

# Paramedic Program Training and Education Manual

**A Guide for Skill Trainers and Preceptors**

Updated: March 2024

## **Program Mission Statement**

**To educate, prepare, validate, and support our students to ensure future delivery of quality and competent pre-hospital patient care.**

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## Introduction

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McHenry County College offers education in emergency medical services (EMS) at the emergency medical responder, emergency medical technician, and paramedic levels. All courses are taught in compliance with the 2021 National EMS Education Standards and administrative rules of the Illinois Department of Public Health (IDPH). EMS trainers and preceptors are an extension of the education process and play an integral role in student success.

EMS trainers and preceptors must remain knowledgeable and proficient in the constantly changing field of EMS. This includes ongoing professional development and routine education. Additionally, EMS trainers and preceptors should possess a comprehensive understanding of pedagogical theory and application. This manual provides EMS trainers and preceptors with a basic overview of their individual roles/responsibilities along with a framework for providing quality education in the classroom and clinical environments.

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## Curriculum, Content and Standards

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The MCC Paramedic Program adheres to the [2021 National Emergency Medical Services Education Standards](#) and the [2019 National EMS Scope of Practice Model \(August 2021 Update\)](#) developed and published by the National Highway Traffic Safety Administration (NHTSA). Additionally, the program is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) based on oversight by the [Committee on Accreditation of Educational Programs for the Emergency Medical Services Professions](#) (CoAEMSP).

Each course offering is approved by the Illinois Department of Public Health (IDPH) to ensure compliance with state and federal requirements.

The core curriculum used in the program is:

- Title:** Nancy Caroline's Emergency Care in the Streets, 9<sup>th</sup> Edition.  
[Navigate Premier Access Required]
- Author:** American Academy of Orthopaedic Surgeons (AAOS)
- Publisher:** Jones and Bartlett

Supplementary curriculum includes:

- Advanced Cardiovascular Life Support (ACLS)**
- Pediatric Advanced Life Support (PALS)**
- International Trauma Life Support (ITLS)**

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## Program Framework

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The McHenry County College Paramedic Program is administered by the McHenry Western Lake County EMS System, part of Northwestern Medicine. The program is sponsored by McHenry County College. Overall program management is a collaborative effort among administrators of both entities.

Day-to-day operations of the program are managed by adjunct instructors with support from a variety of personnel within the college and clinical environments. A brief summary of the roles and responsibilities of program participants is provided below and is visually represented in the program organizational chart on page 9.

### Adjunct Instructor

**Roles/Responsibilities:** Adjunct instructors are employed by McHenry County College and/or Northwestern Medicine and charged with day-to-day implementation of the program. Adjunct instructors have various roles and responsibilities based on their primary job assignments. This may include the program lead instructor, associate instructors, clinical coordinators, lab managers, and more. Adjunct instructors are responsible for development of the course syllabus, selection and delivery of the core curriculum, lesson planning, and student assessment.

**Expectations:** Adjunct instructors are expected to maintain current knowledge of the EMS profession and should also be competent in the application of pedagogical theory to provide quality education for each student. Adjunct instructors, as leaders within the program, serve as role models for ethics in EMS and higher education. They shall conduct themselves as professional educators in strict compliance with all applicable policies/procedures, state and federal laws, and in a manner which is equally focused on individual student success and overall success of the program. This requires knowledge of current standards, maintenance of accreditation expectations, compliance with individual student accommodations, and general management of the program.

### EMS Trainer

**Roles/Responsibilities:** EMS trainers are employed by McHenry County College and subject to the applicable job description provided by the college. Generally, the position includes instruction of EMS specific objectives in the classroom and laboratory setting. Specifically, trainers typically provide instruction in the performance of specific psychomotor skills and the application of those skills when providing patient care. EMS trainers must utilize a variety of teaching styles to satisfy the different learning modalities of students. The position may also require assessment of student performance, including competency assessments.

**Expectations:** Skills trainers must be licensed, at minimum, to the level of instruction they are providing and have at least 3 years of experience providing direct patient care in the prehospital, emergency department, or critical care setting. Certification as a BLS Instructor, ACLS Instructor, and PALS Instructor with the American Heart Association is strongly preferred.

Skills trainers shall conduct themselves as professional educators in strict compliance with all applicable policies/procedures, state and federal laws, and in a manner which is equally focused on individual student success and overall success of the program. This includes on-time arrival for assigned work, dressing appropriately, and adherence to assigned teaching objectives. Skills trainers are encouraged to share professional experiences to augment learning, so long as the ad lib instruction does not detract from the delivery of the assigned teaching objectives.

Assessment of student performance shall be objective and compliant with assessment rubrics. Skills trainers shall communicate their assessment of student competency to the adjunct instructors. The final determination of student competency will be determined by the adjunct instructors with consideration of the trainer's recommendation.

### Agency EMS Coordinator

**Roles/Responsibilities:** Each EMS agency assigns an EMS Coordinator who serves as the liaison between the agency and the EMS system. An extension of this role includes liaison between the agency and the EMS programming at McHenry County College when the agency has students enrolled. The EMS Coordinator is responsible for supervision and oversight of agency preceptors and supervising paramedics to ensure compliance with program and system policies and to facilitate a positive learning environment in the prehospital setting.

**Expectations:** EMS coordinators are expected to monitor student progress throughout enrollment in the paramedic program and to maintain an open line of communication with the program's instructional staff. EMS coordinators shall promptly respond to requests for assistance in managing student concerns and support the instructional staff in meeting the unique needs of individual students. The prehospital clinical setting is an extension of the paramedic program, requiring EMS coordinators to ensure student and preceptor compliance with program requirements, policies, and procedures.

## Lead Preceptor

**Roles/Responsibilities:** Lead Preceptors fulfill several roles within a paramedic program. First and foremost, lead preceptors are educators entrusted to provide critical oversight, instruction, and education to paramedic students in the clinical environment. In addition to education and training, lead preceptors serve as a mentor to students. An effective lead preceptor has the ability to help mold the future of EMS. Often, paramedics remember only bits and pieces of paramedic class. However, one topic that remains vivid in each memory is the role the lead preceptor played in their professional development. A passionate lead preceptor invested in a student's success will promote competency and proficiency in the field of EMS.

**Expectations:** Lead Preceptors are an extension of the classroom and must demonstrate competency in emergency medical care within their specific scope of practice. Lead Preceptors must remain current with best practices, protocol revisions, and new science in healthcare. A paramedic lead preceptor must be licensed and in good standing with the Illinois Department of Public Health (IDPH). Lead Preceptors must also have no less than two consecutive years of active patient care as a licensed paramedic or PHRN. Additionally, the lead preceptor must be a member in good standing with the McHenry Western Lake County or Greater Elgin Area EMS systems for at least two calendar years. Lead Preceptors are required to complete an initial training and one annual update.

