Final Report of a Job Analysis of Emergency Medical Service Providers

Prepared for
The Atlantic EMS Council
4512 Hoban Road, NW
Washington, DC 20007

Professional Examination Service
Department of Research and Development
475 Riverside Drive
New York, NY 10115

September 2009
Revised October 6, 2009

Executive Summary

On behalf of the Atlantic EMS Council (AEMSC), Professional Examination Service (PES) conducted a practice analysis of EMS providers, including First Responders, EMT-Basics, EMT-Intermediates, and EMT-Paramedics. Practice analysis lays the foundation for examination validity. By conducting a practice analysis, developing test content outlines using the practice analysis data, and constructing examinations on the basis of the test specifications, an organization assures that the content of the examination is linked to the critical elements of professional practice.

The practice analysis study was conducted in accordance with recommend practices of the psychometric and educational community. A two-phase process was implemented: the development of a delineation of EMS practice and the validation of the delineation through the administration of a survey to practitioners.

In the first phase, the delineation of the work of EMS providers across AEMSC member jurisdictions was accomplished through the work of subject-matter experts participating in several complementary activities: task force meetings, focus panels, and independent reviews. The project advisory committee members adopted the strategy to create a single delineation applicable to all levels of practice. The delineation was structured around eight content domains common to all levels of practice. A set of knowledge areas and a set of procedures and skills were identified within the content domains.

The validation of the delineation was accomplished through a large scale web-based survey of EMS providers representing all levels of practice in six participating jurisdictions: Maryland, New Jersey, North Carolina, Pennsylvania, Virginia, and West Virginia. A single validation survey was developed and administered to practitioners at all levels. In the survey, participants were asked to make ratings for the content domains, knowledge areas, and procedures and skills, and to fill out a demographic questionnaire. Respondents rated the frequency with which they used each knowledge area and performed each procedure or skill. They also rated the harm that could result if the provider did not possess the knowledge, or omitted or incorrectly performed the skill.

The survey sample consisted of 6,246 practitioners. Random samples of First Responders, EMT-Basics, EMT-Intermediates, and EMT-Paramedics were selected from the regulatory databases maintained by each participating jurisdiction. The overall return rate for the survey was 18%, including at least 100 respondents per level. Survey respondents had an average of more than 10 years of experience in the field, and included representatives of volunteer, career, and unaffiliated services.

Ratings from the survey respondents were examined to identify the knowledge, skills and procedures appropriate for inclusion in the test content outlines for the different provider levels. Rules for inclusion were established based on the frequency and harm ratings. Test weights were created for each level using survey respondents' recommendations for

the distribution of test content across the eight content domains. These test specifications will guide development of examinations in the participating jurisdictions. Use of a unitary structure and content outline will ensure similar examination content coverage across AEMSC member states.

Contents

Table of Tables

Table of Appendices

Introduction

The Atlantic Emergency Medical Service Council (AEMSC) is a cooperative EMS body comprised of several states in the mid-Atlantic region. Member jurisdictions at the outset of the study reported herein were: Delaware (DE), the District of Columbia (DC), Maryland (MD), New Jersey (NJ), North Carolina (NC), Pennsylvania (PA), Virginia (VA), and West Virginia (WV).

Professional Examination Service (PES), a not-for-profit organization with a 60 year history in national licensing and certification program development and administration, was contracted with to conduct a practice analysis study of pre-hospital care providers on behalf of the AEMSC. Conducting a joint practice analysis among member jurisdictions and developing a single set of test specifications for the jurisdictions' EMS provider examinations will reinforce the standardization of the first responder, basic, intermediate, and paramedic level certification process for all member jurisdictions and facilitate cross-border movement of EMS practitioners.

The conduct of a practice analysis is a widely recognized and legally defensible strategy for establishing the content validity of a credentialing program. The practice analysis study reported herein was conducted so as to conform to current testing and measurement requirements for the validation of certification examinations as found in *Standards for Educational and Psychological Testing (1999); Uniform Guidelines on Employee Selection Procedures (1978);* and *PES Guidelines for the Development, Use, and Evaluation of Licensure and Certification Programs (1995).* Through the practice analysis process, required knowledge and skills are identified and validated. The content outline for the examination is then linked to this empirical description of practice, creating a framework for an examination that is practice related and content valid.

Methodology

Task Force Meetings

To perform the work of identifying the specialized knowledge and skill base of EMS practitioners, a Practice Analysis Task Force (PATF) of subject-matter experts (SMEs) was created. The 12-member task force was comprised of training coordinators and related personnel from MD, NC, NJ, PA, VA, and WV. A list of the members of the task force can be found in Appendix 1.

Over the course of two meetings, the PATF worked with PES to create a detailed delineation of practice. At their first meeting, the PATF focused on reviewing and evaluating curricula, jurisdictional practice acts, and related information, and drafted a set of domains, with associated sets of knowledge and skills/procedures. A structure of eight content domains common to all four levels of practice was created. The domain structure adopted by the PATF was derived from the content areas in the *National EMS Education Standards.* The PATF also created a list of patient complaints and conditions that was also derived from the *National EMS Education Standards.*

Focus Panels

Subsequent to the first PATF meeting, the draft delineation, comprising domains, knowledge, procedures and skills, and a supplementary list of patient complaints and conditions was distributed to the members of the PATF for a post-meeting review. All feedback was reconciled and the revised documents were presented for critical review to four focus panels. The focus panels were held in October and November 2008 in NC, PA, NJ, and VA. Participants included 38 SMEs representing five states and all four levels of practice. See Appendix 2 for a description of the participants.

Each focus panel was facilitated by PES and lasted approximately 2 hours. The focus panels were designed to elicit overall responses to the delineation and specific reactions to (a) the eight content domains, (b) the associated knowledge, (c) the associated procedures and skills, and (d) the list of patient complaints and conditions.

Independent Reviews

In December 2008, the delineation and the list of patient complaints and conditions were electronically disseminated to external reviewers for review and comment. A total of 24 subject-matter experts were selected to represent the states comprising the Atlantic EMS council and to represent diverse employment settings and EMS provider levels. The reviewers were selected from a pool of nominees provided by task force members. Reviewers were asked to evaluate the documents for completeness, redundancy, clarity, consistency, and sequence. A total of 12 individuals completed their reviews, for a 50% response rate. (The detailed instructions provided to the reviewers and a description of the participants can be found in Appendix 3.)

Finalizing the Structure of the Delineation

Feedback provided by the focus panelists and the independent reviewers was compiled and reviewed by the PAFT at its second meeting, held in January 2009. At that time, the PATF members finalized the content domains, the associated knowledge statements and procedures and skills, and the patient complaints and conditions in preparation for the conduct of a validation survey.

The final description of EMS practice consisted of eight domains: Preparatory (including knowledge of pharmacology and administration of medications), Airway Management, Respirations and Artificial Ventilation, Assessment, Medicine, Shock and Resuscitation, Trauma and Environmental Emergencies, Special Patient Populations, and Operations. The complete set of 71 knowledge areas and 272 procedures and skills finalized by the PATF can be found in Appendix 4.

Validation Survey Elements

To validate the EMS practice description developed by the task force, a survey was conducted with EMS practitioners in the six participating states. A single survey was developed for administration to practitioners at all levels.

In the survey, participants were asked to make ratings for the content domains, knowledge areas, procedures and skills, and patient complaints and conditions, and to fill out a demographic questionnaire. The order of presentation of the elements of the delineation was: ratings for knowledge, ratings for procedures and skills, percentage of examination recommendations, patient complaints and conditions ratings (in which participants were asked to indicate how often they encountered each patient complaint or condition), and demographic and professional background questions. See Appendix 5 for screen shots of the survey.

Participants were asked to make a single rating for the domains: *What percentage of the certification/licensure examination for EMS providers at your certification level should be devoted to each knowledge domain?*

For each of the 71 knowledge areas, respondents rated potential harm as well as how frequently they used the knowledge. The rating scales were:

> **Frequency** — During the past 12 months, how frequently did you use this knowledge while providing EMS care?
>
> Never
> Less than Monthly
> Monthly
> Weekly
> Daily
>
> **Harm —** How much harm could result to the patient if you did not possess this knowledge?
>
> None
> Minimal
> Moderate
> Considerable

As a check on the completeness of the knowledge delineation, respondents were asked to write in any knowledge needed by EMS providers at their certification level that was missing from the survey.

In the validation survey, the full set of 272 procedures and skills was condensed to 150 to reduce the time burden on survey participants. The abridged survey version eliminated some secondary level detail, represented by hollow bullets in Appendix 4, particularly in the assessment content area. The PATF believed, and PES concurred, that this level of detail would be useful for item writers, but was not required for validation purposes.

For each of the 150 procedures and skills in the abridged set, respondents rated frequency and potential harm.

> **Frequency** — During the past 12 months, how frequently did you perform this skill or procedure while providing EMS care?
>
> Never
> Less than Monthly
> Monthly
> Weekly
> Daily

> **Harm —** How much harm could result to the patient if you *omitted* this procedure or skill or *performed it incorrectly*?
>
> None
> Minimal
> Moderate
> Considerable
> Out of scope

"Out of scope" was added as an option to the Harm scale for rating procedures and skills because the same survey was administered to all four provider levels. Jurisdictional practice acts restrict various levels from performing certain actions. Those practitioners who would not be in a position to judge potential for harm due to practice level could choose the "out of scope" option.

As a check on the completeness of the delineation of procedures and skills, respondents were asked to write in any procedures or skills needed by EMS providers at their certification level that were missing from the survey.

Sampling Plan

Each of the participating states was able to provide PES with either their complete databases of practitioner contact information or e-mail addresses for samples selected from their databases. PES received full databases from VA, NJ, NC, WV, MD; and a sample of 875 practitioners from PA.

The proposed PES sampling plan for the survey was 100 First Responders, 250 EMT-Basics, 140 EMT-Intermediates, and 250 EMT-Paramedics per state. Given the low participation rates obtained in previous project activities, PES increased the sampling plan to 200 First Responders, 350 EMT-Basics, 300 EMT-Intermediate, and 350 EMT-Paramedics per state.

When selecting the survey samples from the VA, NJ, NC, WV, MD databases, when the population size was sufficiently large, a random sample was selected. When the population size was smaller than the proposed sample size, as was the case with VA and WV First Responders, and WV Intermediates, the entire population was included. The final sample size was 6,246 practitioners. Details regarding the proposed and final sample sizes per level can be found in Appendix 6.

To prevent over-representation of a level of practitioner from any one state, quota controls were established for survey administration. The quota for participants per level per state was 75. Paramedics practicing in Virginia were the only group to meet the established quota.

Conduct of the Survey

Invitations to participate in the survey that contained personalized password-protected links to the survey Web site were distributed by e-mail to those individuals who were selected to participate. Each state offered an incentive for participation consisting of CE credits. Each jurisdiction established its own number of credits to be earned for participation. State-specific invitations referencing the number of CE credits offered were sent in three rounds. See Appendix 7 for a copy of the pre-customization survey invitation.

Due to time constraints, and because PES received the state databases in a staggered fashion, state-specific invitations were sent in three rounds. The first included practitioners in NC, NJ, VA, and WV. One week later, invitations were sent to practitioners in MD and the third round of invitations was sent to practitioners in PA three weeks after the first round was sent out.

In order to encourage participation, weekly follow-up emails were sent to those who had not yet completed the survey. After monitoring the return rates for all states, PES sent out a *deadline extension* e-mail to all practitioners in all states. Due to the staggered distribution schedule for the survey, sample members in NC, NJ, VA, and WV received a total of four e-mail communications from PES and those in MD and PA received three. PES notes that although practitioners in PA and MD had less time to complete the survey and received one less communication from PES, return rates were not negatively affected. In fact, the return rates from PA and MD were higher than the return rates for the other four states.

Data Analysis

PES analyzed the survey data based on provider level. PES initially analyzed the data according to four levels of EMS practice (First Responder, EMT-Basic, EMT-Intermediate, and Paramedic). At the request of the AEMSC, additional subgroup analyses were later conducted for each group of intermediate level practitioners separately by state, and title within state for VA, which has two levels of intermediate provider. Intermediate level respondents from West Virginia were excluded from this analysis due to the small number of respondents from that state (N=3).

Results

Return Rate

As shown in Table 1, the overall return rate for the survey was 18%. There were at least 100 respondents per level. The return rate was highest for EMT-Intermediates and lowest for First Responders.

The return rate is somewhat low based on PES's experience with other professions. PES notes, however, that there has been an overall decline in online survey response rates in the past five to seven years across professions. Additionally, based on historical data, members of the task force indicated that in the profession of EMS an 18% response rate is not unreasonably low. There were several measures taken to bolster response rates for this survey. Continuing education credit was offered by each state, regulatory bodies sent correspondence to potential participants prior to survey dissemination, and potential participants were sent multiple reminders as well as a deadline extension notice.

Table 1
Return Rate for Survey

Level	Number of Invitations (Adjusted)*	Number Responding	Return Rate
First Responder	703	103	14.7%
EMT-Basic	1901	301	15.8%
EMT-Intermediate	1113	251	22.6%
Paramedic	2072	405	19.5%
Total	**5789**	**1060**	**18.3%**

** Total invitations sent minus the number of undeliverable invitations*

As shown in Table 2, all participating states were well represented in the study, with over 100 respondents per state. Additional detail regarding the return rates for participants at each provider level for each jurisdiction can be found in Appendix 8.

Table 2
Jurisdiction of Practice

State	n	%
Maryland	189	17.9%
New Jersey	116	10.9%
North Carolina	196	18.5%
Pennsylvania	182	17.2%
Virginia	266	25.1%
West Virginia	111	10.5%

Demographic and Professional Characteristics of Respondents

At each EMS provider level, respondents to the survey had an average of more than 10 years of experience in the field of EMS. Paramedics had the most experience working at their current provider level and Intermediates had the least, as seen in Table 3.

Table 3
Years of Experience

	First Responder	EMT-Basic	EMT-Intermediate	EMT-Paramedic
	Mean	Mean	Mean	Mean
In the field of EMS	11.5	14.9	11.4	20.6
At current certification level	8.4	13.2	5.1	14.4

As seen in Table 4, the majority of First Responders are unaffiliated and the majority of EMT-Basics work with volunteer agencies. Intermediates are split between career and volunteer services, and the majority Paramedics work for career services.

Table 4
Type of EMS Service

	First Responder		EMT-Basic		EMT-Intermediate		EMT-Paramedic	
	N	%	N	%	N	%	N	%
Career - Private EMS Service	2	1.2%	45	27.6%	41	25.2%	75	46.0%
Career - Hospital-based EMS Service	0	.0%	11	8.4%	6	4.6%	114	87.0%
Career - Municipal Service (does not include Fire)	4	3.1%	25	19.1%	20	15.3%	82	62.6%
Career - Municipal Fire/EMS Service	5	1.8%	39	13.7%	117	41.2%	123	43.3%
Career - Federal/State Government	8	16.7%	7	14.6%	7	14.6%	26	54.2%
Volunteer - EMS Initial Response Agency (non transporting)	21	25.3%	36	43.4%	15	18.1%	11	13.3%
Volunteer - EMS Agency (transporting)	11	4.3%	96	37.2%	80	31.0%	71	27.5%
Volunteer - EMS/Fire Agency	53	15.0%	155	43.8%	69	19.5%	77	21.8%
Not affiliated	9	37.5%	9	37.5%	4	16.7%	2	8.3%
Other	20	16.1%	40	32.3%	20	16.1%	44	35.5%

Note. Responses exceed 100%; multiple responses permitted.

As seen in Table 5, the number of hours worked per month was directly related to certification level. While only 6% of First Responders reported working/volunteering more than 95 hours per month, 24% of EMT-Basics, 46% of EMT-Intermediates, and 55% of EMT-Paramedics reported working over 95 hours per month.

Table 5
Hours per Month Worked

	First Responder		EMT-Basic		EMT-Intermediate		EMT-Paramedic	
	N	%	N	%	N	%	N	%
16 hours or less	51	50.0%	86	28.8%	29	11.6%	36	9.0%
17 - 50 hours	38	37.3%	93	31.1%	56	22.3%	88	22.0%
51 - 95 hours	7	6.9%	48	16.1%	50	19.9%	55	13.8%
More than 95 hours	6	5.9%	72	24.1%	116	46.2%	221	55.3%

A similar relationship exists between the certification level and the number of calls responded to during a typical month (see Table 6).

Table 6
Calls Responded to per Month

	First Responder		EMT-Basic		EMT-Intermediate		EMT-Paramedic	
	N	%	N	%	N	%	N	%
None	12	11.5%	17	5.7%	3	1.2%	4	1.0%
1-10	53	51.0%	89	29.8%	30	12.0%	36	9.0%
11-20	24	23.1%	79	26.4%	46	18.5%	54	13.5%
21-30	5	4.8%	27	9.0%	36	14.5%	57	14.2%
31-40	5	4.8%	19	6.4%	31	12.4%	42	10.5%
41-50	1	1.0%	22	7.4%	18	7.2%	47	11.7%
More than 50	4	3.8%	46	15.4%	85	34.1%	161	40.1%

As seen in Table 7, at each certification level, the highest percentage of respondents reported “some college” as their highest level of education.

Table 7
Highest Level of Education

	First Responder		EMT-Basic		EMT-Intermediate		EMT-Paramedic	
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Some High School	1	1.0%	3	1.0%	0	.0%	2	.5%
Vocational & Technical Program	2	2.0%	8	2.7%	5	2.0%	11	2.7%
High School Equivalency Diploma	2	2.0%	3	1.0%	6	2.4%	0	.0%
High School Diploma	18	18.2%	65	21.8%	23	9.2%	18	4.5%
Some College	31	31.3%	95	31.9%	116	46.2%	146	36.4%
Associate's Degree	14	14.1%	34	11.4%	35	13.9%	95	23.7%
Bachelor's Degree	18	18.2%	53	17.8%	38	15.1%	73	18.2%
Post-graduate Study (no degree)	4	4.0%	11	3.7%	13	5.2%	27	6.7%
Post-graduate Degree(s)	9	9.1%	26	8.7%	15	6.0%	29	7.2%

The ratings for how frequently survey respondents encountered each patient complaint or condition delineated by the PATF can be found in Appendix 9. The least frequently seen complaints and conditions were high altitude illness, radiation exposure, and diving emergencies (the bends). The most frequently seen complaints and conditions were chest pain/pressure, falls, and respiratory distress.

The members of the PATF reviewed the demographic characteristics of the survey respondents, and were asked to comment regarding whether the sample appeared to be representative of EMS practitioners. There was some concern regarding potential under-representation of minorities and females; respondents were predominantly male (72%) and Caucasian (93%).

PES conducted additional state-specific demographic analyses to explore these concerns. These additional analyses can be found in Appendix 10. After comparing the demographics for each state with those of the survey respondents, the PATF concluded that the sample appeared to represent a reasonable approximation of the population of EMS practitioners in each state.

Ratings for the Content Domains

Summary statistics related to respondents' ratings of the percentage of a certification examination at their current level of practice that should address each content domain are displayed in Table 8.

Table 8
Survey Ratings Regarding Examination Content Distribution

	First Responder	EMT-Basic	EMT-Intermediate	EMT-Paramedic
Preparatory	11.0%	10.3%	10.5%	9.3%
Airway Management, Respirations and Artificial Ventilation	20.6%	19.5%	19.1%	18.9%
Assessment	18.0%	17.4%	15.8%	18.4%
Medicine	6.1%	8.8%	14.1%	15.5%
Shock and Resuscitation	14.8%	13.5%	12.8%	12.4%
Trauma and Environmental Emergencies	16.1%	14.6%	12.9%	11.7%
Special Patient Populations	5.4%	7.1%	6.7%	6.5%
Operations	7.4%	8.1%	7.1%	6.1%
Other	.6%	.8%	1.0%	1.2%

Regardless of practitioner level, the percentages for most content domains were similar. *Airway Management, Respirations and Artificial Ventilation* was allocated the highest examination percentage across levels, followed by *Assessment*. The largest differences between provider levels were seen for the domains of *Medicine* and *Trauma and Environmental Emergencies*. First Responders and EMT-Basics allocated a greater percentage of the examination at their level to the latter and a smaller percentage to the former than did EMT-Intermediates and EMT-Paramedics. The small percentage of examination that respondents allocated to "Other" content domains attests to the completeness of the domain structure as an organizing vehicle for the examinations at each level.

Ratings for Knowledge Areas and Procedures and Skills

For the knowledge areas, mean Frequency and Harm ratings for First Responders, EMT-Basics, EMT-Intermediates, and EMT-Paramedics can be found in Appendix 11. Mean Frequency and Harm ratings for four subgroups of Intermediate level practitioner can be found in Appendix 12.

For the procedures and skills, mean Frequency and Harm ratings for First Responders, EMT-Basics, EMT-Intermediates, and EMT-Paramedics can be found in Appendix 13. Mean Frequency and Harm ratings for the four subgroups of Intermediate level practitioner can be found in Appendix 14.

The percentage of First Responders, EMT-Basics, EMT-Intermediates, and EMT-Paramedics indicating that each procedure and skill was "out of scope" on the Harm scale can be found in Appendix 15. The percentage of each of four subgroups of Intermediate level practitioner indicating that each procedure and skill was "out of scope" can be found in Appendix 16.

