

**Paramedic Education Program
Assessment Report
2009 - 2010**

Introduction

The Paramedic Education Program was established in 1977 at Oregon Health & Science University. A collaborative program with Oregon Institute of Technology was initiated in 2001. The program offers an Associate of Applied Science degree in Emergency Medical Technology-Paramedic and is nationally accredited by the Committee on Accreditation of Educational Programs for the Emergency Medical Services Profession (CoAEMSP), a specialized accrediting body recognized by the Council for Higher Education Accreditation and/or the Secretary of the U.S. Department of Education. The program is located in Portland.

The fall 2009 enrollment is 32 students, which is an increase in class size for the program. In August of 2009 the program graduated a class of 26 students. Career Services data indicates that the latest average salary rate for graduates (as of 2006) was \$43,667.

Program Educational Purpose, Objectives, and Student Learning Outcomes

In August of 2006, the department reviewed the program purpose, objectives and outcomes. The department will continue to review these items on a yearly basis per their national accrediting body.

OHSU-OIT Paramedic Education Program Purpose

The purpose of the Oregon Health & Science University/ Oregon Institute of Technology Paramedic Education Program is to educate pre-hospital care providers; to prepare EMS leaders of the future; and to enhance the delivery of health care in the out-of-hospital setting.

Educational Objectives

The educational objectives of the program are to prepare students to:

1. Demonstrate personal behaviors consistent with professional and employer expectations of an entry level Paramedic.
2. Demonstrate technical proficiency in all of the skills necessary to fulfill the role of an entry-level Paramedic.
3. Comprehend, apply, and evaluate information relative to the role of an entry-level Paramedic.

Expected Learning Outcomes

Graduates of the program will demonstrate:

1. An understanding of EMS knowledge necessary to function in a healthcare setting
2. An understanding of general medical knowledge necessary to function in a healthcare setting
3. An ability to collect data from charts and patients
4. An ability to interpret patient data
5. An ability to recommend appropriate diagnostic and therapeutic procedures
6. An ability to use sound judgment while functioning in a healthcare setting
7. An ability to perform a broad range of clinical skills
8. An ability to perform patient assessment
9. An ability to perform approved therapeutic procedures and modalities
10. An ability to perform and interpret diagnostic procedures
11. An ability to communicate effectively in a healthcare setting
12. An ability to conduct oneself in an ethical and professional manner
13. An ability to manage time efficiently while functioning in a healthcare setting
14. An ability to use critical thinking skills to assess and treat patients in emergency settings

Cycle for Assessment of Student Learning Outcomes

The faculty of the program have established the cycle for assessment of student learning outcomes as shown in Table 1 below.

Four-year Cycle for Assessment

Learning Outcomes	07-08	08-09	09-10	10-11
1. An understanding of EMS knowledge necessary to function in a healthcare setting	F			F
2. An understanding of general medical knowledge necessary to function in a healthcare setting		W		
3. An ability to collect data from charts and patients		Su		
4. An ability to interpret patient data			SU	
5. An ability to recommend appropriate diagnostic and therapeutic procedures			S	
6. An ability to use sound judgment while functioning in a healthcare setting	Su			Su
7. An ability to perform a broad range of clinical skills			F	
8. An ability to perform patient assessment		F		
9. An ability to perform approved therapeutic procedures and modalities			W	
10. An ability to perform and interpret diagnostic procedures		S		
11. An ability to communicate effectively in a healthcare setting				W
12. An ability to conduct oneself in an ethical and professional manner	S			
13. An ability to manage time efficiently while functioning in a healthcare setting				S
14. An ability to use critical thinking skills to assess and treat patients in emergency settings	W			

Table 1. Cycle for Assessment of EMT Student Learning Outcomes

2009 - 2010 Assessment Activities

The program faculty conducted formal assessment of four student learning outcomes during the 2009 - 2010 academic year. These learning outcomes have been mapped to the curriculum, as shown in Appendix A.

Student Learning Outcome #4: An ability to interpret patient data.

During summer term paramedic students complete an externship working with an EMS agency on advanced life support ambulance. They are required to perform the duties of a paramedic under the direction of a paramedic preceptor. Prior to entering the externship phase of the program, a one on one instructor to student oral examination is conducted to assess student's readiness for field training.

