not limited to: Showing compassion for others; responding appropriately to the emotional response of patients and family members; demonstrating respect for others; demonstrating a calm, compassionate, and helpful demeanor toward those in need; being supportive and reassuring to others.		
3. SELF - MOTIVATION	Competent [ ]	Not yet competent [ ]
Examples of professional behavior include, but are not limited to: Taking initiative to complete assignments; taking initiative to improve and/or correct behavior; taking on and following through on tasks without constant supervision; showing enthusiasm for learning and improvement; consistently striving for excellence in all aspects of patient care and professional activities; accepting constructive feedback in a positive manner; taking advantage of learning opportunities		
4. APPEARANCE AND PERSONAL HYGIENE	Competent [ ]	Not yet competent [ ]
Examples of professional behavior include, but are not limited to: Clothing and uniform is appropriate, neat, clean and well maintained; good personal hygiene and grooming.		
5. SELF - CONFIDENCE	Competent [ ]	Not yet competent [ ]
Examples of professional behavior include, but are not limited to: Demonstrating the ability to trust personal judgement; demonstrating an awareness of strengths and limitations; exercises good personal judgement.		
6. COMMUNICATIONS	Competent [ ]	Not yet competent [ ]
Examples of professional behavior include, but are not limited to: Speaking clearly; writing legibly; listening actively; adjusting communication strategies to various situations		
7. TIME MANAGEMENT	Competent [ ]	Not yet competent [ ]
Examples of professional behavior include, but are not limited to: Consistent punctuality; completing tasks and assignments on time.		
8. TEAMWORK AND DIPLOMACY	Competent [ ]	Not yet competent [ ]
Examples of professional behavior include, but are not limited to: Placing the success of the team above self interest; not undermining the team; helping and supporting other team members; showing respect for all team members; remaining flexible and open to change; communicating with others to resolve problems.		
9. RESPECT	Competent [ ]	Not yet competent [ ]
Examples of professional behavior include, but are not limited to: Being polite to others; not using derogatory or demeaning terms; behaving in a manner that brings credit to the profession.		
10. PATIENT ADVOCACY	Competent [ ]	Not yet competent [ ]

Examples of professional behavior include, but are not limited to: Not allowing personal bias to or feelings to interfere with patient care; placing the needs of patients above self interest; protecting and respecting patient confidentiality and dignity.

11. CAREFUL DELIVERY OF SERVICE	Competent [ ]	Not yet competent [ ]

Examples of professional behavior include, but are not limited to: Mastering and refreshing skills; performing complete equipment checks; demonstrating careful and safe ambulance operations; following policies, procedures, and protocols; following orders.

Use the space below to explain <u>any</u> "not yet competent" ratings. When possible, use specific behaviors, and corrective actions.

- Faculty Signature

PROFESSIONAL BEHAVIOR EVALUATION

Student's Name: *Janet L.*

Date of evaluation: *September 1998*

1. INTEGRITY	Competent [✓]	Not yet competent [ ]
Examples of professional behavior include, but are not limited to: Consistent honesty; being able to be trusted with the property of others; can be trusted with confidential information; complete and accurate documentation of patient care and learning activities.		
2. EMPATHY	Competent [✓]	Not yet competent [ ]
Examples of professional behavior include, but are not limited to: Showing compassion for others; responding appropriately to the emotional response of patients and family members; demonstrating respect for others; demonstrating a calm, compassionate, and helpful demeanor toward those in need; being supportive and reassuring to others.		
3. SELF - MOTIVATION	Competent [✓]	Not yet competent [ ]
Examples of professional behaviors include, but are not limited to: Taking initiative to complete assignments; taking initiative to improve and/or correct behaviors; taking on and following through on tasks without constant supervision; showing enthusiasm for learning and improvement; consistently striving for excellence in all aspects of patient care and professional activities; accepting constructive feedback in a positive manner; taking advantage of learning opportunities		
4. APPEARANCE AND PERSONAL HYGIENE	Competent [✓]	Not yet competent [ ]
Examples of professional behavior include, but are not limited to: Clothing and uniform is appropriate, neat, clean and well maintained; good personal hygiene and grooming.		
5. SELF - CONFIDENCE	Competent [✓]	Not yet competent [ ]
Examples of professional behavior include, but are not limited to: Demonstrating the ability to trust personal judgement; demonstrating an awareness of strengths and limitations; exercises good personal judgement.		
6. COMMUNICATIONS	Competent [ ]	Not yet competent [✓]
Examples of professional behavior include, but are not limited to: Speaking clearly; writing legibly; listening actively; adjusting communication strategies to various situations		
7. TIME MANAGEMENT	Competent [ ]	Not yet competent [✓]
Examples of professional behavior include, but are not limited to: Consistent punctuality; completing tasks and assignments on time.		
8. TEAMWORK AND DIPLOMACY	Competent [✓]	Not yet competent [ ]
Examples of professional behavior include, but are not limited to: Placing the success of the team above self interest; not undermining the team; helping and supporting other team members; showing respect for all team members; remaining flexible and open to change; communicating with others to resolve problems.		
9. RESPECT	Competent [✓]	Not yet competent [ ]