Lead Preceptors shall conduct themselves as professional educators in strict compliance with all applicable policies/procedures, state and federal laws, and in a manner which is equally focused on individual student success and overall success of the program.

Lead Preceptors should meet with their assigned student(s) at least once every two weeks throughout the entire program. Lead Preceptors will review prehospital experiences and discuss successes and opportunities for improvement. Assessment of student performance shall be objective and compliant with assessment rubrics. Assessments and evaluations should be submitted promptly upon conclusion of each preceptor/preceptee meeting. Lead Preceptors shall communicate their assessment of student competency to the adjunct instructors and agency EMS coordinator. The final determination of student competency will be determined by the adjunct instructors with consideration for the lead preceptor's recommendation.

## Preceptor

**Roles/Responsibilities:** Due to staffing and logistical challenges, it is unrealistic to assume that a student will be assigned to work with their assigned preceptor each day. Students may be assigned to work with a qualified preceptor during prehospital clinical experiences. Similar to a lead preceptor, a preceptor must be competent in the EMS profession and capable of providing comprehensive supervision and oversight of students in the clinical environment.

***Expectations:*** A preceptor must be licensed and in good standing with the Illinois Department of Public Health (IDPH). Preceptors must also have no less than one consecutive year of active patient care as a licensed paramedic with the McHenry Western Lake County or Greater Elgin Area EMS systems.

Preceptors shall conduct themselves as professional EMS providers in strict compliance with all applicable policies/procedures, state and federal laws, and in a manner which is equally focused on individual student success and overall success of the program.

Assessment of student performance shall be objective and compliant with assessment rubrics. Assessments and evaluations should be submitted promptly upon conclusion of each clinical opportunity. Preceptors shall communicate their assessment of student competency to the student's lead preceptor, adjunct instructors, and appropriate EMS coordinator.



## Paramedic Program Organizational Chart

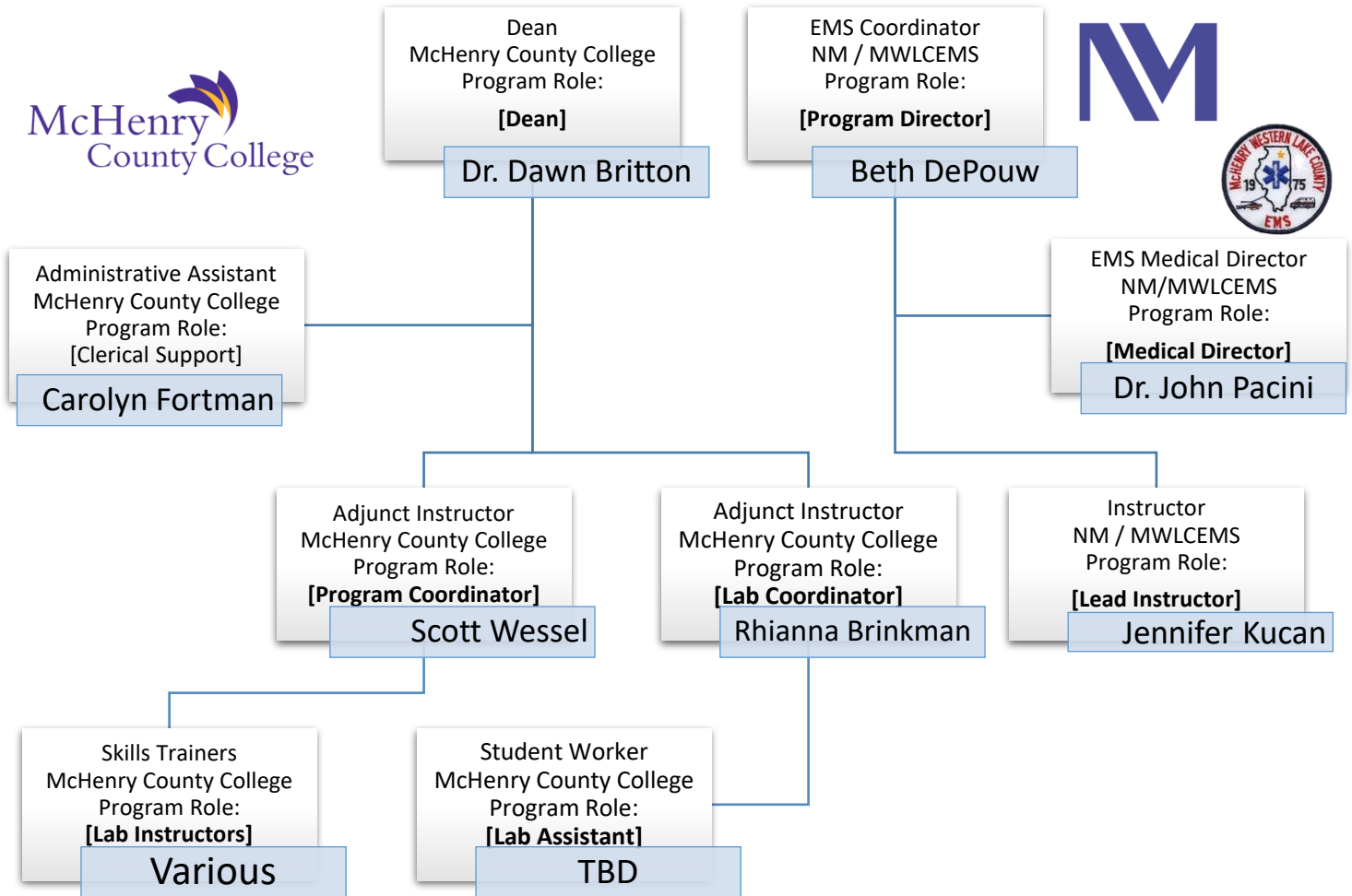
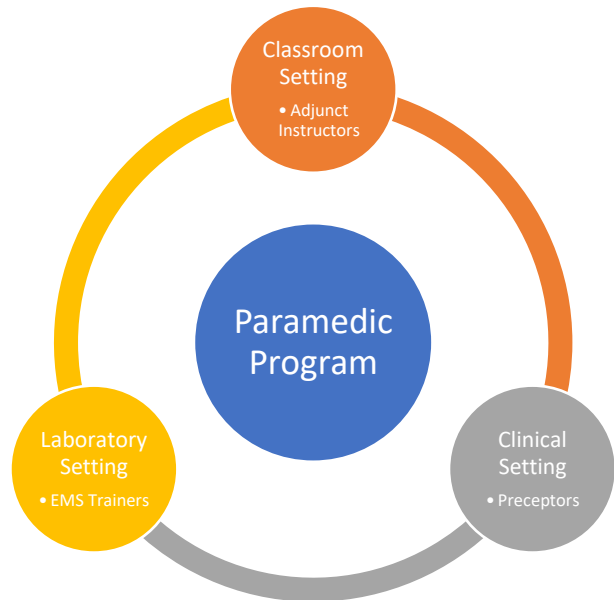


Figure 1: McHenry County College Paramedic Program Organizational Chart, March, 2024

## Educational Settings

Students will receive education and content reinforcement in three separate settings throughout the paramedic program – classroom, laboratory, and clinical. Each of the educational settings are designed to complement the others with scaffolding of learning objectives in the cognitive, psychomotor, and affective learning domains. As illustrated in the image to the right, the paramedic program relies on educational influence from all three settings in order to provide a well-rounded experience.