Evaluation of the Completeness of the Delineation

Survey respondents' verbatim responses regarding knowledge areas, procedures and skills that they use that they perceived to be missing from the survey can be found in Appendix 17. The PATF reviewed these data and concluded that the responses represented items that were already included in the delineation at differing levels of specificity.

Establishment of Validation Thresholds

Validated knowledge areas and procedures and skills will form the basis for examination questions at each provider level. The application of validation thresholds ensures that only those areas most relevant to the work of EMS practitioners are assessed on the examinations. At the PATF meeting to review the results of the survey, PES facilitated discussions regarding establishment of validation rules for each element of the delineation.

Thresholds for Ratings of Knowledge Areas

For the knowledge areas, the PATF established a threshold Frequency rating of *2.0*, which corresponds to *less than monthly* on the frequency scale. The PATF established a threshold Harm rating of *2.8*, just slightly below *moderate* on the harm scale.

In order to be included in the examination content outline, a knowledge base must meet the threshold for *either* frequency *or* importance. Stated another way, in order to be excluded from the examination content outline, a knowledge base must fail to meet *both* the frequency *and* the harm threshold. Shaded cells in Appendix 11 and Appendix 12 denote Frequency and Harm ratings that did not meet the thresholds.

Appendix 18 presents a summary depiction of the application of the thresholds to the knowledge areas for First Responders, EMT-Basics, EMT-Paramedics, and the state/title specific Intermediate level providers.

Thresholds for Ratings of Procedures and Skills

A two-step process was used to determine validation and inclusion of each procedure and skill; a procedure or skill must first pass an out of scope threshold, and then meet thresholds for Frequency and Harm.

In order to be included in a test content outline, a procedure had to (1) be judged by 40% or more of respondents at that level to be in scope, and (2) meet *both* a Frequency *and* a Harm threshold. The PATF established a threshold Frequency rating of *1.5*, midway between *never* and *less than monthly*. This rating was slightly lower than the one used for the knowledge areas. The PATF used the same threshold rating for Harm (*2.8*) as was used for the knowledge areas. Shaded cells in Appendix 13 and Appendix 14 indicate procedures and skills that failed to meet the established thresholds.

Appendix 19 presents a summary depiction of the application of the thresholds to the procedures and skills for First Responders, EMT-Basics, EMT-Paramedics, and the state/title specific Intermediate level providers.

Development of Test Specifications

To develop test specifications, or weights, for each provider level, PES reallocated the small percentage of the examination that survey respondents indicated should be devoted to "other" content areas proportionally across the eight defined domains. The results are displayed in Table 9. The PATF recommended adoption of these weights to govern examination development for all four provider levels for all participating member jurisdictions.

Table 9
Final Recommended Test Specifications

	First Responder	EMT-Basic	EMT-Intermediate	EMT-Paramedic
Preparatory	11%	10%	11%	9%
Airway Management, Respirations and Artificial Ventilation	21%	20%	19%	19%
Assessment	18%	17%	16%	19%
Medicine	6%	9%	14%	16%
Shock and Resuscitation	15%	14%	13%	12%
Trauma and Environmental Emergencies	16%	15%	13%	12%
Special Patient Populations	5%	7%	7%	7%
Operations	8%	8%	7%	6%
TOTAL	100%	100%	100%	100%

Recommendations

The delineation of the work of EMS providers across AEMSC member jurisdictions was accomplished through the work of subject-matter experts participating in several complementary activities: task force meetings, focus panels, and independent reviews. The validation of the delineation was accomplished through a large scale survey of EMS providers representing all levels of practice in six participating jurisdictions.

PES recommends that the AEMSC use the results of the practice analysis study as follows:

- The test specifications for each provider level should be used to create examinations for all participating jurisdictions. This will ensure similar content coverage across states. It will further ensure that any given form of the examination will reflect the judgments of practitioners participating in the validation process.

- The validated knowledge, procedures, and skills provide guidance regarding which aspects of EMS practice are appropriate for testing at each provider level. PES encourages the AEMSC to use this information during item development and examination construction to guide the creation of content valid examinations for each level.

  PES recognizes that the empirical data collected from the validation survey will be filtered through the combined judgments of the members of the PATF, who will consider the logical consistency of the results across provider levels, as well as the jurisdictional practice acts that restrict the performance of certain procedure and skills ad different provider levels.

- The patient complaints and conditions data can be useful for item development purposes; items can be written to address the more frequently encountered complaints and conditions.

- PES recommends that the AEMSC commit to a process for ongoing updates to the content outlines for EMS provider examinations.

Appendix 1
Members of the Practice Analysis Task Force

Atlantic EMS Council

Participating Members of the
Practice Analysis Task Force (PATF)

Name	State
Bill Seifarth	Maryland
Terrell Buckson	Maryland
Candace Gardner	New Jersey
Barbara Chorney	North Carolina
Kyle Jordan	North Carolina
Christian Perry	Pennsylvania
John Englert	Pennsylvania
Rick Rice	Pennsylvania
Greg Neiman	Virginia
Thomas Nevetral	Virginia
Warren Short	Virginia
John Thomas	West Virginia

Appendix 2
Focus Panel Participant Characteristics

Demographic and Professional Background of Focus Panelists [N = 38]

Last Name	First Name	Title	Company	City	State
Rowe	Leona	EMS Training Specialist	MIEMSS	Baltimore	MD
Eckley	Trevor	EMT Basic/EMT-Intermediate	County Fire Department		MD
Scott	Anthony	Other - Firefighter/Paramedic II	Montgomery County Division of Fire/Rescue Services	Rockville	MD
Lassack	John	Paramedic	Jarrettsville Volunteer Fire Company	Jarrettsville	MD
Kearns	Kevin	EMT-Basic	First Health of the Carolinas	Troy	NC
Wilson	Dana	EMT-Intermediate	Dare County EMS	Manteo	NC
Lehman	William	EMT-Intermediate	Pender EMS & Recue	Pender	NC
Thompson	Matt	Paramedic	Davidson Cnty., EMS	Lexington	NC
Everhart	Michael	Paramedic	Davidson Cnty., EMS	Lexington	NC
Anderson	Julie	Paramedic	Dare County EMS	Manteo	NC
Askew	Deborah	Paramedic	Dare County EMS	Manteo	NC
Stoneking	Donna	Paramedic	Dare County Public Safety	Manteo	NC
Wiley	Tina	EMT-Basic	Dare County EMS	Clayton	NJ
Halter	Andrew	EMT-Basic	County of Gloucester	Clayton	NJ
Findley	Catherine	EMT-Basic	Kuflik Dermatology	Neptune	NJ
Policastro	Brian	EMT-Basic	Shark River Hills First Aid	Neptune	NJ
Shiber	Mary Claire	EMT-Basic	Wayne Memorial First Aid Squad	Wayne	NJ
Napoli	Stephen	Paramedic	Virtua Health	Mr. Laurel	NJ
Barber	Charlene	Paramedic	UMDNJ	Newark	NJ
Reid	John	Paramedic	Raritan Bay Medical Center	Perth Amboy	NJ
MacMahon	Daniel	Paramedic	Atlantic Ambulance	Summit	NJ
Shook	Jon	Paramedic	Monmouth Ocean	Wall	NJ
Touchstone	Michael	Chief, EMS Training	Philadelphia Fire Department	Philadelphia	PA
Maben	Robert	EMR (First Responder)	Mifflin County Corrections Facility/Milroy Hose Co. Fire & EMS	Milroy	PA
Hamza	Jane	EMS Education Specialist	EMMCO - West (Regional EMS Council)	Meadville	PA
Wolfgang	Mark	EMT-Basic / EMT Educator	Seven Mountains EMS Council Milroy Hose (fire/EMS)	Milroy	PA

Last Name	First Name	Title	Company	City	State
Jablonski	Sandra	Executive Director	Southern Alleg. EMS Council	Duncansville	PA
McClincy	Bill	Executive Director	EMMCO West	Meadville	PA
Fremberg	Josh	Paramedic	Penn State University	State College	PA
McCoy	Lisa	EMR (first responder)	Westmoreland County Volunteer Rescue Squad	Mt. Holly	VA
Simmons	Jessica	EMT - Basic	HCA - Alleghany regional Hospital	Clifton Forge	VA
Reidinger	Judith	EMT - Basic	Sperryville Volunteer Rescue Squad	Sperryville	VA
Williams	Eileen	EMT - Intemediate	Buckhall VFD	Manssas	VA
Jackson	Elvin	EMT - Intemediate	City of Petersburg	Petersburg	VA
Doran II	James	EMS Training Specialist	County of Roanoke	Roanoke	VA
Hirst	Suzanne	EMT - Enhanced	Blacksburg Volunteer Rescue	Blackburg	VA
Usher	Robert	Paramedic; Instructor - CCEMPT/FP-c	Rappahannock EMS Council	Fredericksburg	VA

Populations Served	n	%
Suburban	23	60.5%
Rural	26	68.4%
Urban	16	42.1%

Percents exceed 100. Multiple responses permitted.

Job Title	n	%
Paramedic	14	36.8%
EMT-Basic	6	15.8%
EMT-Intermediate	6	15.8%
EMR (first responder)	7	18.4%
Other (Educators**,** Trainers, and Directors)	7	18.4%

Years Experience	n	%
1-5	10	26.3%
6-10	0	0%
11-25	8	21.1%
25+	7	18.42%

Type of Service	n	%
Career - Municipal EMS Service (not including fire)	10	26.3%
Career - Private EMS Service	11	28.9%
Career – Municipal Fire/EMS Service	7	18.42%
Volunteer – EMS Initial Response Agency (non transporting)	2	5.3%
Volunteer **–** EMS Agency (transporting)	9	23.7%
Volunteer – EMS/Fire Agency	8	21.1%

Percents exceed 100. Multiple responses permitted.

Instructor	n	%
Yes	11	28.9%
No	26	68.4%

Level of Instruction (if Instructor – N=11)	n	%
EMR (first responder)	6	54.5%
EMT – Basic	11	100%
EMT – Intermediate	3	27.3%
Paramedic	7	63.6%
Other (Instructor Prep, CPR**,** Critical Intensive Care)	5	45.4%

Percents exceed 100. Multiple responses permitted.

Organization Where Instructor (if Instructor – N=11)	n	%
Private Corporation	7	63.6%
Community College	6	54.5%
4 yr. College/University	3	27.3%
EMS Agency	7	63.6%
Fire/EMS Agency	7	63.6%

Percents exceed 100. Multiple responses permitted.

Appendix 3
Independent Review Materials

Atlantic EMS Practice Analysis

Instructions for Independent Reviewers

The Atlantic EMS Council is currently conducting a practice analysis of all EMS provider levels across its member jurisdictions (Delaware, Maryland, New Jersey, North Carolina, Pennsylvania, South Carolina, Virginia, West Virginia, and the District of Columbia). Practice analysis involves the identification of the knowledge and skills required for effective practice in a profession.

Over the past few months, a subject matter expert panel has been drafting a document describing the specialized knowledge and skill base required of EMS practitioners. We are now circulating the document to a panel of external reviewers. In January 2009, the subject-matter expert panel will finalize the document based on the external reviewers' feedback. At that point, a survey will be conducted with EMS practitioners, including first responders, EMTs, and paramedics, who will be asked to rate each of the knowledge areas and skills in terms of frequency of use and importance. The results of the survey will be used to guide educational program and examination development for the Council's member jurisdictions.

Two draft documents are attached for your review. The document titled *delineation.doc* is a draft description of EMS knowledge and skills. Note that it is intended to be a comprehensive document, including the knowledge required, the skills used, and the procedures performed by first responders, EMTs, *and* paramedics. The draft document is organized into eight major content domains:

1. Preparatory
2. Airway Management, Respirations and Artificial Ventilation
3. Assessment
4. Medicine
5. Shock and Resuscitation
6. Trauma and Environmental Emergencies
7. Special Patient Populations
8. Operations

The second document, *complaints and conditions.doc*, describes patient presenting conditions. In the survey, we will ask the extent to which EMS practitioners encounter each complaint and condition.

Please review each document for completeness and clarity, and make your suggestions (additions, deletions, new wording, etc.) directly in the document. The "tracking" function has been switched on.

When you review the knowledge and skill list, think about the following:

- Have all of the knowledge bases, skills, and procedures required for effective EMS practice been included in this document?
- Are there any redundancies?
- Is each statement delineated as accurately and concisely as possible? Have examples been provided if necessary?
- Is the order of the statements logical?

When you review the complaints and conditions list, check for omissions or redundancies. We are aware that the list if quite long and would welcome suggestions you might have for condensing the list.

Please email your edited copies WITH THE TRACKING LEFT **ON** (to show your changes).

Thank you very much.

Demographic and Professional Background of Independent Reviews [N = 12]

Last Name	First Name	City	State
Barelick	Denise	Monroeville	PA
Beaulieu	Andre	Hanover	VA
Berry	Robert	North Wilkesboro	NC
Burke	Gary	Chesapeake	VA
Gurnari	Bernie	Kingston	PA
Hoffman	Bryan	Newark	NJ
**Hypes	Sandra	Dover	DE
Joy	Toby	Frostburg	MD
Kidd	H.M.	Pulaski County	VA
McGuire	Dan	Greensboro	NC
Smith	Carl	Boothwyn	PA
Voelkel	Bill	Neptune	NJ

**Demographic information not available

Populations Served	n	%
Suburban	4	33.3%
Rural	4	33.3%
Urban	4	33.3%

Job Title	n	%
Paramedic	4	33.3%
EMT-Basic	5	41.7%
EMT-Intermediate	1	8.3%
EMR (first responder)	0	0%
Other (Educators**,** Trainers, and Directors)	0	0%

Years Experience	n	%
1-5	1	8.3%
6-10	4	33.3%
11-25	5	41.7%
25+	1	8.3%

Type of Service	n	%
Career - Municipal EMS Service (not including fire)	2	16.7%
Career - Private EMS Service	1	8.3%
Career – Municipal Fire/EMS Service	2	16.7%
Volunteer – EMS Initial Response Agency (non transporting)	0	0%
Volunteer – EMS Agency (transporting)	3	25%
Volunteer – EMS/Fire Agency	1	8.3%

*Total may not equal 100 due to rounding

Instructor	n	%
Yes	5	45.4%
No	6	54.5%

*Total may not equal 100 due to rounding

Level of Instruction (if Instructor – N=5))	n	%
EMR (first responder)	0	0%
EMT - Basic	4	80.0%
EMT - Intermediate	0	0%
Paramedic	3	60.0%
Other (Instructor Prep, CPR, Critical Intensive Care)	0	0%

Percents exceed 100. Multiple responses permitted.

Organization Where Instructor (if Instructor – N = 5)	n	%
Private Corporation	0	0%
Community College	1	20.0%
4 yr. College/University	0	0%
EMS Agency	4	80.0%
Fire/EMS Agency	1	20.0%

Percents exceed 100. Multiple responses permitted.

Appendix 4
Description of Practice

EMS KNOWLEDGE AND SKILLS WITHIN EIGHT CONTENT DOMAINS

DOMAIN 1: PREPARATORY

Knowledge

- Overview of EMS systems (e.g., roles and responsibilities of EMS personnel, quality improvement, history of EMS)
- How research affects practice in the EMS field
- Personal safety (e.g., scene safety, personal protective equipment, self-defense, OSHA requirements)
- Personal wellness (e.g., sleep deprivation, nutrition, weight management, stress)
- Principles of medical documentation and report writing
- EMS system communication
- Communication with patients to achieve a positive relationship (therapeutic communication, multicultural awareness)
- Medical/legal and ethics (e.g, DNR, consent, confidentiality, HIPPA)
- Anatomy and physiology
- Medical terminology
- Pathophysiology (human biological and chemical processes)
- Life span development (understanding of changes occurring across different stages of life)
- Public Health (role of EMS in public health emergencies, health promotion, injury and illness prevention)
- Principles of pharmacology
- Medication administration

Pharmacology

(*Note that the content here is intended to represent medications that an EMS provider should know about, rather than medications that the provider might administer.*)

- Analgesics (pain medications) (e.g., Tylenol, Advil, Opiates and related narcotics, aspirin)
- Anesthethetics (numbing medications) (e.g., Chloroseptic, benzocaine)
- Anticonvulsants (anti-seizure medication)
- Antidotes (e.g., Narcan, MARK-1 kit, cyanide poisoning kit, amyl nitrate)
- Antihistamines (e.g., Benadryl)
- Behavior-altering medications (e.g., Valium, Haldol)
- Biologicals (e.g., antibiotics, vaccines)
- Blood/blood products
- Blood modifiers (e.g., aspirin, blood thinners, antiplatelets, fibrinolytics, hemostatic agents)
- Cardiovascular agents (e.g., epinephrine, nitroglycerine, Lasix)
- Dietary supplements/electrolytes (e.g., vitamins, minerals)
- Gas (e.g., oxygen, nitrous oxide)

- Gastrointestinal (e.g., antidiarrheals, antacids)
- Glucose altering agents (e.g., insulin, glucose)
- Hormones (steroids)
- Intravenous fluids (IV fluids)
- Neuromuscular antagonists (e.g., paralyzing medication, paralytics)
- Respiratory (e.g., Albuterol, Atrovent)

Procedures and Skills

- Donning, doffing, and disinfecting personal protective equipment
- Lifting and moving
- Use of restraints (chemical and physical)
- Administration of medication via various routes (e.g., oral, sublingual, inhalation, intramuscular, intravenous)
- Completing oral and written patient care reports
- Transmit and receive radio communications
- Interpersonal communications
- Adjusting communication strategies based on
    - Age and stage of development
    - Patients' special needs
    - Culture
- Calculating drug dosages
- Central venous access
- Intraosseous access and infusion
- Peripheral venous access and maintenance
    - Peripheral vein (arm, leg, external jugular)
    - Umbilical catheter
    - Cut down

Medications (*Note that the content here is intended to represent medications that an EMS provider might administer*.)

- Analgesics (pain medications) (e.g., Tylenol, Advil, Opiates and related narcotics, aspirin)
- Anesthethetics (numbing medications) (e.g., Chloroseptic, benzocaine)
- Anticonvulsants (anti-seizure medication)
- Antidotes (e.g., Narcan, MARK-1 kit, cyanide poisoning kit, amyl nitrate)
- Antihistamines (e.g., Benadryl)
- Behavior-altering medications (e.g., Valium, Haldol)
- Biologicals (e.g., antibiotics, vaccines)
- Blood/blood products
- Blood modifiers (e.g., aspirin, blood thinners, antiplatelets, fibrinolytics, hemostatic agents)
- Cardiovascular agents (e.g., epinephrine, nitroglycerine, Lasix)
- Dietary supplements/electrolytes (e.g., vitamins, minerals)
- Gas (e.g., oxygen, nitrous oxide)

- Gastrointestinal (e.g., antidiarrheals, antacids)
- Glucose altering agents (e.g., insulin, glucose)
- Hormones (steroids)
- Intravenous fluids (IV fluids)
- Neuromuscular antagonists (e.g., paralyzing medication, paralytics)
- Respiratory (e.g., Albuterol, Atrovent)

DOMAIN 2: AIRWAY MANAGEMENT, RESPIRATIONS AND ARTIFICIAL VENTILATION

Knowledge

- Airway anatomy and physiology
- Normal and abnormal respiration
- Airway assessment
- Causes of upper airway obstruction
- Causes of lower airway obstruction
- Techniques for assuring patent airway
- Artificial ventilation (e.g., assisted ventilation)
- Oxygen delivery systems

Procedures and Skills

- Using airway adjuncts
    - Oropharyngeal airway
    - Nasopharyngeal airway
- Performing airway maneuvers
    - Head tilt chin lift
    - Jaw thrust
    - Chin lift
    - Sellick maneuver (cricoid pressure)
- Managing existing tracheostomy
- Using extratracheal airway device (Dual lumen airway, combitube, LMA, King airway)
- Perform cricothyrotomy
    - Needle
    - Surgical
- Clearing obstructed airway
    - Manual (finger sweep)
    - Abdominal / chest thrusts
    - Upper airway mechanical (Magill forceps)
- Perform nasogastric/orogastric tube insertion
- Perform intubation
    - Nasotracheal
    - Orotracheal
    - Digital
    - Pharmacological facilitation (e.g. sedation-assisted, RSI)

    - Confirmation procedures (e.g., visualization, capnography, esophageal detection)
    - Fiberoptic scope or camera devices
    - Transillumination (e.g. trachlight)
    - Retrograde with guidewire
    - "Bougie" assisted
- Delivering oxygen
    - Nasal cannula
    - Nasal catheter
    - Venturi mask
    - Simple face mask
    - Rebreathing face mask
    - Partial rebreather face mask
    - Non-rebreather face mask
    - Face tent
    - Tracheal cuff/mask
    - Oxygen hood
    - Flow restricted oxygen powered ventilation device
    - Blow-by-delivery
    - Humidification
- Suctioning
    - Pharyngeal
    - Bronchial-tracheal
    - Oral suctioning
    - Tracheostomy suctioning
    - Naso-pharyngeal suctioning
    - Endotracheal suctioning
    - Meconium aspiration neonate with ET
- Assisting ventilation
    - Mouth-to-mask
    - Mouth-to-mask with O2
    - Bag-valve-mask neonate/infant
    - Bag-valve-mask child
    - Bag-valve-mask adult
    - CPAP/BiPAP
    - PEEP
    - Transtracheal jet insufflation
    - Mechanical ventilation (manual/automated transport ventilator)