Sample

Examples of professional behavior include, but are not limited to: Being polite to others; not using derogatory or demeaning terms; behaving in a manner that brings credit to the profession.

10. PATIENT ADVOCACY	Competent [✓]	Not yet competent [ ]

Examples of professional behavior include, but are not limited to: Not allowing personal bias to or feelings to interfere with patient care; placing the needs of patients above self interest; protecting and respecting patient confidentiality and dignity.

11. CAREFUL DELIVERY OF SERVICE	Competent [✓]	Not yet competent [ ]

Examples of professional behavior include, but are not limited to: Mastering and refreshing skills; performing complete equipment checks; demonstrating careful and safe ambulance operations; following policies, procedures, and protocols; following orders.

Use the space below to explain <u>any</u> "not yet competent" ratings. When possible, use specific behaviors, and corrective actions.

⑥ *Janet's run reports, written case reports, and home work are illegible and disorganized. She has numerous spelling and grammatical errors.*

⑦ *Janet repeatedly hands in assignments after due dates. She does not complete clinical time in a organized, organized manner. She did not report for five scheduled clinical shifts this semester and reported to medic 6 twice when she was not scheduled. Janet has not completed the required clinical for this semester.*

Sample

John Brown - Faculty Signature

Sample

PROFESSIONAL BEHAVIOR EVALUATION

Student's Name: *Steve R,*

Date of evaluation: *November 1999*

1. INTEGRITY	Competent [✓]	Not yet competent [ ]
Examples of professional behavior include, but are not limited to: Consistent honesty; being able to be trusted with the property of others; can be trusted with confidential information; complete and accurate documentation of patient care and learning activities.		
2. EMPATHY	Competent [ ]	Not yet competent [✓]
Examples of professional behavior include, but are not limited to: Showing compassion for others; responding appropriately to the emotional response of patients and family members; demonstrating respect for others; demonstrating a calm, compassionate, and helpful demeanor toward those in need; being supportive and reassuring to others.		
3. SELF - MOTIVATION	Competent [✓]	Not yet competent [ ]
Examples of professional behaviors include, but are not limited to: Taking initiative to complete assignments; taking initiative to improve and/or correct behavior; taking on and following through on tasks without constant supervision; showing enthusiasm for learning and improvement; consistently striving for excellence in all aspects of patient care and professional activities; accepting constructive feedback in a positive manner; taking advantage of learning opportunities		
4. APPEARANCE AND PERSONAL HYGIENE	Competent [✓]	Not yet competent [ ]
Examples of professional behavior include, but are not limited to: Clothing and uniform is appropriate, neat, clean and well maintained; good personal hygiene and grooming.		
5. SELF - CONFIDENCE	Competent [ ]	Not yet competent [✓]
Examples of professional behavior include, but are not limited to: Demonstrating the ability to trust personal judgement; demonstrating an awareness of strengths and limitations; exercises good personal judgement.		
6. COMMUNICATIONS	Competent [ ]	Not yet competent [✓]
Examples of professional behavior include, but are not limited to: Speaking clearly; writing legibly; listening actively; adjusting communication strategies to various situations		
7. TIME MANAGEMENT	Competent [✓]	Not yet competent [ ]
Examples of professional behavior include, but are not limited to: Consistent punctuality; completing tasks and assignments on time.		
8. TEAMWORK AND DIPLOMACY	Competent [ ]	Not yet competent [✓]
Examples of professional behavior include, but are not limited to: Placing the success of the team above self interest; not undermining the team; helping and supporting other team members; showing respect for all team members; remaining flexible and open to change; communicating with others to resolve problems.		
9. RESPECT	Competent [ ]	Not yet competent [✓]

Sample

Examples of professional behavior include, but are not limited to: Being polite to others; not using derogatory or demeaning terms; behaving in a manner that brings credit to the profession.