*Figure 2: Visual representation of the various academic settings within the paramedic program.*

**Classroom Setting:** The classroom introduces specific learning objectives focused in the cognitive and affective domains. The content is evaluated through a series of cognitive examinations and affective performance evaluations.

**Laboratory Setting:** The laboratory setting teaches psychomotor skills in a controlled classroom-based environment, most often augmented with low and high-fidelity manikins and other training aids. Students must demonstrate entry-level competency of all ALS skills in the laboratory setting prior to performing these skills in the clinical setting.

**Clinical Setting:** The clinical setting is designed to provide students with a supervised and structured opportunity to practice skills and apply knowledge in real-world patient interactions. The learning which takes place in the clinical setting is arguably the most valuable and influential throughout the student's paramedic education.

## Pedagogy

At McHenry County College, “Our focus is learning. Student success is our goal.” Skills trainers and preceptors are implored to engage in the college’s mission as part of their role within the program. The focus on learning is especially important. Pedagogy, the method and practice of teaching, targets three primary learning domains: cognitive, psychomotor, and effective. Learning objectives are based in one or more domains and students are evaluated throughout the course in each of the three domains. The evolution of learning in all three domains is characterized by Bloom’s Taxonomy, a framework created by Benjamin Bloom and others in the 1950s. With minor revisions since the original publishing, Bloom’s Taxonomy is still widely applied today.

Bloom’s Taxonomy is frequently represented by a pyramid, signifying the importance of establishing a firm foundation prior to building the next layer. This progression of learning has proven useful to educators for more than 70 years when developing curriculum, learning objectives, and assessments.

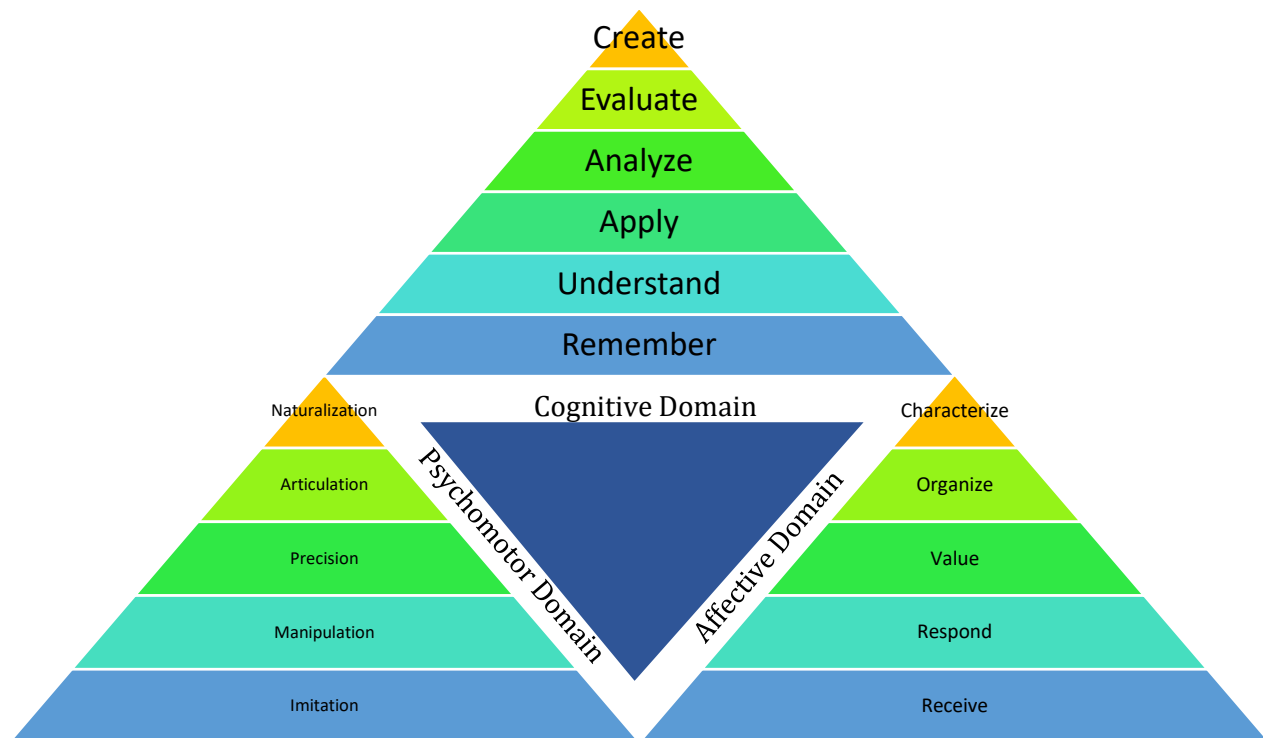


Figure 3: Bloom's Taxonomy for the cognitive, psychomotor, and affective domains.

More detail on each level for each domain is provided in the table on the following page. Please note that the table is listed in descending order, where level 1, the base of the pyramid, is listed at the top of the table.

## Bloom's Taxonomy

| Level | Cognitive Domain  | Psychomotor Domain  | Affective Domain  |
|-------|---|---|---|
| 1     | <p><b>Remember</b></p> <p>Remembering occurs when a learner recognizes or recalls previous knowledge from memory.</p>   | <p><b>Imitation</b></p> <p>Imitation occurs as students repeat and mimic demonstrations given by an instructor.</p>   | <p><b>Receive</b></p> <p>Receiving occurs as the student acquires awareness of the value or importance of learning information and expresses a willingness to learn.</p>                |
| 2     | <p><b>Understand</b></p> <p>Understanding occurs when a learner constructs meaning from differing types of functions such as interpretations, summaries, and/or written messages.</p>   | <p><b>Manipulation</b></p> <p>Manipulation occurs as students practice the skill and begin to create their own styles of performance.</p>                                 | <p><b>Respond</b></p> <p>Responding expands on Level 1 as the student actively participates in the learning process and begins to consider the concept further.</p>                     |
| 3     | <p><b>Apply</b></p> <p>Applying is shown by a student when learned material is used in new or differing situations, or the application of knowledge is demonstrated.</p>  | <p><b>Precision</b></p> <p>Precision is the point at which the skill should be performed without mistakes.</p>  | <p><b>Value</b></p> <p>Valuing is the level in which the student individually perceives that the behavior has worth or value.</p>   |
| 4     | <p><b>Analyze</b></p> <p>Analyzing requires the student be able to break down whole concepts into individual, smaller parts to analyze their meaning, assess their relationships to each other and the larger concept, and understand their importance.</p> | <p><b>Articulation</b></p> <p>Articulation occurs when students become adept, demonstrate competence, and add their own style or finesse when they perform the skill.</p> | <p><b>Organize</b></p> <p>Organizing integrates new, refined, or different beliefs into the student's existing value systems and reconciles difference between old and new beliefs.</p> |
| 5     | <p><b>Evaluate</b></p> <p>Evaluating occurs when a learner can make judgments based on previous learning of standards or other criteria.</p>  | <p><b>Naturalization</b></p> <p>Naturalization is the mastery level of skill performance.</p>   | <p><b>Characterize</b></p> <p>Characterizing is the most sophisticated level in the affective domain. It requires the development of one's own value system that governs behavior.</p>  |
| 6     | <p><b>Create</b></p> <p>Creating occurs when a learner puts the elements together to form a new logical pattern, structure, or concept.</p>   | <p>N/A</p>  | <p>N/A</p>  |