DOMAIN 3: ASSESSMENT

Knowledge

- Scene size-up (e.g., scene safety, hazards, violence, additional resources, mass casualties)
- Primary (initial) assessment
- History-taking
- Secondary (e.g. detailed, focused, rapid) assessment
- Reassessment (ongoing)

- Monitoring devices (e.g. indications, contraindications, values, false negatives/ positives)
- Techniques of physical examination (normal findings)

Procedures and Skills

- Perform scene size-up, including safety and management
- Perform primary (initial) assessment
- Obtain patient history
- Perform secondary (e.g. detailed, focused, rapid) assessment
- Reassessment
- Perform blood glucose monitoring
- Interpret blood glucose monitoring results
- Obtain electrocardiogram rhythm strip (3/4 lead)
- Interpret electrocardiogram rhythm strip (3/4 lead)
- Obtain 12 lead electrocardiogram
- Interpret 12 lead electrocardiogram
- Obtain ventricular right (15) lead electrocardiogram
- Interpret ventricular right(15) lead electrocardiogram
- Interpret blood chemistry/lab analysis
- Monitoring transcutaneous physiologic parameters tissue/plethysmography
    - Apply pulse oximetry
    - Interpret pulse oximetry
    - Measure carbon monoxide
- Interpret capnography
- Interpret capnometry
- Obtain and interpret vital signs
    - Pulse rate
    - Respiratory rate
    - Blood pressure
        - Manual
        - Automatic
- Obtain and interpret temperature
- Assess Skin
    - Color
    - Vascularity (capillary refill)
    - Lesions
    - Edema
    - Moisture
    - Temperature
    - Texture
    - Mobility
    - Turgor
    - Nails
- Assess Head and Neck
    - Head
    - Eyes

    - Ears
    - Nose
    - Mouth
    - Neck
- Assess Thorax
    - Inspection
    - Palpation
    - Percussion
    - Auscultation
- Assess Heart
    - Heart sounds
    - Palpate
    - Percussion
- Assess Abdomen
    - Inspection
    - Auscultation
    - Percussion
    - Light palpation
    - Deep palpation
    - Gravid
- Assess Genitalia
    - Male
    - Female
- Assess Buttocks
    - Skin
    - Trauma
    - Symmetry
- Assess Peripheral vascular system
    - Temporal pulse
    - Carotid pulse
    - Jugular vein distention
    - Point of maximal impulse
    - Brachial pulse
    - Radial pulse
    - Ulnar pulse
    - Femoral pulse
    - Popliteal pulse
    - Posterior tibial pulse
    - Dorsalis pedis pulse
- Assess Musculoskeletal system
    - Deformity
    - Pain
    - Edema
    - ROM
- Assess Nervous system
    - Assessment of posture

- Dermatomes
- Deep tendon reflexes
- Superficial reflex
- Cognition
- Orientation
- Alertness
- Response to verbal stimulus
- Response to pain/noxious stimulus
- Unresponsive
- Glasgow coma score
- Gait
- Proprioception (awareness of orientation of the body in space)
- Sensation
- Strength
- Movement
- Symmetrical facial muscles
- Control of tongue
- Pupillary response
- Ocular motion
- Visual field
- CSF leakage
- Doll's eyes
- Reflexes
- Paralysis
- Paresis
- Hemiplegia
- Tics
- Tremors
- Mental state (affect/ mood, responsiveness, sensorium)
- Drift
- Pre-hospital stroke scale

DOMAIN 4: MEDICINE

Knowledge

- Neurology
- Abdominal and gastrointestinal disorders
- Immunology
- Infectious diseases
- Endocrine disorders
- Psychiatric
- Cardiovascular
- Toxicology
- Respiratory
- Hematology
- Genitourinary/renal

- Gynecology
- Non-traumatic musculoskeletal disorders
- Diseases of the eyes, ears, nose, and throat

Procedures and Skills (adult)

- Electrical cardioversion
    - Defibrillation
    - Synchronized cardioversion
- Transcutaneous pacing
- Vagal maneuvers (e.g., carotid massage, valsalva maneuvers)
- Mechanical CPR
- Manual CPR
- AED
- Urinary catheterization
- Ocular irrigation
- Nasal packing
- Remove foreign objects from nose and ears
- CVP monitoring

DOMAIN 5: SHOCK AND RESUSCITATION

Knowledge

- Signs and symptoms
- Pathophysiology of various types of shock

Procedures and Skills

- Managing shock
- Initiate and maintain fluid resuscitation

DOMAIN 6: TRAUMA AND ENVIRONMENTAL EMERGENCIES

Knowledge

- Bleeding
- Chest trauma
- Abdominal and genitourinary trauma
- Orthopedic trauma (e.g., fractures, amputations, sprains)
- Soft tissue trauma
- Traumatic brain injury/head injury
- Facial trauma
- Spine trauma/spinal cord injury
- Multi-system trauma
- Special populations in trauma (i.e., pediatrics, pregnant, geriatric, cognitively impaired)
- Traumatic cardiac arrest
- Environmental emergencies (e.g., heat, cold, bites)

Procedures and Skills (all populations)

- Managing open abdominal wounds
- Utilize pressure bags for high altitude
- Providing manual stabilization
    - C-spine and spinal injuries
    - Extremity fractures
- Controlling bleeding
    - Manual
    - Mechanical (tourniquet)
    - Hemostatic agents
- Perform and manage thoracostomy (chest decompression)
    - Chest tubes
    - Needle decompression thoracostomy
- Perform pericardiocentesis
- Perform emergency moves (e.g., fireman's carry, clothes drag, extremity drag)
- Apply spinal immobilization
    - Cervical collars
    - Seated immobilization devices
    - Longboard (straps, cervical immobilization device)
    - Rapid extrication
    - Helmet stabilization
    - Helmet removal
- Perform tooth replacement/tooth avulsion care
- Apply splinting techniques
    - Extremity
    - Traction
    - PASG
    - Manual
    - Rigid
    - Soft
    - Vacuum
    - Pelvic binding
- Use dressings, bandages, and irrigation
- Perform wound closure techniques (e.g., dermabond, steri-strips)
- Managing post-operative incision and drains

DOMAIN 7: SPECIAL PATIENT POPULATIONS

Knowledge

- Obstetrics
- Neonatal care
- Pediatric patient care
- Geriatric patient care
- Considerations in the assessment, care, documentation and reporting for patients with special challenges (e.g. abuse, neglect, bariatric, hospice, developmental disabilities)

Procedures and Skills

- Perform newborn resuscitation
- Provide newborn care (warming, drying, positioning, APGAR scores)
- Positioning pregnant/gravid patient
- Positioning geriatric patient
- Measuring fundal height
- Determine height/weight-based measurement
- Perform childbirth procedures

DOMAIN 8: OPERATIONS

Knowledge

- Principles of safely operating a ground ambulance
- Incident management
- Multiple casualty incidents
- Criteria for utilizing air medical response
- Air medical safety procedures
- Vehicle extrication
- Risks and responsibilities at hazardous materials situation
- Risks and responsibilities of operating on the scene of a natural or manmade disaster

Procedures and Skills

- Perform triage
- Perform safe vehicle extrication

Appendix 5
Sample Screen Shots of Web Survey

Welcome to the Atlantic EMS Practice Analysis Survey

We appreciate your taking the time to participate in this important project. Please keep in mind the following tips as you navigate the survey:

- When you complete each page of the survey, click "Next" to continue. Once you complete a page and click "Next," you will **not** be able to change your answers.
- You cannot skip the questions on a page and return to them later; once you click "Next," **you cannot go back to previous pages**.
- You can exit the survey and return later using the link you were provided. Use the "Save and Exit" button at the top of the screen.
- If you are unable to move on from any page of the survey, please check the top of your current page for a red instructional message or assistance.
- This survey is best supported by Internet Explorer. You may have problems viewing the survey in unsupported browsers.
- This survey has been designed to be viewed at a screen resolution of at least 1024 x 768. Click here for your screen resolution. . If it is not set at 1024 x 768, adjust it as follows: RIGHT-click on your desktop, select PROPERTIES, select SETTINGS, and move the slide bar to 1024 x 178. Then, return to the survey.

If you exit and return to complete your survey later, you will be taken to this introductory screen. Simply press the "Click Here to Start" button again and you will be returned to the place in the survey where you exited.

Click Here to Start

Save and exit

Responses for all previous pages will be saved.

In what state do you primarily function as an EMS provider? (You must s*elect one* to continue)

- ○ Delaware
- ○ Maryland
- ○ New Jersey
- ○ North Carolina
- ○ Pennsylvania
- ○ Virginia
- ○ West Virginia
- ○ None of these

Next

Need help? Send an email to ems@proexam.org

1%
Progress Meter

Save and exit

Responses for all previous pages will be saved.

What is your current certification level? (You must select one to continue)

- ○ Emergency Medical Responder (MR)
- ○ EMT-Basic
- ○ EMT-Intermediate
- ○ EMT-Paramedic

Next

Need help? Send an email to ems@proexam.org

5%
Progress Meter

Section 1—Knowledge

Knowledge bases related to Emergency Medical Service appear on the following screens. Please make two ratings for each knowledge base:

Frequency During the past 12 months, how frequently did you use this knowledge while providing EMS care?
Never, Less than Monthly, Monthly, Weekly, or Daily

Potential Harm How much harm could result to the patient if you did not possess this knowledge?
None, Minimal, Moderate, Considerable

	During the past 12 months, how frequently did you use this knowledge while providing EMS care?					How much harm could result to the patient if you did not possess this knowledge?			
Domain 1: PREPARATORY	Never	Less than Monthly	Monthly	Weekly	Daily	None	Minimal	Moderate	Considerable
Overview of EMS systems (e.g., roles and responsibilities of EMS personnel, quality improvement, history of EMS)	○	○	○	○	○	○	○	○	○
How research affects practice in the EMS field	○	○	○	○	○	○	○	○	○
Personal safety (e.g., scene safety, personal protective equipment, self-defense, Occupational Safety and Health Administration (OSHA) requirements)	○	○	○	○	○	○	○	○	○
Personal wellness (e.g., sleep deprivation, nutrition, weight management, stress)	○	○	○	○	○	○	○	○	○
Principles of medical documentation and report writing	○	○	○	○	○	○	○	○	○
EMS system communication	○	○	○	○	○	○	○	○	○
Communication with patients to achieve a positive relationship (therapeutic communication, multicultural awareness)	○	○	○	○	○	○	○	○	○
Medical/legal and ethics (e.g, Do not resuscitate (DNR), consent, confidentiality, Health Insurance Portability and Accountability Act [HIPPA])	○	○	○	○	○	○	○	○	○
Anatomy and physiology	○	○	○	○	○	○	○	○	○
Medical terminology	○	○	○	○	○	○	○	○	○
Pathophysiology (human biological and chemical processes)	○	○	○	○	○	○	○	○	○
Life span development (understanding of changes occurring across different stages of life)	○	○	○	○	○	○	○	○	○
Public Health (role of EMS in public health emergencies, health promotion, injury and illness prevention)	○	○	○	○	○	○	○	○	○
Principles of pharmacology	○	○	○	○	○	○	○	○	○
Medication administration	○	○	○	○	○	○	○	○	○

Next

Save and exit

Responses for all previous pages will be saved.

Domain 2: AIRWAY MANAGEMENT, RESPIRATIONS AND ARTIFICIAL VENTILATION	During the past 12 months, how frequently did you use this knowledge while providing EMS care?					How much harm could result to the patient if you did not possess this knowledge?			
	Never	Less than Monthly	Monthly	Weekly	Daily	None	Minimal	Moderate	Consider-able
Airway anatomy and physiology	○	○	○	○	○	○	○	○	○
Normal and abnormal respiration	○	○	○	○	○	○	○	○	○
Airway assessment	○	○	○	○	○	○	○	○	○
Causes of upper airway obstruction	○	○	○	○	○	○	○	○	○
Causes of lower airway obstruction	○	○	○	○	○	○	○	○	○
Techniques for assuring patent airway	○	○	○	○	○	○	○	○	○
Artificial ventilation (e.g., assisted ventilation)	○	○	○	○	○	○	○	○	○
Oxygen delivery systems	○	○	○	○	○	○	○	○	○

Next

Need help? Send an email to ems@proexam.org

15%
Progress Meter

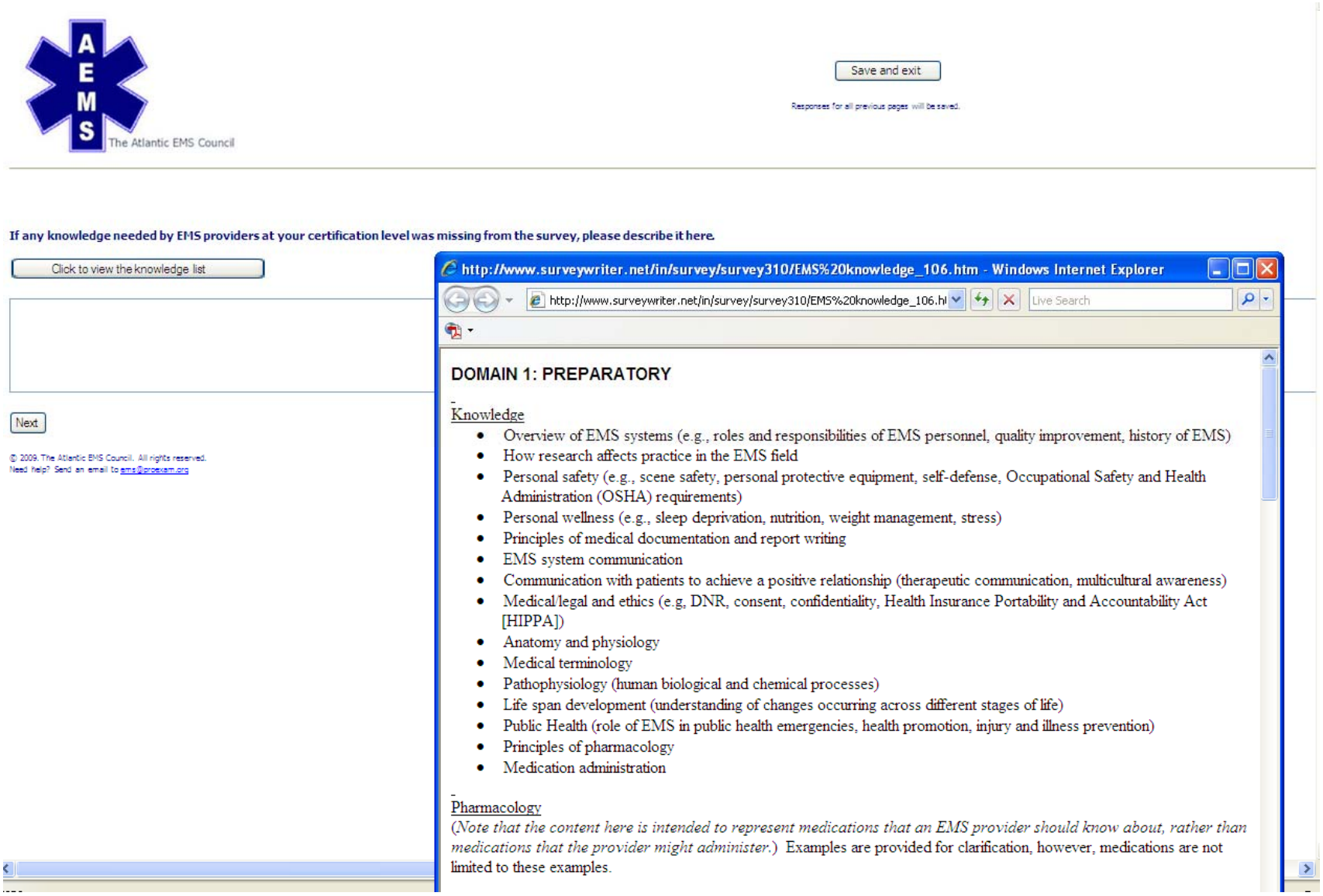
This page contains a list of medications related to Emergency Medical Service. Please note that the ratings for the following medications refer to your **knowledge** of these medications, **not** your **administration** of these medications. Examples are provided for clarification, however, medications are not limited to these examples.

Frequency During the past 12 months, how frequently did you use knowledge of this medication while providing EMS care?
Never, Monthly or less, Weekly, or Daily

Potential Harm How much harm could result if you did not posess this knowledge?
None, Minimal, Moderate, Considerable

	During the past 12 months, how frequently did you use knowledge of this medication while providing EMS care?					How much harm could result to the patient if you did not possess this knowledge?			
Pharmacology	Never	Less than Monthly	Monthly	Weekly	Daily	None	Minimal	Moderate	Consider-able
Analgesics (pain medications) (e.g., Tylenol ®, Advil ®, opiates and related narcotics, aspirin)	○	○	○	○	○	○	○	○	○
Anesthetics (numbing medications) (e.g., Chloraseptic ®, benzocaine)	○	○	○	○	○	○	○	○	○
Anticonvulsants (anti-seizure medication)	○	○	○	○	○	○	○	○	○
Antidotes (e.g., Narcan ®, Mark 1 kit ™, cyanide poisoning kit, amyl nitrate)	○	○	○	○	○	○	○	○	○
Antihistamines (e.g., Benadryl ®)	○	○	○	○	○	○	○	○	○
Behavior-altering medications (e.g., Valium ®, Haldol ®)	○	○	○	○	○	○	○	○	○
Biologicals (e.g., antibiotics, vaccines)	○	○	○	○	○	○	○	○	○
Blood/blood products	○	○	○	○	○	○	○	○	○
Blood modifiers (e.g., aspirin, blood thinners, antiplatelets, fibrinolytics, hemostatic agents)	○	○	○	○	○	○	○	○	○
Cardiovascular agents (e.g., epinephrine, nitroglycerine, Lasix ®)	○	○	○	○	○	○	○	○	○
Dietary supplements/electrolytes (e.g., vitamins, minerals)	○	○	○	○	○	○	○	○	○
Gas (e.g., oxygen, nitrous oxide)	○	○	○	○	○	○	○	○	○
Gastrointestinal (e.g., antidiarrheals, antacids)	○	○	○	○	○	○	○	○	○
Glucose altering agents (e.g., insulin, glucose)	○	○	○	○	○	○	○	○	○
Hormones (steroids)	○	○	○	○	○	○	○	○	○
Intravenous fluids (IV fluids)	○	○	○	○	○	○	○	○	○
Neuromuscular antagonists (e.g., paralyzing medication, paralytics)	○	○	○	○	○	○	○	○	○
Respiratory (e.g., albuterol, Atrovent ®)	○	○	○	○	○	○	○	○	○

Next


The Atlantic EMS Council
Save and exit
Responses for all previous pages will be saved.
If any knowledge needed by EMS providers at your certification level was missing from the survey, please describe it here.
Click to view the knowledge list
Next
© 2009, The Atlantic EMS Council. All rights reserved.
Need help? Send an email to ems@proexam.org
http://www.surveywriter.net/in/survey/survey310/EMS%20knowledge_106.htm - Windows Internet Explorer
http://www.surveywriter.net/in/survey/survey310/EMS%20knowledge_106.ht
Live Search
DOMAIN 1: PREPARATORY
Knowledge
Overview of EMS systems (e.g., roles and responsibilities of EMS personnel, quality improvement, history of EMS)
How research affects practice in the EMS field
Personal safety (e.g., scene safety, personal protective equipment, self-defense, Occupational Safety and Health Administration (OSHA) requirements)
Personal wellness (e.g., sleep deprivation, nutrition, weight management, stress)
Principles of medical documentation and report writing
EMS system communication
Communication with patients to achieve a positive relationship (therapeutic communication, multicultural awareness)
Medical/legal and ethics (e.g, DNR, consent, confidentiality, Health Insurance Portability and Accountability Act [HIPPA])
Anatomy and physiology
Medical terminology
Pathophysiology (human biological and chemical processes)
Life span development (understanding of changes occurring across different stages of life)
Public Health (role of EMS in public health emergencies, health promotion, injury and illness prevention)
Principles of pharmacology
Medication administration
Pharmacology
(Note that the content here is intended to represent medications that an EMS provider should know about, rather than medications that the provider might administer.) Examples are provided for clarification, however, medications are not limited to these examples.

Section 2—Procedures and Skills

Procedures and skills performed by Emergency Medical Service providers appear on the following screens. Please make two ratings for each procedure/skill:

Frequency During the past 12 months, how frequently did you perform this skill or procedure while providing EMS care?
Never, Monthly or less, Weekly, or Daily

Potential Harm How much harm could result to the patient if you *omitted* this procedure or skill or *performed it incorrectly*?
None, Minimal, Moderate, Considerable

If a procedure or skill is outside of your scope of practice, select *never* on the frequency scale and *out of scope* on the harm scale.