10. PATIENT ADVOCACY	Competent [✓]	Not yet competent [ ]

Examples of professional behavior include, but are not limited to: Not allowing personal bias to or feelings to interfere with patient care; placing the needs of patients above self interest; protecting and respecting patient confidentiality and dignity.

11. CAREFUL DELIVERY OF SERVICE	Competent [✓]	Not yet competent [ ]

Examples of professional behavior include, but are not limited to: Mastering and refreshing skills; performing complete equipment checks; demonstrating careful and safe ambulance operations; following policies, procedures, and protocols; following orders.

Use the space below to explain <u>any</u> "not yet competent" ratings. When possible, use specific behaviors, and corrective actions.

#2, 5, 6, 8, & 9 Steve has demonstrated inappropriate classroom behavior by monopolizing class time, answering questions intended for other students, and making sarcastic remarks about other students answers. Steve demonstrates a superiority complex over fellow classmates belittling and has repeatedly belittled their experience, while boasting and exaggerating about his field experience.

Sample

T. Jones - Faculty Signature

Sample

PROFESSIONAL BEHAVIOR EVALUATION

Student's Name: *Steve R.*

Date of evaluation: *December 1999*

1. INTEGRITY	Competent [✓]	Not yet competent [ ]
Examples of professional behavior include, but are not limited to: Consistent honesty; being able to be trusted with the property of others; can be trusted with confidential information; complete and accurate documentation of patient care and learning activities.		
2. EMPATHY	Competent [ ]	Not yet competent [✓]
Examples of professional behavior include, but are not limited to: Showing compassion for others; responding appropriately to the emotional response of patients and family members; demonstrating respect for others; demonstrating a calm, compassionate, and helpful demeanor toward those in need; being supportive and reassuring to others.		
3. SELF - MOTIVATION	Competent [✓]	Not yet competent [ ]
Examples of professional behaviors include, but are not limited to: Taking initiative to complete assignments; taking initiative to improve and/or correct behaviors; taking on and following through on tasks without constant supervision; showing enthusiasm for learning and improvement; consistently striving for excellence in all aspects of patient care and professional activities; accepting constructive feedback in a positive manner; taking advantage of learning opportunities		
4. APPEARANCE AND PERSONAL HYGIENE	Competent [✓]	Not yet competent [ ]
Examples of professional behavior include, but are not limited to: Clothing and uniform is appropriate, neat, clean and well maintained; good personal hygiene and grooming.		
5. SELF - CONFIDENCE	Competent [ ]	Not yet competent [✓]
Examples of professional behavior include, but are not limited to: Demonstrating the ability to trust personal judgement; demonstrating an awareness of strengths and limitations; exercises good personal judgement.		
6. COMMUNICATIONS	Competent [ ]	Not yet competent [✓]
Examples of professional behavior include, but are not limited to: Speaking clearly; writing legibly; listening actively; adjusting communication strategies to various situations		
7. TIME MANAGEMENT	Competent [✓]	Not yet competent [ ]
Examples of professional behavior include, but are not limited to: Consistent punctuality; completing tasks and assignments on time.		
8. TEAMWORK AND DIPLOMACY	Competent [ ]	Not yet competent [✓]
Examples of professional behavior include, but are not limited to: Placing the success of the team above self interest; not undermining the team; helping and supporting other team members; showing respect for all team members; remaining flexible and open to change; communicating with others to resolve problems.		
9. RESPECT	Competent [ ]]	Not yet competent [✓]

Sample

Examples of professional behavior include, but are not limited to: Being polite to others; not using derogatory or demeaning terms; behaving in a manner that brings credit to the profession.