Figure 4: Bloom's Taxonomy. (Bloom, 1956/2001)

**Cognitive Domain:** The cognitive learning domain focuses on knowledge. Specifically, the cognitive domain includes a student’s ability to remember, apply, and evaluate their knowledge in a particular topic. In addition to the cognitive process dimension listed in the table above, the cognitive domain also includes a knowledge dimension. Said simply, the cognitive process dimension illustrates the learning process while the knowledge dimension covers the types of knowledge learned.

| Bloom’s Taxonomy:<br>Cognitive Domain |                         | Cognitive Process Dimension   |            |       |         |          |        |
|---------------------------------------|-------------------------|---|------------|-------|---------|----------|--------|
|                                       |                         | Remember  | Understand | Apply | Analyze | Evaluate | Create |
| Knowledge Dimension                   | Factual Knowledge       | The factual dimension includes the basic factual knowledge a learner must retain. This knowledge is typically derived from objective sources and includes items such as terminology, scientific facts, and other indisputable facts.                  |            |       |         |          |        |
|                                       | Conceptual Knowledge    | The conceptual dimension pertains to relationships among various concepts and how those relationships work together.  |            |       |         |          |        |
|                                       | Procedural Knowledge    | The procedural dimension relies upon a learner’s ability to retain knowledge derived from a specific process or algorithm.  |            |       |         |          |        |
|                                       | Metacognitive Knowledge | The metacognitive dimension represents a learner’s self-awareness and desire to expand their knowledge base. It relies upon a learner’s ability to evaluate existing knowledge, identify gaps, and create new learning processes to expand knowledge. |            |       |         |          |        |

Figure 5: Bloom’s Taxonomy of the cognitive domain.

**Example:** Consider the concept of oxygen delivery and how it can be extrapolated across the two-dimensional cognitive domain.

| Cognitive Process Dimension |   | Knowledge Dimension            |  |
|-----------------------------|---|--------------------------------|--|
| <b>Remember</b>             | SpO2 levels should be maintained equal to or greater than 94%. SpO2 readings of 90%-94% = mild hypoxia, 85%-89% = moderate hypoxia, less than 85% = severe hypoxia.   | <b>Factual Knowledge</b>       | Oxygen is required for aerobic metabolism. Decreased oxygen levels will result in ischemia to the tissues of the body.   |
| <b>Understand</b>           | A patient with an SpO2 of 91% may be presenting with hypoxia due to respiratory distress.   | <b>Conceptual Knowledge</b>    | Respiratory function is primarily influenced by EtCO2 levels. Increased EtCO2 is frequently associated with decreased SpO2 and triggers an increase in respiratory rate.   |
| <b>Apply</b>                | A patient with an SpO2 of 91% requires supplemental oxygen delivery to increase SpO2 levels.  |                                |  |
| <b>Analyze</b>              | Decreased SpO2 levels signify hypoxia which may be attributed to decreased capillary respiration, inadequate tidal volume, or anatomical obstruction such as bronchospasm.  | <b>Procedural Knowledge</b>    | When applying a non-rebreather mask, inflate the reservoir bag prior to placing the mask on the patient. The oxygen flow rate should be set to a rate sufficient to prevent collapse of the reservoir bag following inspiration. |
| <b>Evaluate</b>             | Hypoxia may be the primary stimulant for respiratory function in COPD patients. Aggressive oxygen therapy may be harmful to certain patients based on existing medical conditions.  | <b>Metacognitive Knowledge</b> | Based on a desire to better understand the relationship between oxygenation and carbon dioxide production, the learner performs research and attends a professional development class for respiratory care.                      |
| <b>Create</b>               | Administration of oxygen to ischemic patients experiencing a cardiac or cerebral event may result in the creation of free radicals which will cause further damage to ischemic tissue following reperfusion. Oxygenation must be carefully balanced in these circumstances. |                                |  |

Figure 6: Concept application using the two-dimensional cognitive domain.

**Psychomotor Domain:** The psychomotor domain is the domain most EMS providers are familiar with. This domain of learning focuses on the performance of specific skills and is frequently referred to as hands-on learning. This domain is frequently preferred by students. Effective instruction in the psychomotor domain includes a tiered approach to skill development. Bloom has identified 5 levels within this domain: imitation, manipulation, precision, articulation, and naturalization.

| Domain Level   | Program Setting                   |
|----------------|-----------------------------------|
| Imitation      | Laboratory: Teaching Lab          |
| Manipulation   | Laboratory: Intervention Lab      |
| Precision      | Laboratory: Testing Lab           |
| Articulation   | Prehospital Clinical (Field Time) |
| Naturalization | Hospital Clinical                 |

Figure 7: Psychomotor domain incorporation into program settings.

Each level of the psychomotor domain is incorporated into the laboratory setting of the program. Skill trainers introduce skills through demonstration and basic instructions. Students are given an opportunity to practice the skill immediately following demonstration, allowing for imitation of what they just

observed. Through repetition, students begin to develop a more fluid approach to performing the skill and learn methods which work best for them. Prior to being released to perform a skill on a live patient, students must demonstrate precision of the skill during a formal assessment in the laboratory setting. After a student has demonstrated precision, students progress through the articulation and naturalization levels as they continue to perform the skill in the field.

The structure and scheduled of the McHenry County College paramedic program supports this natural progression by introducing skills early in the program, allowing students to practice and refine each skill throughout the remainder of their education.

**Affective Domain:** The affective domain is perhaps the most challenging domain to teach and assess. Similarly, students struggle to understand performance expectations for this domain. The affective domain targets a student’s feelings, emotions, and values. It can most often be associated with healthcare ethics and the ability for a student to discern right from wrong. Due to the highly subjective nature of this domain, teaching and assessment must be well-defined and purposeful. Bloom has identified 5 levels of the affective domain: receive, respond, value, organize, and characterize.