	During the past 12 months, how frequently did you perform this skill or procedure while providing EMS care?					How much harm could result to the patient if you *omitted* this procedure or skill or *performed it incorrectly*?				
Domain 1: PREPARATORY	Never	Less than Monthly	Monthly	Weekly	Daily	None	Minimal	Moderate	Considerable	Out of Scope
Donning, doffing, and disinfecting personal protective equipment	○	○	○	○	○	○	○	○	○	○
Lifting and moving	○	○	○	○	○	○	○	○	○	○
Use restraints (chemical and physical)	○	○	○	○	○	○	○	○	○	○
Administer medication via various routes (e.g., oral, sublingual, inhalation, intramuscular, intravenous)	○	○	○	○	○	○	○	○	○	○
Comple oral and written patient care reports	○	○	○	○	○	○	○	○	○	○
Transmit and receive radio communications	○	○	○	○	○	○	○	○	○	○
Engage in interpersonal communications	○	○	○	○	○	○	○	○	○	○
Adjust communication strategies based on:										
• Age and stage of development	○	○	○	○	○	○	○	○	○	○
• Patients' special needs	○	○	○	○	○	○	○	○	○	○
• Culture	○	○	○	○	○	○	○	○	○	○
Calculate drug dosages	○	○	○	○	○	○	○	○	○	○
Central venous access	○	○	○	○	○	○	○	○	○	○
Intraosseous access and infusion	○	○	○	○	○	○	○	○	○	○
Peripheral venous access and maintenance:										
• Peripheral vein (arm, leg, external jugular)	○	○	○	○	○	○	○	○	○	○
• Umbilical catheter	○	○	○	○	○	○	○	○	○	○
• Cut down	○	○	○	○	○	○	○	○	○	○

Next

The Atlantic EMS Council

Domain 2: AIRWAY MANAGEMENT, RESPIRATIONS AND ARTIFICIAL VENTILATION	During the past 12 months, how frequently did you perform this skill or procedure while providing EMS care?					How much harm could result to the patient if you *omitted* this procedure or skill or *performed it incorrectly*?				
	Never	Less than Monthly	Monthly	Weekly	Daily	None	Minimal	Moderate	Consider-able	Out of Scope
Use airway adjuncts										
• Oropharyngeal airway	○	○	○	○	○	○	○	○	○	○
• Nasopharyngeal airway	○	○	○	○	○	○	○	○	○	○
Perform airway maneuvers										
• Head tilt chin lift	○	○	○	○	○	○	○	○	○	○
• Jaw thrust	○	○	○	○	○	○	○	○	○	○
• Chin lift	○	○	○	○	○	○	○	○	○	○
•Sellick maneuver (cricoid pressure)	○	○	○	○	○	○	○	○	○	○
Manage existing tracheostomy	○	○	○	○	○	○	○	○	○	○
Use extratracheal airway device (Dual lumen airway, combitube, laryngeal mask airway (LMA), King airway)	○	○	○	○	○	○	○	○	○	○
Perform cricothyrotomy										
• Needle	○	○	○	○	○	○	○	○	○	○
•Surgical	○	○	○	○	○	○	○	○	○	○
Clear obstructed airway										
• Manual (finger sweep)	○	○	○	○	○	○	○	○	○	○
• Abdominal / chest thrusts	○	○	○	○	○	○	○	○	○	○
•Upper airway mechanical (Magill forceps)	○	○	○	○	○	○	○	○	○	○
Perform nasogastric/orogastric tube insertion	○	○	○	○	○	○	○	○	○	○

Next

	During the past 12 months, how frequently did you perform this skill or procedure while providing EMS care?					How much harm could result to the patient if you *omitted* this procedure or skill or *performed it incorrectly*?				
Domain 2: AIRWAY MANAGEMENT, RESPIRATIONS AND ARTIFICIAL VENTILATION	**Never**	**Less than Monthly**	**Monthly**	**Weekly**	**Daily**	**None**	**Minimal**	**Moderate**	**Consider-able**	**Out of Scope**
Perform intubation										
• Nasotracheal	○	○	○	○	○	○	○	○	○	○
• Orotracheal	○	○	○	○	○	○	○	○	○	○
• Digital	○	○	○	○	○	○	○	○	○	○
• Pharmacological facilitation (e.g. sedation-assisted, RSI)	○	○	○	○	○	○	○	○	○	○
• Confirmation procedures (e.g., visualization, capnography, esophageal detection)	○	○	○	○	○	○	○	○	○	○
• Fiberoptic scope or camera devices	○	○	○	○	○	○	○	○	○	○
• Transillumination (e.g. trachlight)	○	○	○	○	○	○	○	○	○	○
• Retrograde with guidewire	○	○	○	○	○	○	○	○	○	○
• "Bougie" assisted	○	○	○	○	○	○	○	○	○	○
Deliver oxygen										
• Nasal cannula	○	○	○	○	○	○	○	○	○	○
• Venturi mask	○	○	○	○	○	○	○	○	○	○
• Simple face mask	○	○	○	○	○	○	○	○	○	○
• Rebreathing face mask	○	○	○	○	○	○	○	○	○	○
• Partial rebreather face mask	○	○	○	○	○	○	○	○	○	○
• Non-rebreather face mask	○	○	○	○	○	○	○	○	○	○
• Face tent	○	○	○	○	○	○	○	○	○	○
• Tracheal cuff/mask	○	○	○	○	○	○	○	○	○	○
• Oxygen hood	○	○	○	○	○	○	○	○	○	○
• Flow restricted oxygen powered ventilation device	○	○	○	○	○	○	○	○	○	○
• Blow-by-delivery	○	○	○	○	○	○	○	○	○	○
• Humidification	○	○	○	○	○	○	○	○	○	○

Next

This page contains a list of medications related to Emergency Medical Service. Please note that the ratings for the following medications refer to the **use** and **administering** of these medications. Examples are provided for clarification, however, medications are not limited to these examples.

Frequency During the past 12 months, how frequently did you administer this medication while providing EMS care?
Never, Monthly or less, Weekly, or Daily

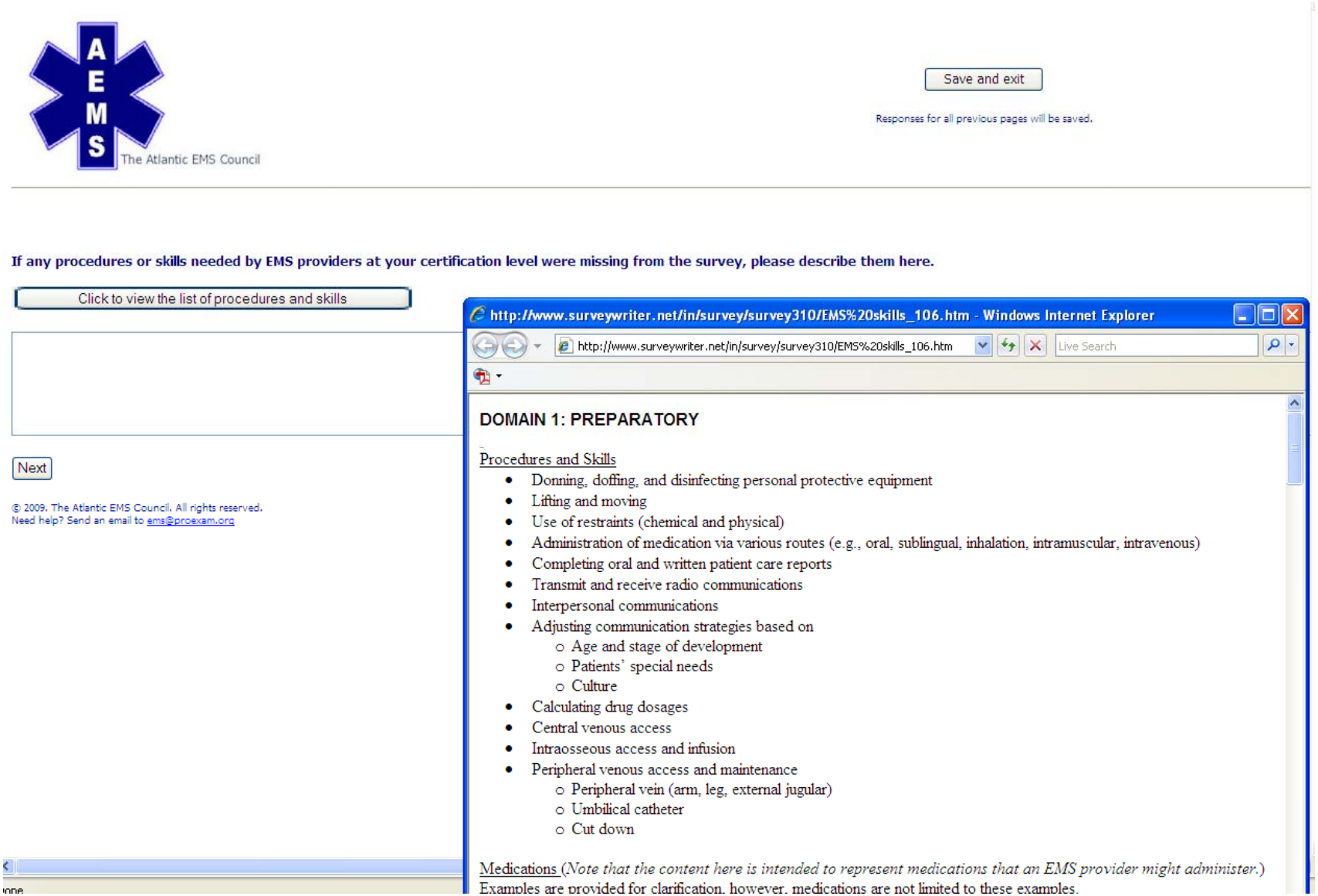
Potential Harm How much harm could result if you made an error in administering this medication?
None, Minimal, Moderate, Considerable

	During the past 12 months, how frequently did you administer this medication while providing EMS care?					How much harm could result to the patient if you made an error in administering this medication?				
Medications	Never	Less than Monthly	Monthly	Weekly	Daily	None	Minimal	Moderate	Consider-able	Out of Scope
Analgesics (pain medications) (e.g., Tylenol ®, Advil ®, opiates and related narcotics, aspirin)	○	○	○	○	○	○	○	○	○	○
Anesthetics (numbing medications) (e.g., Chloraseptic ®, benzocaine)	○	○	○	○	○	○	○	○	○	○
Anticonvulsants (anti-seizure medication)	○	○	○	○	○	○	○	○	○	○
Antidotes (e.g., Narcan ®, Mark 1 kit ™, cyanide poisoning kit, amyl nitrate)	○	○	○	○	○	○	○	○	○	○
Antihistamines (e.g., Benadryl ®)	○	○	○	○	○	○	○	○	○	○
Behavior-altering medications (e.g., Valium ®, Haldol ®)	○	○	○	○	○	○	○	○	○	○
Biologicals (e.g., antibiotics, vaccines)	○	○	○	○	○	○	○	○	○	○
Blood/blood products	○	○	○	○	○	○	○	○	○	○
Blood modifiers (e.g., aspirin, blood thinners, antiplatelets, fibrinolytics, hemostatic agents)	○	○	○	○	○	○	○	○	○	○
Cardiovascular agents (e.g., epinephrine, nitroglycerine, Lasix ®)	○	○	○	○	○	○	○	○	○	○
Dietary supplements/electrolytes (e.g., vitamins, minerals)	○	○	○	○	○	○	○	○	○	○
Gas (e.g., oxygen, nitrous oxide)	○	○	○	○	○	○	○	○	○	○
Gastrointestinal (e.g., antidiarrheals, antacids)	○	○	○	○	○	○	○	○	○	○
Glucose altering agents (e.g., insulin, glucose)	○	○	○	○	○	○	○	○	○	○
Hormones (steroids)	○	○	○	○	○	○	○	○	○	○
Intravenous fluids (IV fluids)	○	○	○	○	○	○	○	○	○	○
Neuromuscular antagonists (e.g., paralyzing medication, paralytics)	○	○	○	○	○	○	○	○	○	○
Respiratory (e.g., albuterol, Atrovent ®)	○	○	○	○	○	○	○	○	○	○

Next

Need help? Send an email to ems@proexam.org

83%
Progress Meter


The Atlantic EMS Council
Save and exit
Responses for all previous pages will be saved.
If any procedures or skills needed by EMS providers at your certification level were missing from the survey, please describe them here.
Click to view the list of procedures and skills
Next
© 2009. The Atlantic EMS Council. All rights reserved.
Need help? Send an email to ems@proexam.org
http://www.surveywriter.net/in/survey/survey310/EMS%20skills_106.htm - Windows Internet Explorer
http://www.surveywriter.net/in/survey/survey310/EMS%20skills_106.htm
Live Search
DOMAIN 1: PREPARATORY
Procedures and Skills
Donning, doffing, and disinfecting personal protective equipment
Lifting and moving
Use of restraints (chemical and physical)
Administration of medication via various routes (e.g., oral, sublingual, inhalation, intramuscular, intravenous)
Completing oral and written patient care reports
Transmit and receive radio communications
Interpersonal communications
Adjusting communication strategies based on
Age and stage of development
Patients' special needs
Culture
Calculating drug dosages
Central venous access
Intraosseous access and infusion
Peripheral venous access and maintenance
Peripheral vein (arm, leg, external jugular)
Umbilical catheter
Cut down
Medications (Note that the content here is intended to represent medications that an EMS provider might administer.)
Examples are provided for clarification, however, medications are not limited to these examples.

Section 3—Domains

In the previous section, you rated knowledge, prodedures, and skills needed by EMS practitioners within eight domains of practice. In this section, please make a percentage rating for each of the eight domains:

What percentage of the certification/licensure examination for EMS providers at your certification level should be devoted to each knowledge domain?

Please note that knowledge and administration of EMS medications have been placed in Domain 1: *Preparatory.*

Click to view the knowledge, procedures, and skills included in each domain

Please note that your ratings must total 100%

Domain	%
Preparatory	%
Airway Management, Respirations and Artificial Ventilation	%
Assessment	%
Medicine	%
Shock and Resuscitation	%
Trauma and Environmental Emergencies	%
Special Patient Populations	%
Operations	%
Other	%
	Sum 0 %

Next

85%
Progress Meter

Save and exit

Responses for all previous pages will be saved.

Section 4—Patient Complaints and Conditions

Please rate how often you encounter each patient complaint or condition: *Never, Occasionally, or Frequently*

	How often do you encounter each patient complaint or condition?		
Patient Complaints/Conditions	**Never**	**Occasionally**	**Frequently**
abdominal pain/distension	○	○	○
abdominal trauma	○	○	○
abuse/neglect	○	○	○
agitation	○	○	○
allergic reaction/anaphylaxis	○	○	○
altered mental status/decreased level of consciousness	○	○	○
amputation	○	○	○
anorexia/bulimia (eating disorders)	○	○	○
anxiety	○	○	○
apnea	○	○	○
ascites (fluid retention in the abdomen)	○	○	○
assault	○	○	○
ataxia (lack of coordination of voluntary muscles)	○	○	○
back pain	○	○	○
behavioral emergency	○	○	○

Save and exit

Responses for all previous pages will be saved.

Section 5—Demographic Questionnaire

How many years of experience do you have in the field of EMS?

How many years of experience do you have at your current certification level?

What type of EMS service do you participate in? *(Select all that apply)*

- ☐ Career - Private EMS Service
- ☐ Career – Hospital-based EMS Service
- ☐ Career - Municipal Service (Does not include Fire)
- ☐ Career - Municipal Fire/EMS Service
- ☐ Career – Federal/State Government
- ☐ Volunteer - EMS Initial Response Agency (non Transporting)
- ☐ Volunteer - EMS Agency (Transporting)
- ☐ Volunteer - EMS/Fire Agency
- ☐ Not affiliated
- ☐ Other (please specify)

How many hours **per month** do you typically work or volunteer as an EMS provider?

- ○ 16 hours or less
- ○ 17 - 50 hours
- ○ 51 - 95 hours
- ○ More than 95 hours

How many calls do you respond to during a typical month?

- ○ None
- ○ 1-10
- ○ 11-20
- ○ 21-30
- ○ 31-40
- ○ 41-50
- ○ More than 50

What is your gender? (optional)

- ○ Female
- ○ Male

What is the highest level of education you have attained? (optional)

- ○ Some High School
- ○ Vocational and Technical Program
- ○ High School Equivalency Diploma
- ○ High School Diploma
- ○ Some College
- ○ Associate's Degree
- ○ Bachelor's Degree
- ○ Post-graduate Study (no degree)
- ○ Post-graduate Degree(s)

What is your ethnic background? (optional)

- ○ American Indian or Native American; Inuit; Aleut
- ○ Asian; Asian American; Pacific Islander
- ○ African, Black or African American (non-Hispanic)
- ○ Hispanic or Hispanic American
- ○ Caucasian/White/(non-Hispanic)
- ○ Other (please specify) [ ]

Next

Need help? Send an email to ems@proexam.org

Progress Meter

We appreciate your spending the time to complete this survey.

Your link contains an individualized password that allows us to verify who has completed the survey. A list of participants will be compiled after the survey is closed and those who completed the survey will be awarded the CE credits. It is not nescessary for you to provide any additional information. Your name will automatically be added to the list of participants who will receive CE credit.

Appendix 6
Survey Sampling Plan

Sampling Plan

		Population	Sampling Plan in Proposal	Actual Sampling Plan
MD	First Responder	7582	100	200
NC	Emergency Medical Responder	922	100	200
PA	First Responder	5065	100	200
VA	First Responder	135	100	135
WV	First Responder	93	100	93
		13797	**500**	**828**
MD	EMT-Basic	17213	250	350
NC	EMT-Basic	9779	250	350
NJ	EMT-Basic	12619	250	350
PA	EMT-Basic	33970	250	350
VA	EMT-Basic	7085	250	350
WV	EMT-Basic	1537	250	350
		82203	**1500**	**2100**
MD	CRT-99	887	140	300
NC	EMT-Intermediate	1725	140	300
VA	EMT-Enhanced	1027	140	300
VA	EMT-Intermediate	1683	140	300
WV	EMT-Intermediate	18	140	18
		5340	**700**	**1218**
MD	Paramedic	2579	250	350
NC	EMT-Paramedic	4369	250	350
NJ	Paramedic	1119	250	350
PA	EMT-Paramedic	11723	250	350
VA	EMT-Paramedic	2651	250	350
WV	EMT-Paramedic	671	250	350
		23112	**1500**	**2100**

Appendix 7
General Survey Invitation

The Atlantic EMS Council is sponsoring a study to identify the knowledge base, skills, and procedures that are utilized by EMS practitioners. Results will be used by the Atlantic EMS Council to develop exams for emergency medical service providers in your state.

A survey has been developed to collect information from a wide range of practitioners at all levels of practice. You have been randomly selected to complete the survey and will be awarded CE credit[1] for doing so. Following completion of the survey, proof of your participation will be forwarded to the EMS regulatory body in your state.

Participation is limited, so be sure to respond to the survey before the deadline (date).

To access the survey, use the following URL:

<<URL>>

We anticipate the survey taking 50-60 minutes to complete. If you are unable to complete the entire survey in one sitting, you may exit and return later. To return to the survey, use the above URL.

For any problems, feel free to call from 9 a.m. to 5 p.m. Eastern time at 212-367-4207.

Thank you in advance for taking the time to perform this critical review,

Jacqueline Siano
Research Associate
Professional Examination Service
475 Riverside Drive
New York, NY 10115
212-367-4207

[1] Each state awarded a different number of CE credits for participation in the survey. Participants received state-specific invitations with the number of CE credits being offered by their state.