10. PATIENT ADVOCACY	Competent [ ]	Not yet competent [ ]

Examples of professional behavior include, but are not limited to: Not allowing personal bias to or feelings to interfere with patient care; placing the needs of patients above self interest; protecting and respecting patient confidentiality and dignity.

11. CAREFUL DELIVERY OF SERVICE	Competent [ ]	Not yet competent [ ]

Examples of professional behavior include, but are not limited to: Mastering and refreshing skills; performing complete equipment checks; demonstrating careful and safe ambulance operations; following policies, procedures, and protocols; following orders.

Use the space below to explain <u>any</u> "not yet competent" ratings. When possible, use specific behaviors, and corrective actions.

 # Steve is constantly disrupting class with irrelevant questions. He is disrespectful

Sample

to guest instructors, classmates and the program.

 # Steve seems to have an impression that he is better than the others students because

5

he has more field experience. He is overconfident and overbearing.

 # Steve has not changed his communication skills despite verbal counseling.

6

 # Steve's disruptions are destructive to the team environment by placing his needs

8

above those of the group.

# *9*	*Disruptions are disrespectful.*

Sample

A. Cox - Faculty Signature

PROFESSIONAL BEHAVIOR COUNSELING RECORD

Student's Name: _____

Date of counseling: _____

Date of incident: _____

_	**Reason for Counseling**	**Explanation (use back of form if more space is needed):**
	Integrity	
	Empathy	
	Self - Motivation	
	Appearance/Personal Hygiene	
	Self - Confidence	
	Communications	
	Time Management	
	Teamwork and Diplomacy	
	Respect	
	Patient Advocacy	
	Careful delivery of service	

Follow-up (include specific expectations, clearly defined positive behavior, actions that will be taken if behavior continues, dates of future counseling sessions, etc.):

_____

_____

_____

_____

_____

_____

-Faculty signature

I have read this notice and I understand it.

-Student signature

-Administrative or Medical Director Review

PROFESSIONAL BEHAVIOR COUNSELING RECORD

Student's Name: *Steve R.*

Date of counseling: *December 14, 1998*

Date of incident: *November and December 1999*

_	**Reason for Counseling**	**Explanation (use back of form if more space is needed):**
	Integrity	*This counseling session was in response to the two Professional*
×	Empathy	*Behavior Evaluations file by Instructors Cox and Jones.*
	Self - Motivation	*They both indicated that Steve has been disruptive in classes*
	Appearance/Personal Hygiene	*(see attached)*
×	Self - Confidence	
	Communications	
	Time Management	
×	Teamwork and Diplomacy	
×	Respect	
	Patient Advocacy	
	Careful delivery of service	

Follow-up (include specific expectations, clearly defined positive behavior, actions that will be taken if behavior continues, dates of future counseling sessions, etc.):

· *Student was advised that his behavior is inappropriate and unacceptable. Continuation of this behavior will result in dismissal from class.*

· *Written warning from program director.*

· *Instructors Cox and Jones to complete Professional Behavior Evaluations bi-weekly throughout next semester*

M. Travis *-Faculty signature*

I have read this notice and I understand it.

Steve R. *-Student signature*

Dr. O'Hara *-Administrative or Medical Director Review*

PROFESSIONAL BEHAVIOR COUNSELING RECORD

Student's Name: *Joe L.*

Date of counseling: *February 23, 1999*

Date of incident: *February 21, 1999*

_	**Reason for Counseling**	**Explanation (use back of form if more space is needed):**
	Integrity	*Joe reported to a field rotation 16 minutes late, he was not wearing*
	Empathy	*(nor did he have in his possession) a uniform belt and with*
	Self - Motivation	*"at least 2 days beard growth" according to field supervisor*
_	Appearance/Personal Hygiene	*Johnson. When Joe was approached regarding this situation*
	Self - Confidence	*he became argumentative and told Mr. Johnson to*
	Communications	*"...mind your own business." Joe was asked to leave.*
_	Time Management	*Others that witnessed this exchange were Paramedics*
	Teamwork and Diplomacy	*Davis and Lawrence.*
_	Respect	
	Patient Advocacy	
	Careful delivery of service	

Follow-up (include specific expectations, clearly defined positive behavior, actions that will be taken if behavior continues, dates of future counseling sessions, etc.):

· Reviewed clinical Policies and Procedures manual section referring to personal appearance and hygiene, time management, and respect. I also reviewed the conduct at clinical rotations with Joe.