Most likely, students will progress through the levels of the affective domain gradually throughout the program. In some circumstances, a student may not achieve level 6, characterize, until a point later in their career. Within the program, students are assessed primarily on levels 1-3 to establish minimum competency.

**Example:** The recent attention given to mental health of healthcare providers is a fantastic example of how an idea or concept may traverse each level of the affective domain. For decades, EMS providers considered themselves “hardened” by the traumatic experiences of their career. Many seasoned providers would preach the importance of mental toughness and the requirement to ignore occupational stressors. Today, understanding of mental health is evolving and the stigma associated with it is dissipating. Consider how this concept may evolve in the mind of a “hardened” healthcare provider.

| Level        | Concept Evolution   |
|--------------|---|
| Receive      | “I think mental health is just an excuse for somebody who can’t do the job. However, I’ll at least take the time to hear them out.”   |
| Respond      | “Huh. Our bodies are exposed to increased cortisol levels throughout the shift and even after our shift ends? I wonder if that has anything to do with my insomnia?”  |
| Value        | “Ok. I suppose there is some merit to the ideas surrounding mental health. I’m not entirely sold, but I can be supportive of others.”   |
| Organize     | “I guess being tough means being comfortable enough to ask for help and admit when something bothers me. I bet improving my diet and exercising regularly will benefit my mental health as well.”   |
| Characterize | “I wish I would have known more about mental health earlier in my career. I really think a heightened awareness would have made a positive impact in my life. I’m going to start teaching and mentoring the new people about how important this topic really is.” |

Figure 8: Concept application in the affective domain.

### Interrelationships of Learning Domains

Each of the three learning domains exist individually but interact with each other throughout a student’s education. Many concepts fall equally into all three domains. For instance, patient assessment has a heavy presence in each domain. A student must remember the steps of patient assessment while understanding when to perform an assessment, both of which fall into the cognitive domain. Simultaneously, the process of performing a physical assessment, including spinal assessment, listening to lung sounds, and palpating the abdomen are all skills found in the psychomotor domain. Lastly, students must

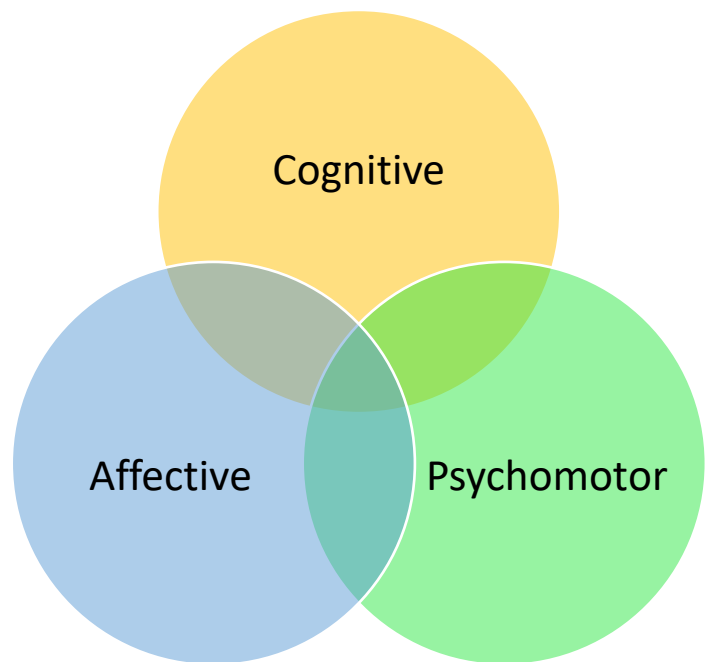


Figure 9: Interrelationship of the learning domains.



value the importance of a comprehensive evaluation, even when the patient’s complaint may not match their presentation. The commitment to professionalism and thorough patient care are represented within the affective domain. Unfortunately, for some learners, an adverse outcome as a result of a poor patient assessment may be the driving force to reach the final levels in any domain. As much as we, as educators, want students to listen to, and trust us, some people learn best from their mistakes. For this reason, as educators, we must ensure clear and concise instruction, but also embrace mistakes as learning opportunities. A well-executed debrief following a patient interaction may be equally valuable to a student’s education as any classroom presentation.

## Knowledge Sharing

Knowledge sharing is the core purpose for preceptors and skill trainers. As subject matter experts with years of experience, the ability to share knowledge with students is fundamental to the growth and development of future prehospital providers. What many people fail to recognize are the differences in the ways that knowledge is shared. For instance, the differences between training and teaching are often overlooked. Training is rooted in the psychomotor domain and focuses on actions. Teaching, on the other hand, is the process of educating. Providing education is a much broader approach to knowledge sharing, where the intent is to instill understanding of broad topics. Teaching occurs mostly in the cognitive and affective domains. Yet, despite those differences, teaching and training can occur simultaneously in many circumstances. The important thing to understand is that one is not a substitute for the other. For EMS providers, effective teaching and training practices must be implemented in order for student competency to develop.

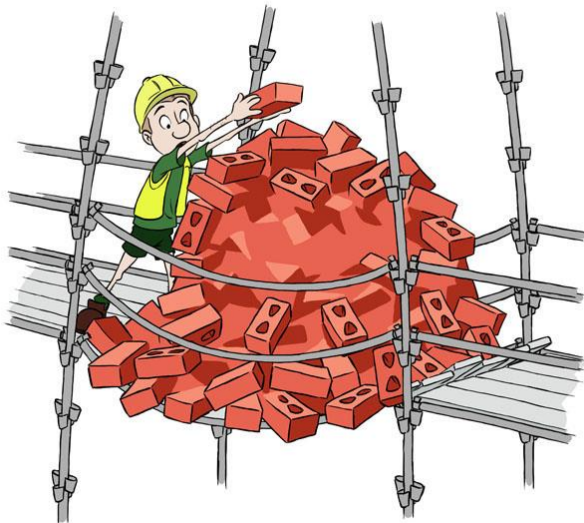


Figure 10: Overloaded scaffolding. (c) Richard Bailey.

Training and teaching are often implemented into a scaffolding plan. Scaffolding is the process of introducing new concepts based upon concepts already learned. Similar to scaffolding built on a construction site, the first layer must be assembled and secured prior to building the second level. The same applies for the third level and so on. Effective scaffolding requires clearcut learning objectives which must be communicated to the skills trainers and preceptors; and in return, the skills trainers and preceptors must remain within the confines of the objectives. A skills trainer that introduces a complex or abstract idea during a laboratory experience designed to introduce basic skills may create confusion and disrupt the scaffolding process. Preceptors that teach shortcuts or “trade secrets” during


Module I may place too much emphasis on higher orders of thinking prior to the establishment of a foundation of core knowledge. When higher order thinking (upper levels of scaffolding) are introduced before the lower levels are secured, the potential for collapse is created.