The oral exam includes a section where each student is randomly given one of four patient scenarios. They are asked to verbalize how they would assess and treat the patient. The scenario requires the student to interpret the findings from the patient examination, vital signs, EKG rhythms, pulse oximetry, blood glucose monitoring and provide the appropriate patient treatments.

Each student was given a score of 3, 2, 1 or 0 based on their performance in each of the two categories. The two scores were added together for the students overall performance score. Students who received scores 2 and below were given feedback on their areas of weakness and retested by a different instructor at a later date. All students testing at the later date passed the evaluation and entered their externship with an EMS agency. Samples of the scenarios are shown in Appendix B.

Results:

Oral Patient Scenario Evaluation				
Patient Assessment & Management Criteria				
3	= Completed an organized assessment and integrated findings to expand further assessment			
2	= Completed initial, focused and ongoing assessments			
1	= Performed an incomplete or disorganized assessment			
0	= Did not complete an initial assessment			
Patient Management Scoring Criteria				
3	= Managed all aspects of the patient's condition and anticipated further needs			
2	= Appropriately managed the patient's presenting condition			
1	= Performed an incomplete or disorganized management			
0	= Did not manage life-threatening conditions			
Scores	6 - 5	4 - 3	2 - 1	0
Number / % student scores	9 (34.6%)	8 (30.7%)	7 (26.9%)	2 (0.076%)

Table 2. Oral Patient Scenario Evaluation Results, Spring 2010

The scoring criteria used are from the National Registry of Emergency Medical Technicians Advanced Level Practical Examination, Oral Station, 2000 version.

Student Learning Outcome #5: An ability to recommend appropriate diagnostic and therapeutic procedures

The EMS 236 Advanced Electrocardiography course teaches students to put the knowledge they gained during fall term’s basic electrocardiography course together with the appropriate assessment and treatment of patients. During the EMS 236 course final exam two questions were specifically written to identify the students ability to recognize a patient’s signs and symptoms, provided in a brief written description; correctly interpret an EKG strip provided with the patient description; and formulate a correct prehospital treatment plan for the patient. See Appendix C for questions and EKG strips.

Each student’s answers were given a grade of inadequate, adequate or proficient based on the following criteria.

- **Proficient** - Student properly identifies the patients underlying condition. The treatment described by the student includes all appropriate medications and procedures in the described situation.
- **Adequate** - Student properly identifies the patients underlying condition. The treatment described by the student either causes no harm to the patient or in addition benefits the patient minimally.
- **Inadequate** - Student misidentifies the patients underlying condition because of poor interpretation of the signs and symptoms given, including the EKG strip and/or treats the patient’s condition in a manner that would be detrimental to the patient.

Results:

Question	Proficient	Adequate	Inadequate
Question 1 (29 total students)	24 (82.7%)	1 (0.03%)	4 (17%)
Question 2 (29 total students)	21 (72%)	8 (18%)	0

Table 3. EMS 236 Final Exam Results, Fall 2009

Student Learning Outcome #7: An ability to perform a broad range of clinical skills

During the fall term students review the EMT-Basic skills and are introduced to the Paramedic skills. Skills are practiced during the weekly skills lab sessions. The mid-term skills examinations for EMS 271 Paramedic Skills Lab, part 1 included a practical exam where students demonstrate their ability to perform a variety of skills. Competency requires 80% accuracy with the exception of critical criteria which requires 100% accuracy for a passing score. Our intent for this assessment is to identify any specific categories within skills that may be weak. The National Registry Patient Assessment skills sheet is used as the examination instrument. See Appendix D for skills evaluation instrument.

Results:

Management of Bleeding and Shock		
Category and Points required for competency	Number / (%) of Students	
	Competent	Not competent
Performance on the required management procedures	29 / 90.7%	3 / 9.4%
Critical criteria performance	29 / 90.7%	3 / 9.4%
Management of An Apneic Patient		
Performance on the required management procedures	30 / 93.8%	2 / 6.2%
Critical criteria performance	30 / 93.8%	2 / 6.2%

Table 4. EMS 271 Practical Exam Results, Fall 2009

Student Learning Outcome #9: An ability to perform approved therapeutic procedures and modalities.