Appendix 8
Return Rates by State

Survey Return Rates by State

Maryland

Level	Invitations Sent after Bounce-backs	Number Responded	Return Rate
First Responder	137	11	8.0%
EMT-Basic	288	42	14.6%
CRT-99	280	70	25.0%
Paramedic	322	66	20.5%
Total	**1027**	**189**	**18.4%**

North Carolina

Level	Invitations Sent after Bounce-backs	Number Responded	Return Rate
EMR	182	31	17.0%
EMT-Basic	320	48	15.0%
EMT-Intermediate	268	61	22.8%
EMT-Paramedic	350	56	16.0%
Total	**1120**	**196**	**17.5%**

New Jersey

Level	Invitations Sent after Bounce-backs	Number Responded	Return Rate
EMT-Basic	334	52	14.6%
Paramedic	350	64	20.5%
Total	**684**	**116**	**17.0%**

Pennsylvania

Level	Invitations Sent after Bounce-backs	Number Responded	Return Rate
First Responder	183	32	17.5%
EMT-Basic	325	78	24.0%
Paramedic	350	72	20.6%
Total	**858**	**182**	**20.6%**

Virginia

Level	Invitations Sent after Bounce-backs	Number Responded	Return Rate
First Responder	118	21	17.8%
EMT-Basic	315	51	16.2%
EMT-Intermediate	270	53	19.6%
EMT-Enhanced	279	64	22.9%
Paramedic	350	77	22.0%
Total	**1332**	**266**	**17.0%**

West Virginia

Level	Invitations Sent after Bounce-backs	Number Responded	Return Rate
First Responder	83	8	9.6%
EMT-Basic	319	30	9.4%
EMT-Intermediate	16	3	18.8%
Paramedic	350	70	20.0%
Total	**768**	**111**	**14.5%**

Appendix 9
Ratings for Patient Complaints and Conditions

Please rate how often you encounter each patient complaint or condition
(1 = *Never, 2 = Occasionally, or 3 = Frequently)*

Complaint/Condition	Mean
abdominal pain/distension	2.5
abdominal trauma	1.9
abuse/neglect	1.8
agitation	2.2
allergic reaction/anaphylaxis	2.1
altered mental status/decreased level of consciousness	2.6
amputation	1.6
anorexia/bulimia (eating disorders)	1.4
anxiety	2.4
apnea	2.0
ascites (fluid retention in the abdomen)	1.7
assault	2.3
ataxia (lack of coordination of voluntary muscles)	1.6
back pain	2.5
behavioral emergency	2.3
bite(s)	1.9
bleeding	2.5
blood and body fluid exposure	2.2
blunt trauma	2.3
bradycardia (slow heart rate)	2.1
burns	1.9
cardiac arrest	2.2
cardiac rhythm disturbances	2.4
chemical burn	1.6
chest pain/pressure	2.7
childbirth (normal)	1.7
childbirth (complicated)	1.4
choking (including foreign body airway obstruction)	1.9
confusion	2.4
congestion	2.4
constipation	2.0
cough/hiccough	2.1
cyanosis	2.0
dementia (memory impairment)	2.4
dental pain	1.6
diaphoresis (sweating)	2.3

Complaint/Condition	Mean
diarrhea	2.1
dislocations	2.0
diving emergencies (the bends)	1.2
dizziness/vertigo	2.2
dysmenorrhea (painful periods)	1.7
dysphagia (difficulty swallowing)	1.7
dysphasia (difficulty speaking)	1.9
dyspnea (shortness of breath)	2.6
dysuria (difficult/painful urination)	1.8
ear pain	1.6
ear trauma	1.5
edema	2.3
electrical burn	1.6
electrical shock	1.6
endocrine emergencies (e.g., diabetes, myxadema coma, thyroid storm)	2.5
envenomation	1.4
epistaxis (nose bleed)	2.1
extremity pain/injury	2.4
eye pain	1.7
Eye trauma	1.7
falls	2.7
fatigue	2.2
feeding problems	1.6
fever	2.3
genital pain	1.6
GI bleeding	2.1
gynecological emergencies	1.8
hallucinations	1.9
headache	2.4
head trauma	2.2
hearing disturbance	1.6
hematuria (blood in urine)	1.8
hemoptysis (coughing blood from the lungs)	1.8
high altitude illness	1.1
hives	1.9
homicidal thoughts	1.9
hyperglycemia (high blood sugar)	2.4
hypertension (high blood pressure)	2.6

Complaint/Condition	Mean
hyperthermia (high body temperature)	2.0
hypoglycemia (low blood sugar)	2.6
hypotension (low blood pressure)	2.4
hypothermia (low body temperature)	1.9
impaired vision	1.8
impaled object	1.7
incontinence (inability to control bowel/bladder)	1.9
infection (local)	2.0
infection (general)	2.0
intoxication	2.5
jaundice	1.7
joint pain/swelling	2.1
malaise	2.0
multiple trauma	2.1
nausea/vomiting	2.5
near drowning	1.6
neck pain	2.3
numbness	2.1
obstetric emergencies (e.g. placenta previa, pre-eclampsia, eclampsia, abruptio, spontaneous abortion)	1.7
pain (generalized)	2.6
palpitations	2.3
paralysis	1.8
pediatric crying/fussiness	2.0
penetrating trauma	1.9
poisoning/overdose	2.2
polyuria (frequent urination)	1.6
pruritus (itching)	1.8
radiation exposure	1.1
rash	2.0
rectal pain/bleeding	1.9
red/pink eye	1.7
respiratory distress	2.7
seizures	2.5
sexual assault	1.7
shock	2.2
sickle cell crisis	1.5
soft tissue injuries	2.3
sore throat	2.0

Complaint/Condition	Mean
sprains/strains	2.4
spinal trauma	2.0
stridor (high-pitched upper airway sound)	1.9
stroke	2.4
substance abuse	2.4
suicidal thoughts	2.2
syncope (fainting)	2.4
tachycardia (fast heart rate)	2.3
thermal burn	1.7
thoracic trauma	1.8
tooth avulsion/ fracture	1.5
tinnitus (ringing in the ear)	1.6
tremor	1.8
urinary retention	1.7
violent behavior	2.0
visual disturbances	1.8
weakness	2.5
wheezing	2.4

Appendix 10
Race/Ethnicity and Gender by Certification Level by State

EMS Provider Level * Ethnic Background * State Crosstabulation

State	Level	Ethnic Background						Total
		American Indian or Native American; Inuit; Aleut	Asian; Asian American; Pacific Islander	African, Black or African American (non-Hispanic)	Hispanic or Hispanic American	Caucasian/ White/ (non-Hispanic)	Other	
Maryland	First Responder	0		1	0	10	0	11
		0.0%		9.1%	0.0%	90.9%	0.0%	100%
	EMT-Basic	0		4	1	35	1	41
		0.0%		9.8%	2.4%	85.4%	2.4%	100%
	EMT-Intermediate	1		13	0	53	1	68
		1.5%		19.1%	0.0%	77.9%	1.5%	100%
	EMT-Paramedic	1		3	0	58	0	62
		1.6%		4.8%	0.0%	93.5%	0.0%	100%
	Total	2		21	1	156	2	182
		1.1%		11.5%	0.5%	85.7%	1.1%	100%
New Jersey	EMT-Basic		1	1	0	48	1	51
			2.0%	2.0%	0.0%	94.1%	2.0%	100%
	EMT-Paramedic		0	1	1	60	1	63
			0.0%	1.6%	1.6%	95.2%	1.6%	100%
	Total		1	2	1	108	2	114
			0.9%	1.8%	0.9%	94.7%	1.8%	100%
North Carolina	First Responder	0	0	1	0	30	0	31
		0.0%	0.0%	3.2%	0.0%	96.8%	0.0%	100%
	EMT-Basic	1	0	1	0	46	0	48
		2.1%	0.0%	2.1%	0.0%	95.8%	0.0%	100%
	EMT-Intermediate	1	1	0	1	58	0	61
		1.6%	1.6%	0.0%	1.6%	95.1%	0.0%	100%
	EMT-Paramedic	1	0	1	2	49	1	54
		1.9%	0.0%	1.9%	3.7%	90.7%	1.9%	100%
	Total	3	1	3	3	183	1	194
		1.5%	0.5%	1.5%	1.5%	94.3%	0.5%	100.0
Pennsylvania	First Responder	0	0	1	0	30	0	31
		0.0%	0.0%	3.2%	0.0%	96.8	0.0%	100%
	EMT-Basic	1	0	0	3	74	0	78
		1.3%	0.0%	0.0%	3.8%	94.9	0.0%	100%
	EMT-Paramedic	1	1	2	0	65	1	70
		1.4%	1.4%	2.9%	0.0%	92.9	1.4%	100%
	Total	2	1	3	3	169	1	179
		1.1%	0.6%	1.7%	1.7%	94.4	0.6%	100%

EMS Provider Level * Ethnic Background * State Crosstabulation

State	Level	Ethnic Background						Total
		American Indian or Native American; Inuit; Aleut	Asian; Asian American; Pacific Islander	African, Black or African American (non-Hispanic)	Hispanic or Hispanic American	Caucasian/ White/ (non-Hispanic)	Other	
Virginia	First Responder	0	0	0		19	0	19
		0.0%	0.0%	0.0%		100.0	0.0%	100%
	EMT-Basic	2	0	2		46	1	51
		3.9%	0.0%	3.9%		90.2	2.0%	100%
	EMT-Intermediate	2	1	6		105	3	117
		1.7%	0.9%	5.1%		89.7	2.6%	100%
	EMT-Paramedic	2	0	1		69	2	74
		2.7%	0.0%	1.4%		93.2	2.7%	100%
	Total	6	1	9		239	6	261
		2.3%	0.4%	3.4%		91.6	2.3%	100%
West Virginia	First Responder			0	0	8		8
				0.0%	0.0%	100.0		100%
	EMT-Basic			0	1	29		30
				0.0%	3.3%	96.7		100%
	EMT-Intermediate			0	0	3		3
				0.0%	0.0%	100.0		100%
	EMT-Paramedic			1	0	69		70
				1.4%	0.0%	98.6		100%
	Total			1	1	109		111
				0.9%	0.9%	98.2		100%

EMS Provider Level * Gender * State Crosstabulation

State	Level	Gender		Total
		Female	Male	
Maryland	First Responder	5	6	11
		45.5%	54.5%	100%
	EMT-Basic	11	30	41
		26.8%	73.2%	100%
	EMT-Intermediate	21	49	70
		30.0%	70.0%	100%
	EMT-Paramedic	18	47	65
		27.7%	72.3%	100%
	Total	55	132	187
		29.4%	70.6%	100%
New Jersey	EMT-Basic	16	35	51
		31.4%	68.6%	100%
	EMT-Paramedic	20	41	61
		32.8%	67.2%	100%
	Total	36	76	112
		32.1%	67.9%	100%
North Carolina	First Responder	7	24	31
		22.6%	77.4%	100%
	EMT-Basic	13	35	48
		27.1%	72.9%	100%
	EMT-Intermediate	26	34	60
		43.3%	56.7%	100%
	EMT-Paramedic	15	39	54
		27.8%	72.2%	100%
	Total	61	132	193
		31.6%	68.4%	100%
Pennsylvania	First Responder	4	28	32
		12.5%	87.5%	100%
	EMT-Basic	14	64	78
		17.9%	82.1%	100%
	EMT-Paramedic	11	59	70
		15.7%	84.3%	100%
	Total	29	151	180
		16.1%	83.9%	100%

EMS Provider Level * Gender * State Crosstabulation

State	Level	Gender		Total
		Female	Male	
Virginia	First Responder	6	15	21
		28.6%	71.4%	100%
	EMT-Basic	23	28	51
		45.1%	54.9%	100%
	EMT-Intermediate	38	79	117
		32.5%	67.5%	100%
	EMT-Paramedic	16	59	75
		21.3%	78.7%	100%
	Total	83	181	264
		31.4%	68.6%	100%
West Virginia	First Responder	2	6	8
		25.0%	75.0%	100%
	EMT-Basic	12	18	30
		40.0%	60.0%	100%
	EMT-Intermediate	1	2	3
		33.3%	66.7%	100%
	EMT-Paramedic	17	52	69
		24.6%	75.4%	100%
	Total	32	78	110
		29.1%	70.9%	100%

Appendix 11
Frequency and Harm Ratings for Knowledge for
First Responders, EMT-Basics, EMT-Intermediates, and EMT-Paramedics

Frequency and *Harm* Ratings for Knowledge

Knowledge		Frequency				Harm			
		First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic	First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic
	Domain 1: Preparatory								
1.1	Overview of EMS systems (e.g., roles and responsibilities of EMS personnel, quality improvement, history of EMS)	2.8	3.3	3.6	3.7	2.5	2.7	2.7	2.6
1.2	How research affects practice in the EMS field	2.5	2.9	2.9	3.0	2.5	2.6	2.5	2.6
1.3	Personal safety (e.g., scene safety, personal protective equipment, self-defense, Occupational Safety and Health Administration (OSHA) requirements)	3.9	4.3	4.6	4.6	3.2	3.4	3.3	3.3
1.4	Personal wellness (e.g., sleep deprivation, nutrition, weight management, stress)	3.3	3.8	4.1	4.0	2.9	3.0	3.1	3.0
1.5	Principles of medical documentation and report writing	3.3	4.1	4.4	4.6	2.7	2.9	2.8	2.8
1.6	EMS system communication	3.3	4.1	4.4	4.5	2.9	3.0	2.8	2.8
1.7	Communication with patients to achieve a positive relationship (therapeutic communication, multicultural awareness)	3.4	4.1	4.4	4.5	3.0	3.1	3.1	3.2
1.8	Medical/legal and ethics (e.g., Do not resuscitate (DNR), consent, confidentiality, Health Insurance Portability and Accountability Act [HIPPA])	3.0	3.8	4.2	4.3	2.8	3.0	3.0	3.0
1.9	Anatomy and physiology	3.1	4.0	4.3	4.6	3.1	3.4	3.4	3.5
1.10	Medical terminology	3.2	4.0	4.3	4.6	2.8	2.9	2.8	2.9
1.11	Pathophysiology (human biological and chemical processes)	2.7	3.4	4.0	4.4	2.8	2.9	3.1	3.3
1.12	Life span development (understanding of changes occurring across different stages of life)	2.6	3.4	3.7	4.0	2.6	2.7	2.7	2.7
1.13	Public Health (role of EMS in public health emergencies, health promotion, injury and illness prevention)	3.0	3.3	3.4	3.4	2.7	2.6	2.5	2.4
1.14	Principles of pharmacology	2.1	3.1	4.1	4.5	2.6	3.1	3.5	3.7
1.15	Medication administration	2.1	3.1	4.2	4.6	2.7	3.3	3.7	3.8
1.16	Analgesics(pain medications) (e.g., Tylenol, Advil, Opiates and related narcotics, aspirin)	2.8	3.1	3.3	3.5	2.3	2.9	3.5	3.9
1.17	Anesthethetics (numbing medications) (e.g., Chloroseptic, benzocaine)	2.8	2.8	2.7	2.6	1.5	1.9	2.0	1.9
1.18	Anticonvulsants (anti-seizure medication)	2.9	3.1	3.3	3.5	1.5	2.1	2.7	3.2

Frequency and *Harm* Ratings for Knowledge

Knowledge		Frequency				Harm			
		First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic	First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic
1.19	Antidotes (e.g., Narcan, MARK-1 kit, cyanide poisoning kit, amyl nitrate)	3.0	3.1	3.3	3.4	1.4	1.8	2.6	2.8
1.20	Antihistamines (e.g., Benadryl)	2.8	2.9	3.3	3.3	2.0	2.5	2.9	3.0
1.21	Behavior-altering medications (e.g., Valium, Haldol)	2.8	3.0	3.2	3.2	1.6	2.3	2.4	2.7
1.22	Biologicals (e.g., antibiotics, vaccines)	2.8	2.8	2.7	2.5	1.6	2.2	2.0	2.0
1.23	Blood/blood products	2.8	3.0	2.8	2.8	1.6	2.0	1.8	1.7
1.24	Blood modifiers (e.g., aspirin, blood thinners, antiplatelets, fibrinolytics, hemostatic agents)	2.9	3.2	3.3	3.4	1.7	2.6	3.2	3.5
1.25	Cardiovascular agents (e.g., epinephrine, nitroglycerine, Lasix)	3.0	3.4	3.6	3.7	1.7	2.7	3.4	4.0
1.26	Dietary supplements/electrolytes(e.g., vitamins, minerals)	2.6	2.6	2.4	2.3	1.8	2.3	2.1	2.0
1.27	Gas (e.g., oxygen, nitrous oxide)	3.1	3.3	3.2	3.2	2.4	3.5	4.1	4.3
1.28	Gastrointestinal (e.g., antidiarrheals, antacids)	2.6	2.7	2.5	2.3	1.7	2.2	2.2	2.1
1.29	Glucose altering agents (e.g., insulin, glucose)	3.1	3.4	3.5	3.6	2.1	3.0	3.7	3.9
1.30	Hormones(steroids)	2.7	2.7	2.6	2.6	1.4	1.8	1.9	2.2
1.31	Intravenous fluids (IV fluids)	2.8	3.1	3.3	3.3	1.5	2.4	4.1	4.4
1.32	Neuromuscular antagonists (e.g., paralyzing medication, paralytics)	2.8	3.0	3.0	3.4	1.2	1.6	1.8	2.3
1.33	Respiratory (e.g., Albuterol, Atrovent)	3.0	3.4	3.5	3.5	1.9	2.9	3.8	4.1
	Domain 2: Airway Management, Respirations, and Artificial Ventilation								
2.1	Airway anatomy and physiology	2.9	3.6	3.9	4.2	3.5	3.7	3.7	3.8
2.2	Normal and abnormal respiration	3.1	3.9	4.2	4.5	3.5	3.7	3.7	3.8
2.3	Airway assessment	3.2	4.0	4.4	4.6	3.6	3.8	3.8	3.9
2.4	Causes of upper airway obstruction	2.6	3.2	3.5	3.7	3.5	3.7	3.7	3.7
2.5	Causes of lower airway obstruction	2.5	3.1	3.6	3.9	3.5	3.6	3.7	3.7
2.6	Techniques for assuring patent airway	2.8	3.6	3.9	4.2	3.6	3.8	3.8	3.9
2.7	Artificial ventilation (e.g., assisted ventilation)	2.3	3.0	3.4	3.7	3.6	3.8	3.8	3.9
2.8	Oxygen delivery systems	3.0	4.0	4.4	4.6	3.5	3.7	3.6	3.7

Frequency and *Harm* Ratings for Knowledge

Knowledge		Frequency				Harm			
		First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic	First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic
	Domain 3: Assessment								
3.1	Scene size-up (e.g., scene safety, hazards, violence, additional resources, mass casualties)	3.6	4.1	4.5	4.5	3.4	3.4	3.4	3.4
3.2	Primary (initial) assessment	3.5	4.2	4.6	4.7	3.4	3.7	3.7	3.8
3.3	History-taking	3.4	4.2	4.6	4.7	3.2	3.5	3.5	3.5
3.4	Secondary (e.g. detailed, focused, rapid) assessment	3.2	4.1	4.5	4.6	3.2	3.5	3.5	3.6
3.5	Reassessment (ongoing)	3.2	4.1	4.5	4.6	3.2	3.5	3.5	3.5
3.6	Monitoring devices (e.g. indications, contraindications, values, false negatives/ positives)	2.7	3.8	4.4	4.6	3.1	3.5	3.4	3.6
3.7	Techniques of physical examination (normal findings)	3.2	4.0	4.5	4.7	3.1	3.4	3.4	3.5
	Domain 4: Medicine								
4.1	Neurology	2.0	3.0	3.6	3.9	2.9	3.2	3.3	3.4
4.2	Abdominal and gastrointestinal disorders	2.2	3.0	3.7	3.9	2.9	3.0	3.1	3.1
4.3	Immunology	2.0	2.7	3.2	3.3	2.8	2.8	2.9	2.9
4.4	Infectious diseases	2.4	3.2	3.7	3.7	3.0	3.2	3.2	3.1
4.5	Endocrine disorders	2.0	2.7	3.3	3.7	2.7	2.9	3.1	3.2
4.6	Psychiatric disorders	2.1	3.0	3.5	3.5	2.8	3.0	2.9	2.8
4.7	Cardiovascular disorders	2.5	3.6	4.1	4.4	3.2	3.6	3.7	3.8
4.8	Toxicology	2.0	2.8	3.4	3.6	2.9	3.2	3.3	3.4
4.9	Respiratory disorders	2.8	3.6	4.2	4.4	3.3	3.6	3.7	3.8
4.10	Hematology	1.9	2.6	3.1	3.1	2.7	2.9	2.9	2.9
4.11	Genitourinary/renal disorders	1.7	2.6	3.3	3.4	2.7	2.8	2.9	3.0
4.12	Gynecology	1.7	2.4	2.8	2.9	2.6	2.8	2.9	2.9
4.13	Non-traumatic musculoskeletal disorders	2.0	2.9	3.2	3.2	2.7	2.8	2.8	2.7
4.14	Diseases of the eyes, ears, nose, and throat	1.8	2.6	2.9	2.9	2.7	2.8	2.7	2.7

Frequency and *Harm* Ratings for Knowledge

Knowledge		Frequency				Harm			
		First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic	First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic
	Domain 5: Shock and Resuscitation								
5.1	Signs and symptoms of shock	2.8	3.3	3.8	3.9	3.5	3.8	3.8	3.8
5.2	Pathophysiology of various types of shock	2.3	3.0	3.5	3.8	3.3	3.6	3.7	3.7
	Domain 6: Trauma and Environmental Emergencies								
6.1	Bleeding	3.0	3.5	3.8	3.8	3.5	3.7	3.6	3.6
6.2	Chest trauma	2.3	2.7	3.1	3.2	3.5	3.8	3.7	3.8
6.3	Abdominal and genitourinary trauma	2.1	2.6	3.0	3.1	3.3	3.6	3.5	3.5
6.4	Orthopedic trauma (e.g., fractures, amputations, sprains)	2.5	3.1	3.4	3.5	3.3	3.4	3.4	3.3
6.5	Soft tissue trauma	2.6	3.2	3.6	3.7	3.1	3.2	3.2	3.1
6.6	Traumatic brain injury/head injury	2.2	2.7	3.0	3.1	3.6	3.8	3.8	3.8
6.7	Facial trauma	2.1	2.7	3.0	3.1	3.4	3.5	3.4	3.4
6.8	Spine trauma/spinal cord injury	2.3	3.0	3.3	3.2	3.6	3.8	3.8	3.7
6.9	Multi-system trauma	2.0	2.7	3.0	3.2	3.5	3.8	3.8	3.8
6.10	Special populations in trauma (i.e., pediatrics, pregnant, geriatric, cognitively impaired)	2.1	2.7	3.0	3.1	3.3	3.5	3.5	3.5
6.11	Traumatic cardiac arrest	2.1	2.5	2.7	2.6	3.6	3.7	3.7	3.5
6.12	Environmental emergencies (e.g., heat, cold, bites)	2.2	2.6	2.8	2.8	3.2	3.4	3.4	3.4
	Domain 7: Special Patient Populations								
7.1	Obstetrics	1.6	2.1	2.6	2.5	2.9	3.3	3.3	3.4
7.2	Neonatal care	1.5	1.8	2.2	2.2	2.9	3.4	3.5	3.6
7.3	Pediatric patient care	2.0	2.5	3.0	3.0	3.1	3.4	3.5	3.5
7.4	Geriatric patient care	2.3	3.4	4.0	4.1	3.0	3.3	3.4	3.4
7.5	Considerations for patients with special challenges (e.g. abuse, neglect, bariatric, hospice, developmental disabilities)	1.9	2.7	2.8	3.0	2.9	3.2	3.1	3.2