· Asked Joe to write a letter of apology to field supervisor Johnson, and Paramedics Davis and Lawrence, which he agreed to do.

· I informed Joe that any further display of disrespectful behavior will result in dismissal from the program.

*A continued pattern of poor time management and/or poor appearance/personal hygiene could also result in dismiss*al.

Bill Smith *-Faculty signature*

I have read this notice and I understand it.

Joe L.	*-Student signature*
Dr. Jones	*-Administrative or Medical Director Review*

Appendix G

Psychomotor Skills Evaluations

The following skill evaluation instruments were developed by the National Registry of EMTs. They are in draft format and have not yet been approved for usage in Advanced Level National Registry examinations.

National Registry of Emergency Medical Technicians
Advanced Level Practical Examination

PATIENT ASSESSMENT-TRAUMA

NOTE: Areas denoted by "**" may be integrated within sequence of Initial Assessment	Possible Points	Points Awarded
Takes or verbalizes body substance isolation precautions	1	
SCENE SIZE-UP		
Determines the scene/situation is safe	1	
Determines the mechanism of injury/nature of illness	1	
Determines the number of patients	1	
Requests additional help if necessary	1	
Considers stabilization of spine	1	
INITIAL ASSESSMENT/RESUSCITATION		
Verbalizes general impression of the patient	1	
Determines responsiveness/level of consciousness	1	
Determines chief complaint/apparent life-threats	1	
Airway -Opens and assesses airway (1 point) -Inserts adjunct as indicated (1 point)	2	
Breathing -Assess breathing (1 point) -Assures adequate ventilation (1 point) -Initiates appropriate oxygen therapy (1 point) -Manages any injury which may compromise breathing/ventilation (1 point)	4	
Circulation -Checks pulse (1 point) -Assess skin (either skin color, temperature or condition) (1 point) -Assesses for and controls major bleeding if present (1 point) -Initiates shock management (1 point)	4	
Identifies priority patients/makes transport decision	1	
FOCUSED HISTORY AND PHYSICAL EXAMINATION/RAPID TRAUMA ASSESSMENT		
Selects appropriate assessment	1	
Obtains, or directs assistant to obtain, baseline vital signs	1	
Obtains SAMPLE history	1	
DETAILED PHYSICAL EXAMINATION		
Head -Inspects mouth**, nose**, and assesses facial area (1 point) -Inspects and palpates scalp and ears (1 point) -Assesses eyes for PEARRL **(1 point)	3	
Neck** -Checks position of trachea (1 point) -Checks jugular veins (1 points) -Palpates cervical spine (1 point)	3	
Chest ** -Inspects chest (1 point) -Palpates chest (1 point) -Auscultates chest (1 point)	3	
Abdomen/pelvis** -Inspects and palpates abdomen (1 point) -Assesses pelvis (1 point) -Verbalizes assessment of genitalia/perineum as needed (1 point)	3	
Lower extremities ** -Inspects, palpates, and assesses motor, sensory and circulatory functions (1 point/leg)	2	
Upper extremities -Inspects, palpates, and assesses motor, sensory, and circulatory functions (1 point/arm)	2	
Posterior thorax, lumbar, and buttocks** -Inspects and palpates posterior thorax (1 point) -Inspects and palpates lumbar and buttocks area (1 point)	2	
Manages secondary injuries and wounds appropriately (1 point/injury or wound)	1	
Ongoing assessment (1 point)	1	
TOTAL	43	

CRITICAL CRITERIA

____ Failure to initiate or call for transport of the patient within 10 minute time limit
____ Failure to take or verbalize body substance isolation precautions
____ Failure to determine scene safety
____ Failure to assess for and provide spinal protection when indicated
____ Failure to voice and ultimately provide high concentration of oxygen

____ Failure to find or appropriately manage problems associated with airway, breathing, hemorrhage or shock (hypoperfusion)
____ Failure to differentiate patient's need for immediate transportation versus continued assessment and treatment at the scene
____ Does other detailed or focused history or physical examination before assessing and treating threats to airway, breathing and circulation
____ Orders a dangerous or inappropriate intervention