During the spring term the paramedic student were required to complete a two day Advanced Cardiac Life Support (ACLS) Course. The final day of the course includes a test of the students' ability to correctly recognize the patient's condition and perform the required therapeutic procedures. The instrument used to evaluate the critical performance steps has been established by the American Heart Association whose case scenarios and skills check sheet were used. Student performances were individually evaluated by a certified ACLS Instructor. The evaluation checklist can be found in Appendix E.

Results: Of the twenty-nine paramedic students, twenty-eight students were tested with twenty-seven passing without deficiencies. The twenty-eighth student received remedial training and subsequently passed retesting. The twenty-ninth student was absent and is scheduled to complete testing in May.

Evidence of Student Learning

Strengths: A review of the assessment results indicates that most students are able to achieve the desired outcomes in their first attempt. For those who do not pass on their first attempt, after remediation all students are successful. This pattern is repeated on the National Registry exam where the most recent graduates have first time pass rate of 100% compared to the national average of 71%.

Weaknesses: No programmatic weaknesses have been identified from the assessment results. Faculty expressed concern that the current 14 outcomes may not show appropriate evidence of student learning.

Actions: The paramedic faculty will reevaluate the program student learning outcomes in the fall making changes that will enhance the usefulness of the assessment data for programmatic improvement.

Appendix A

Student Learning Outcomes-Course Matrices

Courses that are shaded indicate that the SLO is taught in the course, students demonstrate skills or knowledge in the SLO, and students receive feedback on their performance.

I = Introduced

R = Reinforced

E = Emphasized

Student Learning Outcome #4: An ability to interpret patient data.

Table A1 demonstrates the mapping of this outcome to EMT courses.

Course	Fall	Winter	Spring	Summer
EMS 115				
EMS 200				
CHE 210				
EMS 218				
EMS 231				
EMS 235	I			
EMS 271	I			
EMS 211				
EMS 232				
EMS 236		R, E		
EMS 272		R, E		
EMS 281		R, E		
EMS 233				
EMS 282		R, E	E	
EMS 257				
EMS 290				E

Table A1. Student Learning Outcome #4-Course Matrix.

Student Learning Outcome #5: An ability to recommend appropriate diagnostic and therapeutic procedures. Table A2 demonstrates the mapping of this outcome to EMT courses.

Course	Fall	Winter	Spring	Summer
EMS 115				
EMS 200				
CHE 210				
EMS 218				
EMS 231	I			
EMS 235				
EMS 271				
EMS 211				
EMS 232		R, E		
EMS 236				
EMS 272				
EMS 281				
EMS 233				
EMS 282				
EMS 257				
EMS 290				

Table A2. Student Learning Outcome #5-Course Matrix.

Student Learning Outcome #7: An ability to perform a broad range of clinical skills.

Table A3 demonstrates the mapping of this outcome to EMT courses.

Course	Fall	Winter	Spring	Summer
EMS 115				
EMS 200				
CHE 210				
EMS 218				
EMS 231				
EMS 235				
EMS 271	I, E			
EMS 211				
EMS 232				
EMS 236				
EMS 272		R, E		
EMS 281		R, E		
EMS 233				
EMS 282			R, E	
EMS 257				
EMS 290				E

Table A3. Student Learning Outcome #7-Course Matrix.

Student Learning Outcome #9: An ability to perform approved therapeutic procedures and modalities.

Table A4 demonstrates the mapping of this outcome to EMT courses.

Course	Fall	Winter	Spring	Summer
EMS 115				
EMS 200				
CHE 210				
EMS 218				
EMS 231				
EMS 235	I			
EMS 271	I			
EMS 211				
EMS 232				
EMS 236		R, E		
EMS 272		R, E		
EMS 281		R, E		
EMS 233			R, E	
EMS 282		R,E	R, E	
EMS 257				
EMS 290				E

Table A4. Student Learning Outcome #9-Course Matrix.

Appendix B, SLO 4

Sample Scenarios

Scenario 1: Your patient is an 18 y/o male with chief complaint of SOB.