Figure 11: Instructors provide various types of education and training in the classroom and laboratory environment. Examples include class lecture, small group discussions, and hands-on practice.

The paramedic program at McHenry County College implements scaffolding theories throughout the entire program. Understanding of this methodology is imperative to ensure consistent and targeted education from all program affiliates. Take a look at the many ways education is scaffolded.

| Scaffold Level      | Curriculum   | Exams  | Labs  |
|---------------------|--|--|---|
| 4                   | Mod IV<br>Field Internship   | Final Cumulative Exam<br>Assesses knowledge /<br>understanding of entire<br>curriculum   | Clinical Authorization<br>Practice / refine skills in<br>clinical setting |
| 3                   | Mod III<br>Special Populations   | Module Final Exam<br>Assesses knowledge /<br>understanding of module specific<br>content | Testing Lab<br>Minimum competency<br>assessment                           |
| 2                   | Mod II<br>Medical Emergencies<br>Trauma Emergencies  | Unit Exam<br>Assesses knowledge /<br>understanding of specific<br>content                | Intervention Lab<br>Scenario-based skill<br>application (when/why)        |
| 1<br>(Ground Floor) |  Mod I<br>Cardiology<br>Breathing / Pulmonology<br>Airway<br>Patient Assessment<br>Pharmacology<br>Pathophysiology<br>Introductory Topics | Pre-Quiz<br>Completed after reading but<br>before classroom discussion                   | Teaching Lab<br>Individual skill introduction<br>(how)                    |

## EMS Across Generations

EMS providers span four distinct generations. These generations are as diverse as they come, considering the immense technological advancements that have occurred over the past several decades. As technology changed, the EMS profession evolved, and the public demand on prehospital services increased. As a result, each generation has adapted to the tools and resources available at that time, which ultimately influenced learner characteristics for each generation.

Effective educators, trainers, and preceptors will identify the unique needs and challenges of each student and adapt, to the extent possible, the methods by which information is shared and expectations are communicated. Although there are plenty of communication models which classify effective communication methods based on generation, the truth is, each person is unique in their preferences and what works best for them. When working in small groups, such as skills labs in the classroom, trainers should introduce key ideas in multiple ways in order to appeal to various learner characteristics. For preceptors engaged in 1:1 interaction, simply have a conversation with the preceptee to discuss communication preferences for both parties. Remember, the role of a skills trainer and preceptor is not that of authoritarian, but of an educator and mentor. The old mentality of it's my way or the highway is ineffective and harmful to the learning environment.

**“The old mentality of it’s my way or the highway is ineffective and harmful to the learning environment.”**

## Teaching Strategies

There are many different ways to share information in an educational environment. The effectiveness of each style is dependent upon several factors, including but not limited to, audience, content complexity, environment, and the strengths of the educator.

*Teacher-centered learning* is very effective as new information is being presented to students. This includes classroom lecture and teaching labs. This strategy places the teacher, along with their knowledge and experiences, at the center of learning. The teacher shares information and the students listen, with limited opportunities for engagement. However, this strategy does not offer many opportunities to assess student understanding.



Figure 12: Teacher-centered learning



Figure 13: Student-centered learning

**Student-centered learning**, alternatively, places the student at the center of the learning environment. Using this strategy allows teachers to engage students and encourage higher order thinking through questioning and challenging, while offering the student a greater sense of accomplishment and satisfaction. Scenario-based learning is one of the primary student-centered learning strategies implemented in the paramedic program. Students are presented with limited information and must engage problem-solving skills, critical thinking, and teamwork.

Each of the strategies listed above can backfire if not utilized appropriately. Educators must be clear in their role and adhere to the framework of the lesson. Frequently, educators can become absorbed in sharing personal experiences, presenting their opinions, or tailoring the lesson to their personal strengths while avoiding areas of weakness. During teacher-centered learning, an educator who is tasked with teaching procedures for completing a neurological assessment will likely focus on concepts they are most familiar with, leaving knowledge gaps where the instructor is unfamiliar or lacks confidence in a particular topic. Therefore, educators must be confident in the topics they teach. This may require review of material prior to instruction or recruitment of a subject matter expert to teach the content.

Similarly, during lessons where student-centered learning is targeted, instructors tend to try and teach rather than allow students to work through problems on their own. Allowing a sufficient wait time is crucial in these situations. Students may need extended periods of time to process a concept and develop a response. Educators must be patient, thereby encouraging students to engage in critical thinking.

## Learning Styles

Learning styles are categorizations of ways in which a student processes information. These styles, however, do not exist in a vacuum. The efficacy of learning styles may be influenced by outside factors, such as the environment, emotion, social influences, and more. Additionally, combined uses of multiple learning styles tend to have a compounding effect on learning. When possible, educators should combine learning styles in order to stimulate multiple senses. Review Figure 14 on the next page to see how engaging multiple senses has a compounding effect on learning.

As evidenced by data purported by the National Association of Educators (2020), engaging multiple senses can derive greater results in learning. Figure 14 also illustrates the benefits scaffolding techniques incorporated into the paramedic program.

Reading assignments are required prior to the day in which content will be discussed in class. Concurrent with the reading are pre-quizzes which assess core knowledge. During classroom presentation, students hear the instructor present the material while simultaneously seeing key ideas reinforced through

PowerPoint or other visual aids. Teaching labs provide students with auditory and visual instruction as skills are taught and demonstrated. Intervention labs then reinforce key ideas through small group scenario-based student-centered learning. During intervention labs, students must perform skills, verbalize their differential diagnosis and discuss appropriate treatment plans (saying and doing).

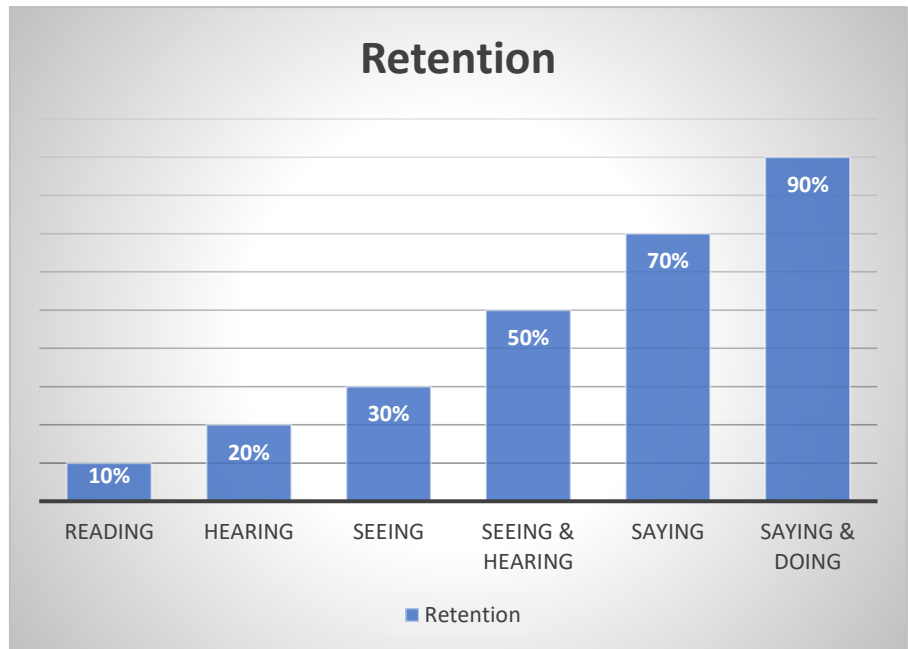


Figure 14: Information retention based on sensory stimulation. National Association of Educators (2020).