Frequency and *Harm* Ratings for Knowledge

Knowledge		Frequency				Harm			
		First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic	First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic
	Domain 8: Operations								
8.1	Principles of safely operating a ground ambulance	2.3	3.8	4.3	4.4	3.1	3.6	3.5	3.6
8.2	Incident management	2.9	3.4	3.6	3.7	3.2	3.3	3.2	3.1
8.3	Multiple casualty incidents	1.8	2.3	2.4	2.4	3.3	3.5	3.3	3.2
8.4	Criteria for utilizing air medical response	2.0	2.4	2.6	2.8	3.2	3.4	3.2	3.2
8.5	Air medical safety procedures	1.9	2.3	2.3	2.7	3.2	3.3	3.1	3.1
8.6	Vehicle extrication	2.2	2.7	2.9	2.9	3.4	3.6	3.5	3.4
8.7	Risks and responsibilities at hazardous materials situation	2.0	2.3	2.3	2.3	3.4	3.4	3.4	3.3
8.8	Risks and responsibilities of operating on the scene of a natural or manmade disaster	1.8	2.1	2.1	2.0	3.3	3.4	3.3	3.2

Appendix 12
Frequency and Harm Ratings for Knowledge for EMT-Intermediates by State/Title

Frequency and *Harm* Ratings for Knowledge for Intermediate Level EMS Providers

	Knowledge	Frequency				Harm			
		MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced
	Domain 1: Preparatory								
1.1	Overview of EMS systems (e.g., roles and responsibilities of EMS personnel, quality improvement, history of EMS)	3.6	3.5	3.6	3.4	2.6	2.8	2.8	2.6
1.2	How research affects practice in the EMS field	2.6	3.0	3.0	2.9	2.4	2.6	2.6	2.6
1.3	Personal safety (e.g., scene safety, personal protective equipment, self-defense, Occupational Safety and Health Administration (OSHA) requirements)	4.6	4.5	4.6	4.6	3.3	3.3	3.4	3.3
1.4	Personal wellness (e.g., sleep deprivation, nutrition, weight management, stress)	4.1	4.0	4.1	4.1	2.8	3.2	3.2	2.9
1.5	Principles of medical documentation and report writing	4.3	4.5	4.5	4.6	2.4	2.7	3.0	2.9
1.6	EMS system communication	4.3	4.4	4.4	4.3	2.5	3.0	2.9	2.9
1.7	Communication with patients to achieve a positive relationship (therapeutic communication, multicultural awareness)	4.6	4.3	4.4	4.5	2.9	3.3	3.1	3.0
1.8	Medical/legal and ethics (e.g., Do not resuscitate (DNR), consent, confidentiality, Health Insurance Portability and Accountability Act [HIPPA])	4.2	4.1	4.2	4.3	2.7	3.1	3.1	3.0
1.9	Anatomy and physiology	4.5	4.3	4.2	4.6	3.2	3.5	3.4	3.7
1.10	Medical terminology	4.4	4.3	4.3	4.6	2.7	2.8	2.9	2.9
1.11	Pathophysiology (human biological and chemical processes)	4.3	3.8	3.9	4.4	3.1	3.2	3.1	3.4
1.12	Life span development (understanding of changes occurring across different stages of life)	3.7	3.7	3.6	3.9	2.6	2.9	2.7	2.8
1.13	Public Health (role of EMS in public health emergencies, health promotion, injury and illness prevention)	3.4	3.3	3.5	3.3	2.3	2.6	2.5	2.4
1.14	Principles of pharmacology	4.3	4.1	4.1	4.4	3.4	3.6	3.5	3.7
1.15	Medication administration	4.3	4.2	4.2	4.5	3.6	3.8	3.7	3.9
1.16	Analgesics(pain medications) (e.g., Tylenol, Advil, Opiates and related narcotics, aspirin)	3.7	3.5	3.4	3.8	3.2	3.3	3.3	3.5
1.17	Anesthethetics (numbing medications) (e.g., Chloroseptic, benzocaine)	2.2	1.8	2.0	2.2	2.5	3.0	2.8	2.5
1.18	Anticonvulsants (anti-seizure medication)	3.2	2.3	2.6	3.3	3.3	3.3	3.3	3.5
1.19	Antidotes (e.g., Narcan, MARK-1 kit, cyanide poisoning kit, amyl nitrate)	3.1	2.4	2.5	2.9	3.2	3.4	3.4	3.5
1.20	Antihistamines (e.g., Benadryl)	3.0	2.9	2.9	3.1	3.2	3.4	3.3	3.3

Frequency and *Harm* Ratings for Knowledge for Intermediate Level EMS Providers

Knowledge		Frequency				Harm			
		MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced
1.21	Behavior-altering medications (e.g., Valium, Haldol)	2.5	2.2	2.5	2.9	3.1	3.3	3.2	3.2
1.22	Biologicals (e.g., antibiotics, vaccines)	2.0	1.9	2.1	2.2	2.5	2.9	2.7	2.4
1.23	Blood/blood products	2.1	1.6	1.8	2.0	2.5	3.1	2.8	2.6
1.24	Blood modifiers (e.g., aspirin, blood thinners, antiplatelets, fibrinolytics, hemostatic agents)	3.5	3.1	3.1	3.5	3.2	3.4	3.2	3.3
1.25	Cardiovascular agents (e.g., epinephrine, nitroglycerine, Lasix)	3.9	3.2	3.2	4.0	3.5	3.7	3.6	3.7
1.26	Dietary supplements/electrolytes(e.g., vitamins, minerals)	2.2	1.9	2.1	2.3	2.3	2.7	2.4	2.2
1.27	Gas (e.g., oxygen, nitrous oxide)	4.3	4.2	4.0	4.3	3.1	3.4	3.2	3.3
1.28	Gastrointestinal (e.g., antidiarrheals, antacids)	2.4	2.1	2.1	2.4	2.2	2.9	2.4	2.2
1.29	Glucose altering agents (e.g., insulin, glucose)	4.1	3.6	3.6	3.9	3.4	3.6	3.5	3.6
1.30	Hormones(steroids)	1.9	1.9	2.0	2.3	2.3	2.9	2.6	2.4
1.31	Intravenous fluids (IV fluids)	4.3	4.0	4.0	4.4	3.1	3.5	3.3	3.3
1.32	Neuromuscular antagonists (e.g., paralyzing medication, paralytics)	1.6	1.8	1.9	2.4	2.6	3.3	3.1	3.4
1.33	Respiratory (e.g., Albuterol, Atrovent)	4.3	3.5	3.6	4.1	3.4	3.5	3.5	3.6
	Domain 2: Airway Management, Respirations, and Artificial Ventilation								
2.1	Airway anatomy and physiology	3.9	3.9	3.9	4.2	3.7	3.9	3.7	3.8
2.2	Normal and abnormal respiration	4.4	4.1	4.2	4.5	3.7	3.8	3.8	3.9
2.3	Airway assessment	4.6	4.3	4.4	4.6	3.7	3.8	3.8	3.9
2.4	Causes of upper airway obstruction	3.6	3.6	3.5	3.9	3.6	3.7	3.7	3.8
2.5	Causes of lower airway obstruction	3.7	3.6	3.5	3.9	3.6	3.7	3.7	3.8
2.6	Techniques for assuring patent airway	4.2	3.7	3.9	4.3	3.8	3.8	3.8	3.9
2.7	Artificial ventilation (e.g., assisted ventilation)	3.7	3.2	3.3	3.8	3.7	3.8	3.9	4.0
2.8	Oxygen delivery systems	4.5	4.2	4.4	4.6	3.5	3.7	3.6	3.7
	Domain 3: Assessment								
3.1	Scene size-up (e.g., scene safety, hazards, violence, additional resources, mass casualties)	4.7	4.4	4.4	4.6	3.2	3.6	3.4	3.4
3.2	Primary (initial) assessment	4.7	4.5	4.5	4.7	3.5	3.7	3.7	3.8
3.3	History-taking	4.8	4.5	4.5	4.7	3.3	3.5	3.5	3.5

Frequency and *Harm* Ratings for Knowledge for Intermediate Level EMS Providers

Knowledge		Frequency				Harm			
		MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced
3.4	Secondary (e.g. detailed, focused, rapid) assessment	4.7	4.4	4.4	4.7	3.4	3.6	3.6	3.6
3.5	Reassessment (ongoing)	4.5	4.5	4.4	4.7	3.3	3.6	3.5	3.6
3.6	Monitoring devices (e.g. indications, contraindications, values, false negatives/ positives)	4.5	4.3	4.3	4.6	3.4	3.5	3.4	3.6
3.7	Techniques of physical examination (normal findings)	4.7	4.4	4.4	4.7	3.3	3.4	3.4	3.6
	Domain 4: Medicine								
4.1	Neurology	3.8	3.7	3.4	4.0	3.2	3.4	3.3	3.3
4.2	Abdominal and gastrointestinal disorders	3.9	3.7	3.5	4.0	2.9	3.2	3.1	3.1
4.3	Immunology	3.2	3.3	3.1	3.4	2.7	3.0	2.9	2.8
4.4	Infectious diseases	3.8	3.8	3.6	3.8	3.0	3.3	3.2	3.0
4.5	Endocrine disorders	3.5	3.5	3.1	3.7	2.9	3.3	3.0	3.3
4.6	Psychiatric disorders	3.7	3.5	3.2	3.6	2.7	3.1	2.9	2.9
4.7	Cardiovascular disorders	4.4	4.1	3.9	4.4	3.7	3.8	3.7	3.8
4.8	Toxicology	3.7	3.4	3.3	3.5	3.2	3.4	3.3	3.3
4.9	Respiratory disorders	4.4	4.2	4.0	4.4	3.6	3.7	3.7	3.8
4.10	Hematology	3.2	3.1	3.0	3.1	2.8	3.1	2.9	2.9
4.11	Genitourinary/renal disorders	3.6	3.3	3.1	3.5	2.9	3.0	2.9	3.0
4.12	Gynecology	3.1	2.8	2.6	2.9	2.7	3.1	2.8	2.9
4.13	Non-traumatic musculoskeletal disorders	3.2	3.5	3.1	3.3	2.7	2.9	2.7	2.7
4.14	Diseases of the eyes, ears, nose, and throat	3.0	3.0	2.7	3.0	2.6	2.9	2.6	2.7
	Domain 5: Shock and Resuscitation								
5.1	Signs and symptoms of shock	3.9	3.7	3.7	4.0	3.8	3.8	3.8	3.9
5.2	Pathophysiology of various types of shock	3.7	3.4	3.5	3.9	3.7	3.7	3.6	3.7
	Domain 6: Trauma and Environmental Emergencies								
6.1	Bleeding	4.1	3.8	3.7	3.9	3.6	3.7	3.6	3.6
6.2	Chest trauma	3.2	2.9	3.1	3.3	3.7	3.8	3.7	3.8
6.3	Abdominal and genitourinary trauma	3.1	3.0	2.9	3.3	3.5	3.5	3.5	3.6

Frequency and *Harm* Ratings for Knowledge for Intermediate Level EMS Providers

Knowledge		Frequency				Harm			
		MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced
6.4	Orthopedic trauma (e.g., fractures, amputations, sprains)	3.4	3.5	3.4	3.5	3.3	3.5	3.3	3.3
6.5	Soft tissue trauma	3.8	3.6	3.5	3.6	3.2	3.3	3.1	3.1
6.6	Traumatic brain injury/head injury	3.1	2.9	3.0	3.1	3.8	3.8	3.8	3.8
6.7	Facial trauma	3.1	2.9	2.9	3.0	3.4	3.5	3.3	3.4
6.8	Spine trauma/spinal cord injury	3.3	3.4	3.3	3.3	3.7	3.8	3.8	3.8
6.9	Multi-system trauma	3.0	2.9	2.9	3.2	3.8	3.8	3.8	3.8
6.10	Special populations in trauma (i.e., pediatrics, pregnant, geriatric, cognitively impaired)	3.1	3.0	3.1	3.0	3.6	3.5	3.5	3.5
6.11	Traumatic cardiac arrest	2.8	2.6	2.6	2.6	3.7	3.7	3.6	3.5
6.12	Environmental emergencies (e.g., heat, cold, bites)	2.9	2.9	2.7	2.8	3.3	3.4	3.4	3.3
	Domain 7: Special Patient Populations								
7.1	Obstetrics	2.8	2.5	2.4	2.5	3.2	3.5	3.2	3.5
7.2	Neonatal care	2.4	2.1	2.0	2.3	3.5	3.5	3.5	3.7
7.3	Pediatric patient care	3.4	3.0	2.8	3.0	3.4	3.5	3.5	3.6
7.4	Geriatric patient care	4.1	4.2	3.8	3.9	3.3	3.5	3.3	3.5
7.5	Considerations for patients with special challenges (e.g. abuse, neglect, bariatric, hospice, developmental disabilities)	2.9	3.0	2.7	3.0	3.0	3.3	3.1	3.3
	Domain 8: Operations								
8.1	Principles of safely operating a ground ambulance	4.4	4.2	4.4	4.5	3.3	3.7	3.6	3.6
8.2	Incident management	3.6	3.6	3.7	3.9	2.9	3.4	3.2	3.1
8.3	Multiple casualty incidents	2.3	2.5	2.5	2.4	3.2	3.5	3.3	3.2
8.4	Criteria for utilizing air medical response	2.3	2.5	2.7	2.8	2.9	3.4	3.3	3.2
8.5	Air medical safety procedures	1.9	2.5	2.5	2.8	2.8	3.5	3.1	3.2
8.6	Vehicle extrication	3.1	2.8	2.8	2.9	3.4	3.7	3.4	3.4
8.7	Risks and responsibilities at hazardous materials situation	2.2	2.4	2.3	2.3	3.1	3.5	3.4	3.1
8.8	Risks and responsibilities of operating on the scene of a natural or manmade disaster	1.8	2.2	2.1	2.0	3.0	3.5	3.3	3.0

Appendix 13
Frequency and Harm Ratings for Procedures and Skills for
First Responders, EMT-Basics, EMT-Intermediates, and EMT-Paramedics

Shading Key:

Rated "Out of Scope" by 60% or More of Respondents
Below 1.5 Mean (if Frequency) or Below 2.8 Mean (if Harm)

***Frequency* and *Harm* Ratings for Procedures and Skills**

		Frequency				Harm			
	Procedures and Skills	First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic	First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic
	Domain 1: Preparatory								
1.1	Donning, doffing, and disinfecting personal protective equipment	**2.7**	**3.1**	**3.4**	**3.4**	**3.2**	**3.3**	**3.2**	**3.2**
1.2	Lifting and moving	**2.7**	**3.3**	**3.6**	**3.6**	**3.4**	**3.5**	**3.5**	**3.6**
1.3	Use restraints (chemical and physical)	**1.6**	**1.9**	**2.0**	**2.1**	**2.9**	**3.1**	**3.1**	**3.3**
1.4	Administer medication via various routes (e.g., oral, sublingual, inhalation, intramuscular, intravenous)	**1.3**	**2.0**	**3.1**	**3.5**	**2.6**	**3.4**	**3.8**	**3.9**
1.5	Complete oral and written patient care reports	**2.4**	**3.1**	**3.5**	**3.7**	**2.9**	**3.0**	**2.9**	**3.0**
1.6	Transmit and receive radio communications	**2.7**	**3.3**	**3.6**	**3.7**	**3.0**	**3.0**	**2.8**	**2.8**
1.7	Engage in interpersonal communications	**2.9**	**3.3**	**3.6**	**3.7**	**2.9**	**3.0**	**2.9**	**3.0**
1.8	**Adjust communication strategies based on:**								
1.8.1	• Age and stage of development	**2.5**	**2.9**	**3.3**	**3.4**	**2.9**	**3.0**	**2.9**	**3.0**
1.8.2	• Patients' special needs	**2.3**	**2.9**	**3.1**	**3.2**	**3.0**	**3.0**	**3.0**	**3.0**
1.8.3	• Culture	**2.1**	**2.7**	**2.9**	**3.1**	**2.7**	**2.8**	**2.8**	**2.8**
1.9	Calculate drug dosages	**1.1**	**1.5**	**2.7**	**3.1**	**2.5**	**3.1**	**3.8**	**3.9**
1.10	Central venous access	**1.1**	**1.2**	**1.7**	**1.7**	**2.3**	**2.4**	**3.2**	**3.5**
1.11	Intraosseous access and infusion	**1.1**	**1.2**	**1.7**	**2.0**	**2.4**	**2.3**	**3.5**	**3.6**
1.12	**Peripheral venous access and maintenance:**								
1.12.1	• Peripheral vein (arm, leg, external jugular)	**1.1**	**1.3**	**3.1**	**3.6**	**2.4**	**2.5**	**3.6**	**3.7**
1.12.2	• Umbilical catheter	**1.1**	**1.2**	**1.2**	**1.2**	**2.2**	**2.2**	**3.0**	**3.1**
1.12.3	• Cut down	**1.1**	**1.2**	**1.1**	**1.1**	**2.2**	**2.2**	**2.8**	**2.9**

Frequency and *Harm* Ratings for Procedures and Skills

		Frequency				Harm			
	Procedures and Skills	First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic	First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic
1.13	Analgesics(pain medications) (e.g., Tylenol, Advil, Opiates and related narcotics, aspirin)	**1.3**	**1.5**	**2.8**	**3.4**	**2.6**	**3.1**	**3.4**	**3.6**
1.14	Anesthethetics (numbing medications) (e.g., Chloroseptic, benzocaine)	**1.1**	**1.1**	**1.3**	**1.4**	**2.6**	**2.9**	**2.9**	**2.9**
1.15	Anticonvulsants (anti-seizure medication)	**1.1**	**1.1**	**1.9**	**2.6**	**2.8**	**3.2**	**3.6**	**3.7**
1.16	Antidotes (e.g., Narcan, MARK-1 kit, cyanide poisoning kit, amyl nitrate)	**1.0**	**1.1**	**2.3**	**2.5**	**2.8**	**3.2**	**3.5**	**3.6**
1.17	Antihistamines (e.g., Benadryl)	**1.2**	**1.2**	**2.4**	**2.7**	**3.0**	**3.1**	**3.4**	**3.4**
1.18	Behavior-altering medications (e.g., Valium, Haldol)	**1.1**	**1.1**	**1.6**	**2.3**	**2.8**	**3.1**	**3.4**	**3.5**
1.19	Biologicals (e.g., antibiotics, vaccines)	**1.1**	**1.1**	**1.3**	**1.3**	**2.6**	**2.9**	**2.9**	**2.9**
1.20	Blood/blood products	**1.1**	**1.1**	**1.2**	**1.3**	**2.7**	**3.0**	**3.1**	**3.3**
1.21	Blood modifiers (e.g., aspirin, blood thinners, antiplatelets, fibrinolytics, hemostatic agents)	**1.1**	**1.4**	**2.7**	**3.2**	**2.8**	**3.4**	**3.4**	**3.5**
1.22	Cardiovascular agents (e.g., epinephrine, nitroglycerine, Lasix)	**1.1**	**1.5**	**2.9**	**3.6**	**2.9**	**3.6**	**3.7**	**3.8**
1.23	Dietary supplements/electrolytes(e.g., vitamins, minerals)	**1.2**	**1.2**	**1.3**	**1.3**	**2.6**	**2.7**	**2.7**	**2.5**
1.24	Gas (e.g., oxygen, nitrous oxide)	**2.1**	**3.3**	**4.2**	**4.3**	**3.2**	**3.5**	**3.3**	**3.3**
1.25	Gastrointestinal (e.g., antidiarrheals, antacids)	**1.1**	**1.1**	**1.3**	**1.4**	**2.5**	**2.9**	**2.8**	**2.6**
1.26	Glucose altering agents (e.g., insulin, glucose)	**1.4**	**1.9**	**3.3**	**3.5**	**3.2**	**3.5**	**3.6**	**3.7**
1.27	Hormones(steroids)	**1.0**	**1.1**	**1.3**	**1.8**	**2.6**	**2.8**	**3.1**	**3.1**
1.28	Intravenous fluids (IV fluids)	**1.1**	**1.2**	**3.8**	**4.3**	**2.7**	**3.1**	**3.4**	**3.4**
1.29	Neuromuscular antagonists (e.g., paralyzing medication, paralytics)	**1.0**	**1.0**	**1.2**	**1.8**	**2.7**	**3.0**	**3.2**	**3.7**
1.30	Respiratory (e.g., Albuterol, Atrovent)	**1.2**	**1.6**	**3.4**	**3.9**	**3.2**	**3.6**	**3.6**	**3.6**