1. Verbally describe your patient assessment and physical examination.

***The student is evaluated on completions of the following:** Determines scene safety, nature of illness, general impression, LOC, Chief complaints & life threats, Airway & breathing, circulation, transport decision, episode onset/duration, medications, allergies, pertinent history, last oral intake, events leading to illness, vital signs baseline and repeated. The patient examination including head to toe assessment while treating urgent needs as found.*

***Findings given as assessed:** He can barely talk and has bilateral wheezes with severely diminished tidal volume He has a history of asthma and his mother states that this like his normal attacks – only worse.*

***Assessments & Treatment to be verbalized by student:** vital signs, oxygen administration, IV, EKG, medications to consider albuterol, ipratropium bromide (Atrovent), dexamethasone (Decadron) or methylprednisolone (Solu-medrol)*

***If the patient starts to worsen:** Magnesium sulfate (2 g over 5-60 min) or epinephrine if protocols allow. Intubation should be avoided if possible because a major problem for asthmatics is breathing out, which is not helped by intubation*

Scenario 2: You arrive to find a 20-year-old female seizing. The patient's mother states the seizure began 6 minutes ago; she is still seizing.

1. Verbally describe your patient assessment and physical examination.

***The student is evaluated on completions of the following:** Determines scene safety, nature of illness, general impression, LOC, Chief complaints & life threats, Airway & breathing, circulation, transport decision, episode onset/duration, medications, allergies, pertinent history, last oral intake, events leading to illness, vital signs baseline and repeated. The patient examination including head to toe assessment while treating urgent needs as found.*

***Findings given as assessed:** BP: 168 / 100, HR: 110, SpO2: 97% ra, CBG: 159, Lungs: Clear. Pedal edema present. No trauma evident as a result of the seizure. Pt was incontinent of urine*

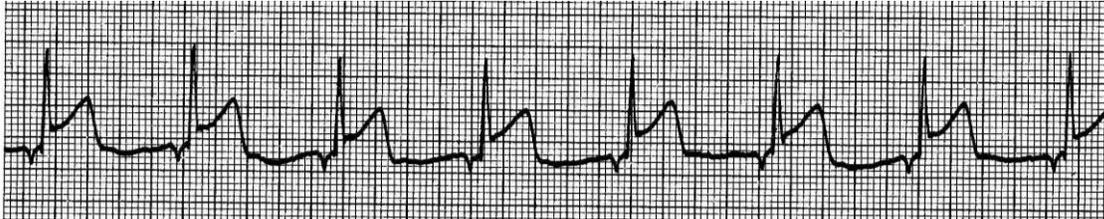
2. It turns out that the patient is 36 weeks pregnant. What treatments are necessary for this patient?

***Treatment to be verbalized by student:** controls airway, administers Oxygen, establishes IV, checks CBGs, ECG sinus tachycardia, gives magnesium sulfate 4 g diluted in 50 – 100 ML over 5 – 60 min. If seizure continues, benzodiazepine (Dose: 2.5 mg midazolam IV or 5 mg IM) and transport decision.*

Advanced EKG Exam Questions used for Assessment

a. Question 1:

53 y/o male with chief complaint of 8/10 chest pain. BP = 158/90. RR = 16. A&O x 4. Meds – Monopril, ASA, Cialis, metformin. Allergies – Morphine



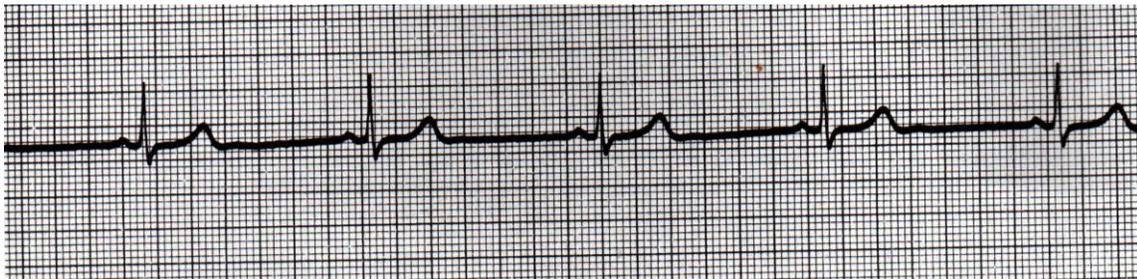
Rhythm Interpretation -

Diagnosis -

Treatment -

b. Question 2:

80 y/o female who fainted while sitting on the toilet. She thinks she just slumped forward but didn't actually fall. She still feels very dizzy but has no other complaints. PMHx – CHF, Non-insulin dependent diabetes, constipation for the last 3 days. BP - 88/60. RR - 18. A&O x 4.