### Auditory

Students who consider themselves auditory learners tend to prefer listening to presentations, audio books, and listening to discussion. These students may not take notes, but rather, ask questions or repeat information back to confirm understanding.

### Visual

Visual learners want to see what they are supposed to be learning. By visualizing procedures, diagrams, images, and other visual aids the learner is able to better process. These students will frequently take notes to visualize what they are hearing.

### Kinesthetic/Tactile

Kinesthetic learners retain information best through physical movement and touch (tactile stimulation). These students will prefer laboratory-based learning and clinical experiences. In some cases, a kinesthetic learner may not fully retain a concept until given an opportunity to practice it. For this reason, summative assessments should not occur until after concepts have been introduced in the classroom and practice in the laboratory setting.

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## Student Engagement

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John Medina, as cited by the National Association of EMS Educators (2020), “asserts that emotions are useful in the learning process because they make the brain pay attention.” Perhaps the most important characteristic of a preceptor or educator is that of empathy. ***“The feeling that the instructor cares is a major factor in motivation and retention of learning.”***

### Mentorship in Education and Training

Adjunct instructors, skills trainers, and preceptors all provide valuable insight into a student’s educational experience. However, the value each person plays in mentoring a student should not be understated. “Mentoring involves a willingness to inspire, motivate, and empower students to value learning” (National Association of EMS Educators (NAEMSE), 2020). As mentors, preceptors and skills trainers must model professional and ethical behaviors commensurate with the EMS profession. Doing so allows the mentor to set expectations and provide guidance to meet those expectations. Modeling expected behaviors also created trust between the mentee and mentor which facilitates better learning and successful outcomes.

Mentorship within the EMS profession is especially important because few outside of the career understand the trials and tribulations experienced in providing emergency care during high stress incidents. Similarly, the stressors associated with a paramedic program weigh heavily on students and must be managed to reduce the likelihood of burnout. The empathy and compassion a fellow EMS provider offers can be the difference between success and failure for the student. With this in mind, managers should be critical when assigning a preceptor to a student. Personality traits, learner characteristics, generational differences, communication styles, experience, education, and more should be considered to ensure that the preceptor-preceptee relationship is productive and mutually advantageous.

Successful mentors will also remain aware of personal limitations and professional constraints within the preceptor – preceptee relationship. From time-to-time students needs assistance beyond the expertise of the mentor. Mentors should avoid providing guidance in areas beyond their area of expertise or comfort level. Instead, mentors should maintain a list of alternative resources which can be referred to the student. McHenry County College offers a host of resources to support student success. Visit the link below to review some of the resources offered by MCC. Additionally, many employers offer an employee assistance program (EAP) which may be useful for students experiencing psychological complications related to the stress of being a paramedic student.

Student Resources: <https://www.mchenry.edu/currentstudents/index.html>

## Student Assessment, Feedback, and Remediation

To this point the focus has been on teaching, training, and mentoring. Equally important to each of those focuses is student assessment. Student performance and capabilities must be assessed routinely to ensure competency at the conclusion of the program. Different types of assessment occur periodically, which involve varying levels of expectations. Trainers and preceptors must be familiar with these assessment standards to ensure consistent expectations in the classroom, laboratory, and clinical settings. Additionally, proper use of common terminology is imperative.

*Formative assessments* occur throughout each module. The purpose of formative assessments is to identify potential knowledge or capability gaps and to provide necessary remediation or additional education in order to meet performance benchmarks that have been established. Formative assessments occur routinely in an informal manner, whereby instructors and trainers make general observations regarding student knowledge, understanding, and appropriate application of course materials. These informal assessments are useful in providing immediate feedback to students which provides recommendations for improvement. Most commonly, informal formative assessments occur during teaching and intervention labs.

Formative assessments also occur in a formal capacity. This occurs using in-class quizzes, written exams, and during skills testing labs. This formal assessment typically includes a specific rubric that students are evaluated against, defining specific standards for competency. Students that fail to meet minimum standards during formal formative assessments are remediated, where they are provided with specific areas of deficiency. Ideally, students that fail to meet performance standards are counseled by an adjunct instructor to develop a performance improvement plan. Students that fail to meet performance standards during formal formative assessments are given an opportunity to retest.

*Summative assessments* are also used as part of a formal assessment process. Summative assessments occur at the conclusion of each module to establish minimum competency achievements for the material presented during the module. Summative assessments are high-stakes assessments, which are also high-stress events for students. It is imperative that trainers create a comfortable environment free of distraction. While all assessments should be structured and objective, summative assessments have strict standards by which to grade the student. Instructors must follow the assessment rubric without deviation.

*Competency:* When a student demonstrates competency, they have proven that they can perform a task or have retained sufficient knowledge to meet the benchmark standard that has been established. This benchmark varies depending on the student's progress in the program. For written examinations, defining competency is relatively simple by establishing a minimum passing score. However, even that is more complex than many realize. For skills trainers and preceptors, competency will traditionally be



evaluated in the laboratory and clinical environments where students must be able to articulate knowledge and understanding while being able to apply that knowledge to determine appropriate actions. Finally, the student must be able to demonstrate proper execution of various skills. Competency standards for each module are provided below.