Frequency and *Harm* Ratings for Procedures and Skills

	Procedures and Skills	Frequency				Harm			
		First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic	First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic
	Domain 2: Airway Management, Respirations, and Artificial Ventilation								
2.1	**Use airway adjuncts**								
2.1.1	• Oropharyngeal airway	**1.5**	**2.0**	**2.2**	**2.3**	**3.3**	**3.7**	**3.4**	**3.5**
2.1.2	• Nasopharyngeal airway	**1.5**	**1.9**	**2.1**	**2.2**	**3.2**	**3.6**	**3.4**	**3.4**
2.2	**Perform airway maneuvers**								
2.2.1	• Head tilt chin lift	**1.8**	**2.1**	**2.3**	**2.4**	**3.6**	**3.7**	**3.5**	**3.6**
2.2.2	• Jaw thrust	**1.6**	**1.9**	**2.2**	**2.2**	**3.3**	**3.7**	**3.5**	**3.6**
2.2.3	• Chin lift	**1.6**	**2.0**	**2.2**	**2.2**	**3.4**	**3.6**	**3.5**	**3.5**
2.2.4	• Sellick maneuver (cricoid pressure)	**1.3**	**1.6**	**2.0**	**2.3**	**3.3**	**3.5**	**3.3**	**3.4**
2.3	Manage existing tracheostomy	**1.2**	**1.5**	**1.8**	**2.0**	**3.0**	**3.5**	**3.5**	**3.6**
2.4	Use extratracheal airway device (Dual lumen airway, combitube, laryngeal mask airway (LMA), King airway)	**1.2**	**1.4**	**1.8**	**2.0**	**2.9**	**3.5**	**3.6**	**3.7**
2.5	**Perform cricothyrotomy**								
2.5.1	• Needle	**1.0**	**1.1**	**1.2**	**1.4**	**2.4**	**2.5**	**3.4**	**3.7**
2.5.2	• Surgical	**1.0**	**1.1**	**1.1**	**1.3**	**2.4**	**2.5**	**3.1**	**3.6**
2.6	**Clear obstructed airway**								
2.6.1	• Manual (finger sweep)	**1.5**	**1.7**	**1.7**	**1.8**	**3.2**	**3.5**	**3.5**	**3.5**
2.6.2	• Abdominal / chest thrusts	**1.5**	**1.7**	**1.8**	**1.8**	**3.4**	**3.7**	**3.6**	**3.6**
2.6.3	• Upper airway mechanical (Magill forceps)	**1.1**	**1.3**	**1.6**	**1.8**	**2.7**	**3.4**	**3.5**	**3.6**
2.7	Perform nasogastric/orogastric tube insertion	**1.1**	**1.2**	**1.4**	**1.7**	**2.8**	**3.1**	**3.3**	**3.4**
2.8	**Perform intubation**								
2.8.1	• Nasotracheal	**1.1**	**1.2**	**1.3**	**1.7**	**2.7**	**2.9**	**3.4**	**3.7**
2.8.2	• Orotracheal	**1.1**	**1.2**	**1.9**	**2.2**	**2.7**	**3.0**	**3.7**	**3.8**
2.8.3	• Digital	**1.0**	**1.1**	**1.2**	**1.4**	**2.5**	**2.7**	**3.2**	**3.5**
2.8.4	• Pharmacological facilitation (e.g. sedation-assisted, RSI)	**1.0**	**1.1**	**1.2**	**1.6**	**2.4**	**2.5**	**3.1**	**3.7**

		Frequency				Harm			
	Procedures and Skills	First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic	First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic
2.8.5	• Confirmation procedures (e.g., visualization, capnography, esophageal detection)	**1.0**	**1.2**	**2.0**	**2.3**	**2.5**	**2.8**	**3.6**	**3.8**
2.8.6	• Fiberoptic scope or camera devices	**1.0**	**1.1**	**1.1**	**1.2**	**2.3**	**2.3**	**2.6**	**2.9**
2.8.7	• Transillumination (e.g. trachlight)	**1.0**	**1.1**	**1.1**	**1.1**	**2.2**	**2.5**	**2.7**	**2.9**
2.8.8	• Retrograde with guidewire	**1.0**	**1.1**	**1.1**	**1.1**	**2.2**	**2.4**	**2.8**	**3.0**
2.8.9	• "Bougie" assisted	**1.0**	**1.1**	**1.2**	**1.3**	**2.3**	**2.4**	**3.0**	**3.2**
2.9	**Deliver oxygen**								
2.9.1	• Nasal cannula	**2.2**	**2.9**	**3.4**	**3.6**	**3.0**	**3.3**	**3.0**	**3.0**
2.9.2	• Venturi mask	**1.3**	**1.5**	**1.4**	**1.5**	**2.7**	**3.0**	**2.7**	**2.6**
2.9.3	• Simple face mask	**1.7**	**1.9**	**1.7**	**1.7**	**2.9**	**3.1**	**2.7**	**2.6**
2.9.4	• Rebreathing face mask	**1.7**	**1.8**	**1.7**	**1.7**	**2.9**	**3.1**	**2.7**	**2.7**
2.9.5	• Partial rebreather face mask	**1.4**	**1.6**	**1.5**	**1.7**	**2.9**	**3.0**	**2.7**	**2.7**
2.9.6	• Non-rebreather face mask	**2.1**	**2.8**	**3.2**	**3.3**	**3.2**	**3.5**	**3.3**	**3.3**
2.9.7	• Face tent	**1.1**	**1.1**	**1.1**	**1.1**	**2.5**	**2.8**	**2.4**	**2.4**
2.9.8	• Tracheal cuff/mask	**1.1**	**1.2**	**1.3**	**1.5**	**2.4**	**2.9**	**2.7**	**2.9**
2.9.9	• Oxygen hood	**1.0**	**1.1**	**1.1**	**1.1**	**2.4**	**2.8**	**2.5**	**2.4**
2.9.10	• Flow restricted oxygen powered ventilation device	**1.2**	**1.4**	**1.3**	**1.5**	**2.6**	**3.1**	**2.8**	**3.0**
2.9.11	• Blow-by-delivery	**1.3**	**1.7**	**2.0**	**2.0**	**2.7**	**3.1**	**3.0**	**2.9**
2.9.12	• Humidification	**1.1**	**1.4**	**1.4**	**1.7**	**2.5**	**2.8**	**2.5**	**2.5**
2.10	**Perform suctioning**								
2.10.1	• Pharyngeal	**1.1**	**1.5**	**1.8**	**2.1**	**3.1**	**3.6**	**3.4**	**3.5**
2.10.2	• Bronchial-tracheal	**1.1**	**1.2**	**1.4**	**1.8**	**3.0**	**3.4**	**3.4**	**3.5**
2.10.3	• Oral suctioning	**1.4**	**1.9**	**2.1**	**2.3**	**3.3**	**3.7**	**3.5**	**3.5**
2.10.4	• Tracheostomy suctioning	**1.1**	**1.4**	**1.7**	**1.9**	**3.0**	**3.5**	**3.5**	**3.5**
2.10.5	• Naso-pharyngeal suctioning	**1.1**	**1.4**	**1.5**	**1.8**	**3.0**	**3.5**	**3.4**	**3.4**
2.10.6	• Endotracheal suctioning	**1.1**	**1.3**	**1.8**	**2.1**	**3.0**	**3.4**	**3.5**	**3.6**
2.10.7	• Meconium aspiration neonate with ET	**1.0**	**1.1**	**1.3**	**1.5**	**2.9**	**3.3**	**3.5**	**3.6**

	Procedures and Skills	Frequency				Harm			
		First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic	First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic
2.11	**Assist ventilation**								
2.11.1	• Mouth-to-mask	**1.5**	**1.5**	**1.3**	**1.4**	**3.4**	**3.4**	**3.2**	**3.2**
2.11.2	• Mouth-to-mask with O2	**1.4**	**1.5**	**1.3**	**1.4**	**3.3**	**3.4**	**3.2**	**3.1**
2.11.3	• Bag-valve-mask neonate/infant	**1.3**	**1.6**	**1.7**	**1.8**	**3.3**	**3.7**	**3.6**	**3.7**
2.11.4	• Bag-valve-mask child	**1.3**	**1.6**	**1.7**	**1.8**	**3.3**	**3.7**	**3.6**	**3.7**
2.11.5	• Bag-valve-mask adult	**1.7**	**2.0**	**2.2**	**2.3**	**3.5**	**3.8**	**3.6**	**3.8**
2.11.6	• Continuous Postive Airway Pressure (CPAP)/Bilevel Positive Airway Pressure (BiPAP)	**1.2**	**1.3**	**1.7**	**2.1**	**2.8**	**3.5**	**3.5**	**3.6**
2.11.7	• Positive End-Expiratory Pressure (PEEP)	**1.1**	**1.1**	**1.3**	**1.6**	**2.7**	**3.3**	**3.2**	**3.3**
2.11.8	• Transtracheal jet insufflations	**1.0**	**1.1**	**1.1**	**1.2**	**2.7**	**3.1**	**2.9**	**3.3**
2.11.9	• Mechanical ventilation (manual/automated transport ventilator)	**1.1**	**1.2**	**1.3**	**1.7**	**2.8**	**3.2**	**3.1**	**3.5**
	Domain 3: Assessment								
3.1	Perform scene size-up, including safety and management	**3.4**	**4.1**	**4.5**	**4.5**	**3.5**	**3.5**	**3.5**	**3.5**
3.2	Perform primary (initial) assessment	**2.7**	**3.2**	**3.6**	**3.7**	**3.6**	**3.7**	**3.6**	**3.7**
3.3	Obtain patient history	**2.6**	**3.2**	**3.6**	**3.7**	**3.4**	**3.5**	**3.5**	**3.6**
3.4	Perform secondary (e.g. detailed, focused, rapid) assessment	**2.4**	**3.1**	**3.5**	**3.7**	**3.4**	**3.6**	**3.5**	**3.6**
3.5	Perform reassessment	**2.4**	**3.1**	**3.5**	**3.7**	**3.3**	**3.5**	**3.5**	**3.6**
3.6	Perform blood glucose monitoring	**1.7**	**2.1**	**3.3**	**3.4**	**3.2**	**3.4**	**3.5**	**3.5**
3.7	Interpret blood glucose monitoring results	**1.6**	**2.1**	**3.3**	**3.4**	**3.1**	**3.5**	**3.6**	**3.6**
3.8	Obtain electrocardiogram rhythm strip (3/4 lead)	**1.1**	**1.4**	**2.8**	**3.5**	**2.7**	**3.2**	**3.5**	**3.7**
3.9	Interpret electrocardiogram rhythm strip (3/4 lead)	**1.0**	**1.2**	**2.6**	**3.5**	**2.6**	**2.9**	**3.7**	**3.7**
3.10	Obtain 12 lead electrocardiogram	**1.1**	**1.3**	**2.6**	**3.2**	**2.5**	**3.1**	**3.5**	**3.6**
3.11	Interpret 12 lead electrocardiogram	**1.0**	**1.2**	**2.4**	**3.2**	**2.4**	**2.7**	**3.6**	**3.7**
3.12	Obtain ventricular right (15) lead electrocardiogram	**1.0**	**1.1**	**1.4**	**1.6**	**2.4**	**2.7**	**3.0**	**3.2**
3.13	Interpret ventricular right(15) lead electrocardiogram	**1.0**	**1.1**	**1.4**	**1.6**	**2.5**	**2.6**	**3.0**	**3.2**
3.14	Interpret blood chemistry/lab analysis	**1.0**	**1.1**	**1.2**	**1.5**	**2.4**	**2.6**	**2.6**	**2.9**

		Frequency				Harm			
	Procedures and Skills	First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic	First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic
3.15	**Monitor transcutaneous physiologic parameters tissue/plethysmography**								
3.15.1	• Apply pulse oximetry	**1.8**	**2.7**	**3.5**	**3.6**	**2.9**	**3.2**	**3.2**	**3.3**
3.15.2	• Interpret pulse oximetry	**1.7**	**2.6**	**3.5**	**3.6**	**3.0**	**3.4**	**3.3**	**3.4**
3.15.3	• Measure carbon monoxide	**1.2**	**1.5**	**1.8**	**1.8**	**2.8**	**3.4**	**3.3**	**3.2**
3.16	Interpret capnography	**1.0**	**1.1**	**1.9**	**2.5**	**2.5**	**2.9**	**3.4**	**3.5**
3.17	Interpret capnometry	**1.0**	**1.1**	**1.8**	**2.2**	**2.4**	**2.8**	**3.2**	**3.4**
3.18	**Obtain and interpret vital signs**								
3.18.1	• Pulse rate	**2.7**	**3.3**	**3.6**	**3.7**	**3.4**	**3.7**	**3.7**	**3.7**
3.18.2	• Respiratory rate	**2.7**	**3.3**	**3.6**	**3.7**	**3.4**	**3.7**	**3.7**	**3.7**
3.17.3	• Blood pressure	**2.7**	**3.3**	**3.6**	**3.7**	**3.5**	**3.7**	**3.7**	**3.7**
3.19	Obtain and interpret temperature	**2.0**	**2.5**	**2.5**	**2.5**	**3.0**	**3.2**	**3.0**	**2.9**
3.20	Assess skin	**2.5**	**3.2**	**3.5**	**3.7**	**3.2**	**3.4**	**3.3**	**3.3**
3.31	Assess head and neck	**2.4**	**3.0**	**3.4**	**3.6**	**3.3**	**3.6**	**3.5**	**3.5**
3.22	Assess thorax	**2.2**	**2.9**	**3.4**	**3.6**	**3.3**	**3.6**	**3.5**	**3.5**
3.23	Assess heart	**2.2**	**2.9**	**3.3**	**3.6**	**3.3**	**3.6**	**3.6**	**3.6**
3.24	Assess abdomen	**2.3**	**2.9**	**3.4**	**3.5**	**3.2**	**3.5**	**3.5**	**3.5**
3.25	Assess genitalia	**1.6**	**2.1**	**2.4**	**2.4**	**2.9**	**3.1**	**3.0**	**2.9**
3.26	Assess buttocks	**1.6**	**2.1**	**2.5**	**2.5**	**2.9**	**3.0**	**2.9**	**2.8**
3.27	Assess peripheral vascular system and pulses	**2.1**	**2.8**	**3.3**	**3.6**	**3.2**	**3.5**	**3.5**	**3.5**
3.28	Assess musculoskeletal system	**2.0**	**2.8**	**3.3**	**3.5**	**3.2**	**3.4**	**3.3**	**3.3**
3.29	Assess nervous system	**1.9**	**2.7**	**3.2**	**3.5**	**3.2**	**3.4**	**3.4**	**3.5**
3.30	Use trauma score/category	**1.6**	**2.3**	**2.8**	**2.9**	**3.1**	**3.4**	**3.4**	**3.2**
3.31	Use Glasgow Coma Score (GCS)	**1.5**	**2.5**	**3.2**	**3.3**	**3.1**	**3.4**	**3.4**	**3.3**
3.32	Use pre-hospital stroke scale	**1.5**	**2.1**	**2.7**	**2.8**	**3.1**	**3.4**	**3.5**	**3.5**
3.33	Use STEMI checklist	**1.3**	**1.6**	**2.2**	**2.6**	**2.9**	**3.2**	**3.4**	**3.5**

Frequency and *Harm* Ratings for Procedures and Skills

	Procedures and Skills	Frequency				Harm			
		First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic	First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic
	Domain 4: Medicine								
4.1	**Perform electrical cardioversion**								
4.1.1	• Automated external defibrillator (AED) (adult)	**1.6**	**1.8**	**1.8**	**1.7**	**3.7**	**3.8**	**3.8**	**3.7**
4.1.2	• Automated external defibrillator (AED) (pediatric)	**1.2**	**1.5**	**1.5**	**1.4**	**3.6**	**3.8**	**3.7**	**3.7**
4.1.3	• Defibrillation (adult)	**1.3**	**1.4**	**1.9**	**2.1**	**3.5**	**3.7**	**3.8**	**3.9**
4.1.4	• Defibrillation (pediatric)	**1.1**	**1.2**	**1.5**	**1.6**	**3.4**	**3.7**	**3.7**	**3.8**
4.1.5	• Synchronized cardioversion (adult)	**1.0**	**1.1**	**1.5**	**1.9**	**3.0**	**3.3**	**3.7**	**3.9**
4.1.6	• Synchronized cardioversion (pediatric)	**1.0**	**1.1**	**1.4**	**1.4**	**3.0**	**3.2**	**3.7**	**3.8**
4.2	Perform transcutaneous pacing	**1.0**	**1.1**	**1.5**	**1.9**	**2.4**	**3.0**	**3.7**	**3.8**
4.3	Perform Vagal maneuvers (e.g., carotid massage, valsalva maneuvers)	**1.1**	**1.1**	**1.6**	**1.9**	**2.8**	**3.3**	**3.4**	**3.5**
4.4	Use mechanical CPR	**1.2**	**1.3**	**1.5**	**1.4**	**3.3**	**3.5**	**3.5**	**3.3**
4.5	Perform manual CPR	**1.6**	**2.0**	**2.1**	**2.2**	**3.6**	**3.8**	**3.8**	**3.8**
4.6	Perform urinary catheterization	**1.0**	**1.1**	**1.1**	**1.2**	**2.5**	**2.9**	**2.6**	**2.7**
4.7	Perform ocular irrigation	**1.1**	**1.3**	**1.6**	**1.6**	**2.9**	**3.2**	**3.0**	**3.0**
4.8	Remove foreign objects from nose and ears	**1.1**	**1.4**	**1.4**	**1.4**	**2.9**	**3.2**	**3.0**	**2.8**
4.9	Maintain central venus pressure (CVP) monitoring	**1.1**	**1.1**	**1.1**	**1.2**	**2.7**	**3.1**	**2.8**	**3.0**
	Domain 5: Shock and Resuscitation								
5.1	Manage shock	**1.7**	**2.2**	**2.3**	**2.5**	**3.6**	**3.9**	**3.8**	**3.9**
5.2	Initiate and maintain fluid resuscitation	**1.1**	**1.2**	**2.5**	**2.7**	**3.2**	**3.3**	**3.8**	**3.8**
	Domain 6: Trauma and Environmental Emergencies								
6.1	Manage open abdominal wounds	**1.5**	**1.8**	**1.9**	**1.9**	**3.6**	**3.8**	**3.7**	**3.7**
6.2	**Provide manual stabilization**								
6.2.1	• C-spine and spinal injuries	**2.0**	**2.5**	**2.7**	**2.8**	**3.7**	**3.9**	**3.8**	**3.8**
6.2.2	• Extremity fractures	**1.8**	**2.3**	**2.4**	**2.5**	**3.4**	**3.6**	**3.5**	**3.4**

		Frequency				Harm			
	Procedures and Skills	First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic	First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic
6.3	**Control bleeding**								
6.3.1	• Manual	**2.1**	**2.4**	**2.6**	**2.5**	**3.6**	**3.7**	**3.6**	**3.7**
6.3.2	• Mechanical (tourniquet)	**1.3**	**1.4**	**1.5**	**1.4**	**3.4**	**3.7**	**3.6**	**3.6**
6.3.3	• Hemostatic agents	**1.1**	**1.2**	**1.2**	**1.2**	**3.1**	**3.5**	**3.2**	**3.2**
6.4	**Perform and manage thoracostomy (chest decompression)**								
6.4.1	• Chest tubes	**1.0**	**1.1**	**1.1**	**1.2**	**2.6**	**3.1**	**3.0**	**3.5**
6.4.2	• Needle decompression thoracostomy	**1.0**	**1.1**	**1.4**	**1.7**	**2.6**	**3.0**	**3.6**	**3.8**
6.5	Perform pericardiocentesis	**1.0**	**1.0**	**1.1**	**1.1**	**2.5**	**2.9**	**3.0**	**3.4**
6.6	Perform emergency moves (e.g., fireman's carry, clothes drag, extremity drag)	**1.5**	**1.7**	**1.8**	**1.8**	**3.5**	**3.5**	**3.3**	**3.2**
6.7	**Apply spinal immobilization**								
6.7.1	• Cervical collars	**2.0**	**2.5**	**2.2**	**2.9**	**3.7**	**3.8**	**3.7**	**3.6**
6.7.2	• Seated immobilization devices	**1.7**	**2.0**	**1.9**	**2.1**	**3.6**	**3.7**	**3.4**	**3.3**
6.7.3	• Longboard (straps, cervical immobilization device)	**2.0**	**2.5**	**2.2**	**2.8**	**3.7**	**3.8**	**3.6**	**3.6**
6.7.4	• Rapid extrication	**1.6**	**2.0**	**1.9**	**2.2**	**3.7**	**3.8**	**3.6**	**3.6**
6.7.5	• Helmet stabilization	**1.5**	**1.8**	**1.8**	**2.0**	**3.6**	**3.8**	**3.6**	**3.6**
6.7.6	• Helmet removal	**1.4**	**1.7**	**1.7**	**1.9**	**3.5**	**3.7**	**3.6**	**3.6**
6.8	Perform tooth replacement/tooth avulsion care	**1.1**	**1.2**	**1.2**	**1.3**	**2.7**	**2.9**	**2.7**	**2.6**
6.9	Apply splinting techniques	**1.9**	**2.2**	**2.0**	**2.3**	**3.3**	**3.4**	**3.2**	**3.2**
6.10	Use dressings, bandages, and irrigation	**2.1**	**2.5**	**2.1**	**2.6**	**3.2**	**3.3**	**3.1**	**3.1**
6.11	Perform wound closure techniques (e.g., dermabond, steri-strips)	**1.3**	**1.4**	**1.3**	**1.3**	**3.1**	**3.2**	**2.8**	**2.6**
6.12	Managing post-operative incision and drains	**1.1**	**1.3**	**1.3**	**1.4**	**2.9**	**3.0**	**2.8**	**2.8**
	Domain 7: Special Patient Populations								
7.1	Perform newborn resuscitation	**1.1**	**1.3**	**1.4**	**1.6**	**3.5**	**3.8**	**3.7**	**3.7**
7.2	Provide newborn care (warming, drying, positioning, APGAR scores)	**1.1**	**1.4**	**1.5**	**1.7**	**3.4**	**3.7**	**3.6**	**3.6**
7.3	Position pregnant/gravid patient	**1.2**	**1.5**	**1.8**	**1.9**	**3.2**	**3.5**	**3.4**	**3.4**