National Registry of Emergency Medical Technicians
Advanced Level Practical Examination

PATIENT ASSESSMENT-MEDICAL

	Possible Points	Points Awarded
Takes or verbalizes body substance isolation precautions	1	
SCENE SIZE-UP		
Determines the scene/situation is safe	1	
Determines the mechanism of injury/nature of illness	1	
Determines the number of patients	1	
Requests additional help if necessary	1	
Considers stabilization of spine	1	
INITIAL ASSESSMENT		
Verbalizes general impression of the		

Appendix H

Module and Unit Objective Summary

EMT-Paramedic: National Standard Curriculum

Module and Unit Objective Summary

1 At the completion of this module, the paramedics student will understand the roles and responsibilities of a Paramedic within an EMS system, apply the basic concepts of development, pathophysiology and pharmacology to assessment and management of emergency patients, be able to properly administer medications, and communicate effectively with patients.

- 1-1 At the completion of this unit, the paramedic student will understand his or her roles and responsibilities within an EMS system, and how these roles and responsibilities differ from other levels of providers.
- 1-2 At the completion of this unit, the paramedic student will understand and value the importance of personal wellness in EMS and serve as a healthy role model for peers.
- 1-3 At the completion of this unit, the paramedic student will be able to integrate the implementation of primary injury prevention activities as an effective way to reduce death, disabilities and health care costs.
- 1-4 At the completion of this unit, the paramedic student will understand the legal issues that impact decisions made in the out-of-hospital environment.
- 1-5 At the completion of this unit, the paramedic student will understand the role that ethics plays in decision making in the out-of-hospital environment.
- 1-6 At the completion of this unit, the paramedic student will be able to apply the general concepts of pathophysiology for the assessment and management of emergency patients.
- 1-7 At the completion of this unit, the paramedic student will be able to integrate pathophysiological principles of pharmacology and the assessment findings to formulate a field impression and implement a pharmacologic management plan.
- 1-8 At the completion of this unit, the paramedic student will be able to safely and precisely access the venous circulation and administer medications.
- 1-9 At the completion of this unit, the paramedic student will be able to integrate the principles of therapeutic communication to effectively communicate with any patient while providing care.
- 1-10 At the completion of this unit, the paramedic student will be able to integrate the physiological, psychological, and sociological changes throughout human development with assessment and communication strategies for patients of all ages.

2 At the completion of this module, the paramedic student will be able to establish and/ or maintain a patent airway, oxygenate, and ventilate a patient.

- 2-1 At the completion of this unit, the paramedic student will be able to establish and/ or maintain a patent airway, oxygenate, and ventilate a patient.

3 At the completion of this module, the paramedic student will be able to take a proper history and perform a comprehensive physical exam on any patient, and communicate the findings to others.

- 3-1 At the completion of this unit, the paramedic student will be able to use the appropriate techniques to obtain a medical history from a patient.
- 3-2 At the completion end of this unit, the paramedic student will be able to explain the pathophysiological significance of physical exam findings.
- 3-3 At the end of this unit, the paramedic student will be able to integrate the principles of history taking and techniques of physical exam to perform a patient assessment.
- 3-4 At the end of this unit, the paramedic student will be able to apply a process of clinical decision making to use the assessment findings to help form a field impression.
- 3-5 At the completion of this unit, the paramedic student will be able to follow an accepted format for dissemination of patient information in verbal form, either in person or over the radio.

3-6 At the completion of this unit, the paramedic student will be able to effectively document the essential elements of patient assessment, care and transport.

4 At the completion of this module, the paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the trauma patient.

4-1 At the completion of this unit, the Paramedic student will be able to integrate the principles of kinematics to enhance the patient assessment and predict the likelihood of injuries based on the patient's mechanism of injury.

4-2 At the completion of this unit, the paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with shock or hemorrhage.

4-3 At the completion of this unit, the paramedic student will be able to integrate pathophysiological principles and the assessment findings to formulate a field impression and implement the treatment plan for the patient with soft tissue trauma.

4-4 At the completion of this unit, the paramedic student will be able to integrate pathophysiological principles and the assessment findings to formulate a field impression and implement the management plan for the patient with a burn injury.