Notice the absence of the word “proficient” in the preceding section. *Proficiency* is defined as having a high degree of competence or expertise. Most students will not become proficient during class. For many EMS providers, proficiency comes following years of experience and practice in the profession. Argument can be made that nobody ever truly becomes proficient in EMS due to constantly evolving science, changing best-practice standards, and new service models. Proficiency requires persistent dedication to excellence. As a result, proficiency is rarely used when assessing student performance.

|                | <b>Formative Assessments</b>  | <b>Summative Assessments</b>   |
|----------------|---|--|
| <b>Mod I</b>   | <b>Competency Standard: Low</b><br>Laboratory and clinical assessments that occur during the module have a low standard for competency. Students are still fine-tuning new skills and learning new content in the classroom.  | <b>Competency Standard: Moderate</b><br>The summative assessment for each module exists in the form of the final written examination and final skills testing. Students must demonstrate a moderate level of competency for content introduced during the current module as skills become more natural and new knowledge is applied.   |
| <b>Mod II</b>  | <b>Competency Standard: Low-Moderate</b><br>New content introduced during the module has a low standard for competency. Students are still fine-tuning new skills and learning new content in the classroom. Content carrying over from the previous module has a higher standard for competency.   | <b>Competency Standard: Moderate-High</b><br>The summative assessment for each module exists in the form of the final written examination and final skills testing. Students must demonstrate a moderate level of competency for content introduced during the current module as skills become more natural and new knowledge is applied. Competency standards are higher for content introduced during the previous module. |
| <b>Mod III</b> | <b>Competency Standard: Low-Moderate</b><br>New content introduced during the module has a low standard for competency. Students are still fine-tuning new skills and learning new content in the classroom. Content carrying over from the previous module has a higher standard for competency.   | <b>Competency Standard: Moderate-High</b><br>The summative assessment for each module exists in the form of the final written examination and final skills testing. Students must demonstrate a moderate level of competency for content introduced during the current module as skills become more natural and new knowledge is applied. Competency standards are higher for content introduced during the previous module. |
| <b>Mod IV</b>  | <b>Competency Standard: High</b><br>Students are formally assessed in writing following every call. Opportunities for improvement are identified and expected to be implemented without delay. Students should be capable of performing all psychomotor skills within their scope of practice with a high degree of precision. Students should be able to establish a differential diagnosis and properly apply standing medical orders in developing appropriate patient care plans. | <b>Competency Standard: High</b><br>The final competency assessment is performed by the student’s preceptor and endorsed by the agency’s EMS coordinator. Students must demonstrate a high degree of competency as an entry-level paramedic who demonstrates independent thought, strong leadership, and assertive decision-making capabilities.   |

Figure 15: Competency standards for student assessments.

## Feedback

Just as assessments, feedback is designed to be informal and formal. There are various types of feedback provided to students throughout the program. The quality, frequency, and purpose for the feedback has a direct impact on the student's performance. Providing effective feedback, second only to quality education, is the primary purpose of instructors, trainers, preceptors, and supervising paramedics. Feedback can be positive, negative, or both, and should be timely, specific, direct, and unbiased.

*Informal feedback* occurs continuously and may take the form of spoken language or body language. A simple smile or thumbs-up is valuable informal feedback which reassures the student that they are performing appropriately. Informal feedback should occur during formative periods of a student's education. While most informal feedback is provided instinctively and adlibbed, it may be appropriate to document informal feedback as well. Supervisors may make notes about discussions they had with a student, expectations that were set, opportunities for improvement, or observations of exceptional performance. These notes can become useful to ensure objectivity when providing formal feedback.

*Formal feedback* includes written evaluations, grading rubrics, performance improvement plans, disciplinary actions, and more. Formal feedback occurs periodically and will most likely become part of the student's educational record. Typically, formal feedback occurs for the purpose of documenting specific performance achievements or deficiencies. Formal feedback occurs as frequently as needed, and may compliment informal feedback, such as documentation of a counseling session, recommendations for improvement following remediation, or written verification that a student met a specific performance benchmark.

Both informal and formal feedback must be timely and should occur when the feedback has the greatest potential for good. If, during a patient care interaction, a student is about to perform a skill that can be harmful to the patient, feedback must be immediate so as to prevent harm. Conversely, providing "advice" to a student, such as a more constructive approach to patient assessment, may be best delivered following the conclusion of the patient interaction, when the memory is fresh but without embarrassment to the student. In the laboratory setting, feedback may include ongoing dialogue as a student practices a particular skill, or it may be reserved until the conclusion of a testing scenario. Knowing when and how to provide feedback is vital in student learning.

In addition to being timely, feedback should be specific. Whenever possible, specific examples of positive and negative conduct should be provided. Simply saying, "you're doing good" lacks specificity by which the student can identify behaviors to repeat and build upon. Although an overall interaction may go well, it is important to distinguish between behaviors to repeat and behaviors that can be improved. The more specific feedback is, the higher the likelihood of improved performance moving forward.



Complimentary to specific feedback is direct feedback. When identifying strengths and weaknesses, the feedback should be provided directly to the student from the individual assessing student performance. A preceptor may complete an online evaluation immediately following a prehospital clinical shift that provides specific examples of positive and negative behaviors. While this evaluation meets the timely and specific standards for feedback, it is not direct. Feedback is most valuable when provided, face-to-face between the student and first-party observers. From time-to-time this results in uncomfortable or difficult interactions, especially when negative feedback is being provided. As challenging as this may be, it is an absolute expectations of all persons involved in the student's educational journey.

Lastly, feedback should be unbiased. Many evaluators tend to compare student performance to the performance of other students. This is inappropriate. Further, it can be challenging to separate personal expectations from universally adopted expectations for student performance in EMS. Frequently, experienced prehospital providers desire to challenge the student to a higher standard. While challenging students to think critically and operate well under pressure can be complimentary to the educational experience, students must only be evaluated on the established performance standards which have been created and approved by subject matter experts in education and emergency medical services. These standards are developed independent of gender, race, religion, socioeconomic status, or other discriminatory factors, with the understanding that they will be applied equally to all students.

## Remediation

When gaps in knowledge, understanding, or application of key ideas are identified, it becomes necessary to retrain or reteach the student. Note that these deficiencies may exist in the cognitive, psychomotor, or affective domain. The program, in cooperation with MCC student resources, is responsible for student remediation. If a skill trainer or preceptor is concerned about student performance, communication with program instructional staff should be prioritized.

Typical remediation practices include the development of a performance improvement plan which identifies areas of deficiency and outlines clear expectations for improvement. Both skill trainers and preceptors may be party to the performance improvement plan if tasked to provide supplemental training, mentorship, coaching, and follow-up assessments.

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## Summary

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Administration of an accredited paramedic program requires collaboration among multiple stakeholders. Together, the program can achieve its mission to educate, prepare, validate, and support our students to ensure future delivery of quality and competent prehospital patient care.

The role that skills trainers and preceptors play is integral to student success and the success of the program. As representatives of the program and its mission, trainers and preceptors must conduct themselves professionally as model EMS practitioners. Doing so includes maintaining current knowledge of EMS practices, understanding of pedagogical techniques, and conducting fair, unbiased assessments of student performance.

Together, program administrators, adjunct instructors, skill trainers, EMS coordinators, preceptors, and supervising paramedics can advance the quality of EMS education and prehospital care throughout McHenry and its surrounding counties.

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## References

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National Association of EMS Educators. (2020). *Foundations of education: An EMS approach* (3<sup>rd</sup> Ed.). Jones and Bartlett Learning.