Rhythm Interpretation -

Diagnosis -

Treatment-

Appendix D, SLO # 7

BLEEDING CONTROL/SHOCK MANAGEMENT

Start Time: _____

Stop Time: _____ Date: _____

Candidate's Name: _____

Evaluator's Name: _____

	Points Possible	Points Awarded
Takes, or verbalizes, body substance isolation precautions	1	
Applies direct pressure to the wound	1	
Note: The examiner must now inform the candidate that the wound continues to bleed.		
Applies tourniquet	1	
Note: The examiner must now inform the candidate the patient is now showing signs and symptoms indicative of hypoperfusion		
Properly positions the patient	1	
Administers high concentration oxygen	1	
Initiates steps to prevent heat loss from the patient	1	
Indicates the need for immediate transportation	1	
Total:	7	

Critical Criteria

_____ Did not take, or verbalize, body substance isolation precautions

_____ Did not apply high concentration oxygen

_____ Did not control hemorrhage using correct procedures in a timely manner

_____ Did not indicate a need for immediate transportation

**BAG-VALVE-MASK
APNEIC PATIENT**

Start Time: _____

Stop Time: _____ Date: _____

Candidate's Name: _____

Evaluator's Name: _____

	Points Possible	Points Awarded
Takes, or verbalizes, body substance isolation precautions	1	
Voices opening the airway	1	
Voices inserting an airway adjunct	1	
Selects appropriately sized mask	1	
Creates a proper mask-to-face seal	1	
Ventilates patient at proper rate and adequate volume (The examiner must witness for at least 30 seconds)	1	
Connects reservoir and oxygen	1	
Adjusts liter flow to 15 liters/minute or greater	1	
The examiner indicates arrival of a second EMT. The second EMT is instructed to ventilate the patient while the candidate controls the mask and the airway		
Voices re-opening the airway	1	
Creates a proper mask-to-face seal	1	
Instructs assistant to resume ventilation at proper rate and adequate volume (The examiner must witness for at least 30 seconds)	1	
Total:	11	

Critical Criteria

_____ Did not take, or verbalize, body substance isolation precautions

_____ Did not immediately ventilate the patient

_____ Interrupted ventilations for more than 20 seconds

_____ Did not provide high concentration of oxygen

_____ Did not provide, or direct assistant to provide proper volume/ breath or rate
(more than 2 ventilation errors per minute)

_____ Did not allow adequate exhalation

ACLS Megacode Case A: Sinus Bradycardia (Bradycardia→VF/Pulseless VT→Asystole)

Out-of-Hospital Scenario

You are a paramedic and arrive on-scene to find a 57-year-old woman complaining of indigestion. She is cold, clammy, and diaphoretic. She tells you she is about to faint. EMS responders have obtained vital signs: HR 38, BP 70/P, RR 16. No other assessment or management has been done. Now you assume the role of team leader.

Initial Assessment	This woman may have an acute coronary syndrome. The case focus, however, is bradycardia. The team leader should begin to take a history and direct team members to start oxygen (if not initiated) and an IV and place monitor leads. Nitroglycerin at this point would be inappropriate in the absence of typical ischemic-type discomfort and vital signs (severe bradycardia and hypotension – contraindicated.)
Bradycardia Algorithm	The student is presented with bradycardia and needs to follow the Bradycardia Algorithm. A critical action is noting that <i>symptoms are due to bradycardia requiring management</i> . Actions at this point should include at least an initial dose of atropine and preparation for transcutaneous pacing.
Rhythm: Sinus Bradycardia	
Pulseless Arrest Algorithm (VF/VT)	The patient suddenly develops VF. The team leader will follow the Pulseless Arrest Algorithm. Now the student team leader will assign additional team functions and monitor for high-quality CPR. The case should continue through safe defibrillation, administration of a vasopressor, and consideration of an antiarrhythmic drug.
Pulseless Arrest Algorithm (Asystole)	After a shock the patient becomes asystolic. The student continues to monitor high-quality CPR and follows the asystole pathway of the Pulseless Arrest Algorithm. If the team continues giving high-quality CPR and appropriate drugs, you can end the case with the patient in NSR. Otherwise you can end the case and discuss calling the code.