4-5 At the completion of this unit, the paramedic student will be able to integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the trauma patient with a suspected head injury.

4-6 At the completion of this unit, the paramedic student will be able to integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with a suspected spinal injury.

4-7 At the completion of this unit, the paramedic student will be able to integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for a patient with a thoracic injury.

4-8 At the completion of this unit, the paramedic student will be able to integrate pathophysiological principles and the assessment findings to formulate a field impression and implement the treatment plan for the patient with suspected abdominal trauma.

4-9 At the completion of this unit, the paramedic student will be able to integrate pathophysiological principles and the assessment findings to formulate a field impression and implement the treatment plan for the patient with a musculoskeletal injury.

5 At the completion of this unit, the paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the medical patient.

5-1 At the completion of this unit, the paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with respiratory problems.

5-2 At the completion of this unit, the paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with cardiovascular disease.

5-3 At the completion of this unit, the paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with a neurological problem.

5-4 At the completion of this unit, the paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with an endocrine problem.

5-5 At the completion of this unit, the paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with an allergic or anaphylactic reaction.

5-6 At the completion of this unit, the paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with a gastroenterologic problem.

5-7 At the completion of this unit, the paramedic student will be able to integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with a renal or urologic problem.

5-8 At the completion of this unit, the paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with a toxic exposure.

5-9 At the completion of this unit, the paramedic student will be able to integrate the pathophysiological principles of the hematopoietic system to formulate a field impression and implement a treatment plan.

5-10 At the completion of this unit, the paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with an environmentally induced or exacerbated medical or traumatic condition.

5-11 At the completion of this unit, the paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement a management plan for the patient with infectious and communicable diseases.

5-12 At the end of this unit, the paramedic student will be able to describe and demonstrate safe, empathetic competence in caring for patients with behavioral emergencies.

5-13 At the end of this unit, the paramedic student will be able to utilize gynecological principles and assessment findings to formulate a field impression and implement the management plan for the patient experiencing a gynecological emergency.

5-14 At the completion of this unit, the paramedic student will be able to apply an understanding of the anatomy and physiology of the female reproductive system to the assessment and management of a patient experiencing normal or abnormal labor.

6 At the completion of this unit, the paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for neonatal, pediatric, and geriatric patients, diverse patients, and chronically ill patients.

6-1 At the completion of this lesson, the paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the neonatal patient.

6-2 At the completion of this lesson, the paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the pediatric patient.

6-3 At the completion of this unit, the paramedic student will be able to integrate the pathophysiological principles and the assessment findings to formulate and implement a treatment plan for the geriatric patient.

6-4 At the completion of this unit, the paramedic student will be able to integrate the assessment findings to formulate a field impression and implement a treatment plan for the patient who has sustained abuse or assault.

6-5 At the completion of this unit the paramedic student will be able to integrate pathophysiological and psychosocial principles to adapt the assessment and treatment plan for diverse patients and those who face physical, mental, social and financial challenges.

6-6 At the completion of this unit, the paramedic student will be able to integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the acute deterioration of a chronic care patient.

7 At the completion of this unit, the paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for patients with common complaints.

7-1 At the completion of this unit, the paramedic student will be able to integrate the principles of assessment based management to perform an appropriate assessment and implement the management plan for patients with common complaints.

8 At the completion of this unit, the paramedic student will be able to safely manage the scene of an emergency.

8-1 At the completion of this unit, the paramedic will understand standards and guidelines that help ensure safe and effective ground and air medical transport.

8-2 At the completion of this unit, the paramedic student will be able to integrate the principles of general incident management and multiple casualty incident (MCI) management techniques in order to function effectively at major incidents.

8-3 At the completion of this unit, the paramedic student will be able to integrate the principles of rescue awareness and operations to safely rescue a patient from water, hazardous atmospheres, trenches, highways, and hazardous terrain.

8-4 At the completion of this unit, the paramedic student will be able to evaluate hazardous materials emergencies, call for appropriate resources, and work in the cold zone.

8-5 At the completion of this unit, the paramedic student will have an awareness of the human hazard of crime and violence and the safe operation at crime scenes and other emergencies.