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Name: _____ Date of Test: _____

Megacode Testing Checklist 1/2
Bradycardia→VF/Pulseless VT→Asystole

Critical Performance Steps	✓ if done correctly
Team Leader	
Ensures high-quality CPR at all times	
Assigns team member roles	
Bradycardia Management	
Starts oxygen, places monitor, starts IV	
Places monitor leads in proper position	
Recognizes symptomatic bradycardia	
Administers appropriate drug(s) and doses	
Verbalizes the need for TCP	
VF/Pulseless VT Management	
Recognizes VF	
Clears before ANALYZE and SHOCK	
Immediately resumes CPR after shocks	
Appropriate airway management	
Appropriate cycles Drug-Rhythm Check/Shock-CPR	
Administers appropriate drug(s) and doses	
Asystole Management	
Recognizes asystole	
Verbalizes potential reversible causes of asystole(PEA (H's and T's))	
Administers appropriate drug(s) and doses	
Immediately resumes CPR after rhythm checks	
Stop the Test	
Test Results	Indicate Pass or Needs Remediation:
	P NR
Instructor signature affirms that skills tests were done according to AHA guidelines.	
Save this sheet with course record.	
Instructor Signature: _____	
Print Instr Name: _____ Date: _____	

ACLS Megacode Case B: Tachycardia (VT) – Drug Therapy (Tachycardia → VF/Pulseless VT → PEA)

In-Hospital Scenario

In the ED you are evaluating a 65-year-old man complaining of palpitations. He is in no distress. He has a history of coronary artery disease and had a stent in the past. Otherwise he is healthy with no other medical problems. His vital signs are: HR 170, BP 110/70, RR 16.

<p>Initial Assessment</p>	<p>This man has mild symptoms and is hemodynamically stable. The case focus, however, is initially a tachycardia. The student should begin to take a history, start oxygen and an IV, and place a monitor. Nitroglycerin at this point would be inappropriate because of the rapid tachycardia. Aspirin may be given.</p>
<p>Tachycardia Algorithm</p> <p>Rhythm: Regular Narrow-Complex Stable Tachycardia (SVT)</p>	<p>The student is presented with tachycardia and needs to follow the Tachycardia Algorithm. A critical action is noting that the patient is <i>asymptomatic except for palpitations</i> and is hemodynamically stable. He does not require immediate cardioversion. Note or show that he has a regular narrow-complex tachycardia. The team leader should follow the algorithm and indicate vagal maneuvers and initial therapy with adenosine.</p>
<p>Pulseless Arrest Algorithm (VF/VT)</p>	<p>During this treatment the patient suddenly develops VF. The student will follow the VF/VT pathway of Pulseless Arrest Algorithm. Now the student team leader will assign team functions and monitor for high-quality CPR. The case should continue through safe defibrillation, administration of a vasopressor, and consideration of an antiarrhythmic drug.</p>
<p>Pulseless Arrest Algorithm (PEA)</p>	<p>After a shock the patient is now in PEA. The student continues to monitor high-quality CPR and follow the PEA pathway of the Pulseless Arrest Algorithm. Although the patient is likely in cardiogenic shock, the student should verbalize a differential diagnosis of PEA. You can end the case and discuss indications to call a code.</p>

Name: _____ Date of Test: _____

Megacode Testing Checklist 4 Tachycardia → VF/Pulseless VT → PEA

Critical Performance Steps	✓ if done correctly
Team Leader	
Ensures high-quality CPR at all times	
Assigns team member roles	
Tachycardia Algorithm	
Starts oxygen, places monitor, starts IV	
Places monitor leads in proper position	
Recognizes tachycardia (specific diagnosis)	
Recognizes no symptoms due to tachycardia	
Attempts vagal maneuvers	
Gives appropriate initial drug therapy	
VF/Pulseless VT Management	
Recognizes VF	
Clears before ANALYZE and SHOCK	
Immediately resumes CPR after shocks	
Appropriate airway management	
Appropriate cycles Drug-Rhythm Check/Shock-CPR	
Administers appropriate drug(s) and doses	
PEA Algorithm	
Recognizes PEA	
Verbalizes potential reversible causes of PEA/asystole (H's and T's)	
Administers appropriate drug(s) and doses	
Immediately resumes CPR after rhythm and pulse checks	
Stop the Test	

Test Results	Indicate Pass or Needs Remediation:	P	NR
Instructor signature affirms that skills tests were done according to AHA guidelines. Save this sheet with course record.	Instructor Signature:		Date:
	Print Instr Name:		