***Frequency* and *Harm* Ratings for Procedures and Skills**

		Frequency				Harm			
	Procedures and Skills	First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic	First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic
7.4	Position geriatric patient	**1.5**	**2.1**	**2.1**	**2.7**	**3.1**	**3.3**	**3.2**	**3.2**
7.5	Measure fundal height	**1.0**	**1.2**	**1.3**	**1.3**	**2.6**	**3.0**	**2.7**	**2.7**
7.6	Determine height/weight-based measurement	**1.1**	**1.4**	**1.6**	**1.9**	**2.7**	**3.0**	**3.1**	**3.1**
7.7	Perform childbirth procedures	**1.1**	**1.4**	**1.5**	**1.7**	**3.4**	**3.7**	**3.6**	**3.6**
	Domain 8: Operations								
8.1	Perform triage	**1.7**	**2.0**	**1.9**	**2.4**	**3.4**	**3.7**	**3.5**	**3.5**
8.2	Perform safe vehicle extrication	**1.7**	**2.1**	**2.0**	**2.3**	**3.6**	**3.8**	**3.6**	**3.6**

Appendix 14
Frequency and Harm Ratings for Procedures and Skills for EMT-Intermediates by State/Title

Shading Key:

Rated "Out of Scope" by 60% or More of Respondents
Below 1.5 Mean (if Frequency) or Below 2.8 Mean (if Harm)

***Frequency* and *Harm* Ratings for Procedures and Skills for Intermediate Level EMS Providers**

		Frequency				Harm			
	Procedures and Skills	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced
	Domain 1: Preparatory								
1.1	Donning, doffing, and disinfecting personal protective equipment	**3.5**	**3.5**	**3.3**	**3.5**	**3.1**	**3.3**	**3.2**	**3.2**
1.2	Lifting and moving	**3.8**	**3.6**	**3.5**	**3.7**	**3.4**	**3.6**	**3.5**	**3.5**
1.3	Use restraints (chemical and physical)	**2.1**	**2.0**	**2.0**	**2.0**	**3.1**	**3.1**	**3.1**	**3.3**
1.4	Administer medication via various routes (e.g., oral, sublingual, inhalation, intramuscular, intravenous)	**3.5**	**3.1**	**2.9**	**3.5**	**3.7**	**3.8**	**3.8**	**3.8**
1.5	Complete oral and written patient care reports	**3.6**	**3.6**	**3.4**	**3.7**	**2.8**	**3.1**	**2.9**	**2.9**
1.6	Transmit and receive radio communications	**3.7**	**3.5**	**3.5**	**3.7**	**2.8**	**3.0**	**2.8**	**2.8**
1.7	Engage in interpersonal communications	**3.7**	**3.7**	**3.5**	**3.7**	**2.8**	**3.0**	**2.9**	**2.9**
1.8	**Adjust communication strategies based on:**								
1.8.1	• Age and stage of development	**3.4**	**3.6**	**3.1**	**3.5**	**2.9**	**3.1**	**2.9**	**2.9**
1.8.2	• Patients' special needs	**3.2**	**3.4**	**3.0**	**3.3**	**2.9**	**3.0**	**3.0**	**2.9**
1.8.3	• Culture	**3.2**	**2.9**	**2.8**	**3.2**	**2.7**	**2.9**	**2.7**	**2.8**
1.9	Calculate drug dosages	**3.0**	**2.6**	**2.5**	**3.2**	**3.8**	**3.8**	**3.8**	**3.9**
1.10	Central venous access	**1.9**	**1.4**	**1.7**	**1.7**	**3.3**	**3.4**	**3.2**	**3.4**
1.11	Intraosseous access and infusion	**2.0**	**1.4**	**1.7**	**2.0**	**3.6**	**3.7**	**3.4**	**3.7**
1.12	**Peripheral venous access and maintenance:**								
1.12.1	• Peripheral vein (arm, leg, external jugular)	**3.4**	**3.0**	**3.0**	**3.6**	**3.5**	**3.7**	**3.6**	**3.6**
1.12.2	• Umbilical catheter	**1.2**	**1.2**	**1.2**	**1.3**	**3.0**	**3.3**	**2.9**	**3.3**
1.12.3	• Cut down	**1.1**	**1.1**	**1.2**	**1.1**	**2.5**	**3.4**	**2.8**	**2.8**

***Frequency* and *Harm* Ratings for Procedures and Skills for Intermediate Level EMS Providers**

		Frequency				Harm			
	Procedures and Skills	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced
1.13	Analgesics(pain medications) (e.g., Tylenol, Advil, Opiates and related narcotics, aspirin)	**3.0**	**2.8**	**2.7**	**3.3**	**3.5**	**3.3**	**3.4**	**3.6**
1.14	Anesthethetics (numbing medications) (e.g., Chloroseptic, benzocaine)	**1.4**	**1.2**	**1.3**	**1.6**	**2.9**	**3.1**	**2.8**	**2.9**
1.15	Anticonvulsants (anti-seizure medication)	**2.6**	**1.4**	**1.8**	**2.5**	**3.6**	**3.4**	**3.5**	**3.7**
1.16	Antidotes (e.g., Narcan, MARK-1 kit, cyanide poisoning kit, amyl nitrate)	**2.7**	**2.0**	**2.3**	**2.5**	**3.5**	**3.5**	**3.5**	**3.6**
1.17	Antihistamines (e.g., Benadryl)	**2.5**	**2.5**	**2.3**	**2.7**	**3.4**	**3.3**	**3.5**	**3.5**
1.18	Behavior-altering medications (e.g., Valium, Haldol)	**2.0**	**1.3**	**1.6**	**2.2**	**3.4**	**3.4**	**3.4**	**3.4**
1.19	Biologicals (e.g., antibiotics, vaccines)	**1.3**	**1.3**	**1.2**	**1.4**	**3.0**	**3.2**	**2.8**	**2.8**
1.20	Blood/blood products	**1.2**	**1.2**	**1.2**	**1.3**	**3.0**	**3.4**	**3.1**	**3.0**
1.21	Blood modifiers (e.g., aspirin, blood thinners, antiplatelets, fibrinolytics, hemostatic agents)	**2.9**	**2.6**	**2.6**	**3.2**	**3.3**	**3.4**	**3.4**	**3.4**
1.22	Cardiovascular agents (e.g., epinephrine, nitroglycerine, Lasix)	**3.6**	**2.6**	**2.7**	**3.5**	**3.8**	**3.7**	**3.7**	**3.9**
1.23	Dietary supplements/electrolytes(e.g., vitamins, minerals)	**1.2**	**1.4**	**1.2**	**1.3**	**2.6**	**3.0**	**2.5**	**2.4**
1.24	Gas (e.g., oxygen, nitrous oxide)	**4.3**	**4.0**	**4.2**	**4.3**	**3.2**	**3.4**	**3.4**	**3.4**
1.25	Gastrointestinal (e.g., antidiarrheals, antacids)	**1.3**	**1.3**	**1.2**	**1.4**	**2.9**	**3.1**	**2.5**	**2.4**
1.26	Glucose altering agents (e.g., insulin, glucose)	**3.7**	**3.0**	**3.2**	**3.5**	**3.5**	**3.6**	**3.6**	**3.7**
1.27	Hormones(steroids)	**1.2**	**1.4**	**1.4**	**1.6**	**2.7**	**3.3**	**3.2**	**2.9**
1.28	Intravenous fluids (IV fluids)	**4.2**	**3.6**	**3.7**	**4.3**	**3.4**	**3.6**	**3.4**	**3.4**
1.29	Neuromuscular antagonists (e.g., paralyzing medication, paralytics)	**1.2**	**1.2**	**1.3**	**1.8**	**3.2**	**3.2**	**3.2**	**3.8**
1.30	Respiratory (e.g., Albuterol, Atrovent)	**4.0**	**3.2**	**3.2**	**3.8**	**3.5**	**3.6**	**3.6**	**3.6**

Frequency and *Harm* Ratings for Procedures and Skills for Intermediate Level EMS Providers

		Frequency				Harm			
	Procedures and Skills	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced
	Domain 2: Airway Management, Respirations, and Artificial Ventilation								
2.1	**Use airway adjuncts**								
2.1.1	• Oropharyngeal airway	**2.5**	**2.0**	**2.1**	**2.3**	**3.2**	**3.5**	**3.5**	**3.4**
2.1.2	• Nasopharyngeal airway	**2.3**	**1.9**	**2.0**	**2.1**	**3.3**	**3.5**	**3.4**	**3.4**
2.2	**Perform airway maneuvers**								
2.2.1	• Head tilt chin lift	**2.6**	**2.1**	**2.2**	**2.4**	**3.4**	**3.6**	**3.6**	**3.6**
2.2.2	• Jaw thrust	**2.4**	**2.0**	**2.1**	**2.3**	**3.3**	**3.7**	**3.6**	**3.6**
2.2.3	• Chin lift	**2.4**	**2.0**	**2.1**	**2.3**	**3.3**	**3.6**	**3.5**	**3.5**
2.2.4	• Sellick maneuver (cricoid pressure)	**2.3**	**1.9**	**1.9**	**2.3**	**3.3**	**3.3**	**3.3**	**3.2**
2.3	Manage existing tracheostomy	**2.0**	**1.6**	**1.8**	**2.0**	**3.4**	**3.4**	**3.6**	**3.7**
2.4	Use extratracheal airway device (Dual lumen airway, combitube, laryngeal mask airway (LMA), King airway)	**1.7**	**1.9**	**1.9**	**2.0**	**3.3**	**3.7**	**3.6**	**3.7**
2.5	**Perform cricothyrotomy**								
2.5.1	• Needle	**1.1**	**1.1**	**1.2**	**1.4**	**3.4**	**3.6**	**3.3**	**3.7**
2.5.2	• Surgical	**1.1**	**1.1**	**1.1**	**1.4**	**3.3**	**3.5**	**2.8**	**3.8**
2.6	**Clear obstructed airway**								
2.6.1	• Manual (finger sweep)	**1.9**	**1.7**	**1.7**	**1.7**	**3.4**	**3.6**	**3.5**	**3.5**
2.6.2	• Abdominal / chest thrusts	**1.9**	**1.7**	**1.8**	**1.8**	**3.4**	**3.8**	**3.7**	**3.5**
2.6.3	• Upper airway mechanical (Magill forceps)	**1.9**	**1.4**	**1.6**	**1.8**	**3.4**	**3.6**	**3.5**	**3.7**
2.7	Perform nasogastric/orogastric tube insertion	**1.7**	**1.3**	**1.3**	**1.6**	**3.3**	**3.7**	**3.2**	**3.5**
2.8	**Perform intubation**								
2.8.1	• Nasotracheal	**1.3**	**1.3**	**1.3**	**1.6**	**3.0**	**3.7**	**3.5**	**3.7**
2.8.2	• Orotracheal	**2.2**	**1.7**	**1.7**	**2.1**	**3.7**	**3.7**	**3.7**	**3.9**
2.8.3	• Digital	**1.3**	**1.2**	**1.2**	**1.4**	**3.1**	**3.5**	**3.2**	**3.5**
2.8.4	• Pharmacological facilitation (e.g. sedation-assisted, RSI)	**1.1**	**1.2**	**1.2**	**1.7**	**2.7**	**3.4**	**3.3**	**3.7**
2.8.5	• Confirmation procedures (e.g., visualization, capnography, esophageal detection)	**2.2**	**1.9**	**1.8**	**2.1**	**3.5**	**3.7**	**3.6**	**3.9**

Frequency and *Harm* Ratings for Procedures and Skills for Intermediate Level EMS Providers

	Procedures and Skills	Frequency				Harm			
		MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced
2.8.6	• Fiberoptic scope or camera devices	**1.1**	**1.1**	**1.1**	**1.2**	**2.4**	**3.1**	**2.6**	**3.0**
2.8.7	• Transillumination (e.g. trachlight)	**1.2**	**1.2**	**1.1**	**1.1**	**2.6**	**3.3**	**2.6**	**2.9**
2.8.8	• Retrograde with guidewire	**1.1**	**1.1**	**1.1**	**1.1**	**2.8**	**3.2**	**2.7**	**3.0**
2.8.9	• "Bougie" assisted	**1.2**	**1.2**	**1.2**	**1.3**	**2.9**	**3.2**	**2.9**	**3.1**
2.9	**Deliver oxygen**								
2.9.1	• Nasal cannula	**3.6**	**3.4**	**3.4**	**3.6**	**2.8**	**3.0**	**3.1**	**2.9**
2.9.2	• Venturi mask	**1.5**	**1.4**	**1.4**	**1.4**	**2.6**	**2.8**	**2.7**	**2.5**
2.9.3	• Simple face mask	**1.6**	**1.9**	**1.6**	**1.6**	**2.5**	**2.8**	**2.7**	**2.6**
2.9.4	• Rebreathing face mask	**1.7**	**1.7**	**1.7**	**1.6**	**2.6**	**2.8**	**2.7**	**2.7**
2.9.5	• Partial rebreather face mask	**1.4**	**1.5**	**1.5**	**1.6**	**2.5**	**2.8**	**2.7**	**2.7**
2.9.6	• Non-rebreather face mask	**3.5**	**3.0**	**3.2**	**3.3**	**3.1**	**3.2**	**3.4**	**3.3**
2.9.7	• Face tent	**1.1**	**1.2**	**1.1**	**1.2**	**2.4**	**2.6**	**2.4**	**2.5**
2.9.8	• Tracheal cuff/mask	**1.4**	**1.2**	**1.3**	**1.5**	**2.6**	**2.9**	**2.7**	**3.0**
2.9.9	• Oxygen hood	**1.2**	**1.1**	**1.1**	**1.2**	**2.4**	**2.6**	**2.5**	**2.4**
2.9.10	• Flow restricted oxygen powered ventilation device	**1.4**	**1.3**	**1.3**	**1.5**	**2.6**	**2.9**	**2.9**	**3.0**
2.9.11	• Blow-by-delivery	**2.2**	**1.8**	**2.0**	**2.0**	**2.8**	**3.0**	**3.0**	**2.8**
2.9.12	• Humidification	**1.3**	**1.5**	**1.5**	**1.8**	**2.4**	**2.6**	**2.5**	**2.6**
2.10	**Perform suctioning**								
2.10.1	• Pharyngeal	**1.9**	**1.8**	**1.7**	**2.1**	**3.3**	**3.6**	**3.5**	**3.6**
2.10.2	• Bronchial-tracheal	**1.5**	**1.5**	**1.4**	**1.7**	**3.1**	**3.6**	**3.5**	**3.5**
2.10.3	• Oral suctioning	**2.2**	**2.0**	**2.0**	**2.2**	**3.3**	**3.6**	**3.5**	**3.6**
2.10.4	• Tracheostomy suctioning	**1.9**	**1.6**	**1.7**	**2.0**	**3.4**	**3.5**	**3.5**	**3.6**
2.10.5	• Naso-pharyngeal suctioning	**1.6**	**1.5**	**1.5**	**1.8**	**3.3**	**3.5**	**3.4**	**3.5**
2.10.6	• Endotracheal suctioning	**2.0**	**1.6**	**1.7**	**2.0**	**3.3**	**3.6**	**3.6**	**3.6**
2.10.7	• Meconium aspiration neonate with ET	**1.5**	**1.3**	**1.3**	**1.5**	**3.4**	**3.7**	**3.5**	**3.6**
2.11	**Assist ventilation**								
2.11.1	• Mouth-to-mask	**1.2**	**1.4**	**1.4**	**1.4**	**2.8**	**3.4**	**3.3**	**3.1**

***Frequency* and *Harm* Ratings for Procedures and Skills for Intermediate Level EMS Providers**

		Frequency				Harm			
	Procedures and Skills	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced
2.11.2	• Mouth-to-mask with O2	**1.2**	**1.3**	**1.3**	**1.4**	**2.9**	**3.4**	**3.3**	**3.1**
2.11.3	• Bag-valve-mask neonate/infant	**1.8**	**1.5**	**1.6**	**1.8**	**3.6**	**3.6**	**3.6**	**3.7**
2.11.4	• Bag-valve-mask child	**1.8**	**1.6**	**1.7**	**1.9**	**3.6**	**3.6**	**3.6**	**3.8**
2.11.5	• Bag-valve-mask adult	**2.5**	**2.0**	**2.2**	**2.2**	**3.6**	**3.7**	**3.6**	**3.8**
2.11.6	• Continuous Postive Airway Pressure (CPAP)/Bilevel Positive Airway Pressure (BiPAP)	**2.0**	**1.4**	**1.6**	**1.9**	**3.5**	**3.6**	**3.4**	**3.6**
2.11.7	• Positive End-Expiratory Pressure (PEEP)	**1.2**	**1.3**	**1.3**	**1.6**	**3.0**	**3.6**	**3.2**	**3.4**
2.11.8	• Transtracheal jet insufflations	**1.1**	**1.2**	**1.1**	**1.2**	**2.6**	**3.3**	**2.9**	**3.3**
2.11.9	• Mechanical ventilation (manual/automated transport ventilator)	**1.3**	**1.2**	**1.3**	**1.6**	**3.1**	**3.4**	**3.1**	**3.5**
	Domain 3: Assessment								
3.1	Perform scene size-up, including safety and management	**4.7**	**4.4**	**4.4**	**4.6**	**3.3**	**3.5**	**3.6**	**3.5**
3.2	Perform primary (initial) assessment	**3.7**	**3.5**	**3.5**	**3.7**	**3.5**	**3.6**	**3.7**	**3.7**
3.3	Obtain patient history	**3.7**	**3.5**	**3.5**	**3.7**	**3.4**	**3.6**	**3.6**	**3.6**
3.4	Perform secondary (e.g. detailed, focused, rapid) assessment	**3.7**	**3.5**	**3.4**	**3.7**	**3.4**	**3.5**	**3.6**	**3.6**
3.5	Perform reassessment	**3.6**	**3.4**	**3.4**	**3.7**	**3.3**	**3.5**	**3.6**	**3.7**
3.6	Perform blood glucose monitoring	**3.6**	**3.3**	**3.1**	**3.5**	**3.4**	**3.5**	**3.5**	**3.4**
3.7	Interpret blood glucose monitoring results	**3.6**	**3.4**	**3.1**	**3.5**	**3.5**	**3.6**	**3.6**	**3.5**
3.8	Obtain electrocardiogram rhythm strip (3/4 lead)	**3.5**	**2.7**	**2.4**	**3.5**	**3.6**	**3.5**	**3.5**	**3.7**
3.9	Interpret electrocardiogram rhythm strip (3/4 lead)	**3.5**	**2.2**	**2.2**	**3.5**	**3.7**	**3.6**	**3.7**	**3.7**
3.10	Obtain 12 lead electrocardiogram	**3.3**	**2.3**	**2.2**	**3.1**	**3.6**	**3.3**	**3.6**	**3.6**
3.11	Interpret 12 lead electrocardiogram	**3.3**	**1.8**	**2.1**	**3.1**	**3.6**	**3.3**	**3.6**	**3.7**
3.12	Obtain ventricular right (15) lead electrocardiogram	**1.5**	**1.4**	**1.3**	**1.5**	**2.8**	**3.2**	**3.2**	**3.0**
3.13	Interpret ventricular right(15) lead electrocardiogram	**1.5**	**1.4**	**1.3**	**1.5**	**2.7**	**3.2**	**3.2**	**3.0**
3.14	Interpret blood chemistry/lab analysis	**1.3**	**1.2**	**1.1**	**1.6**	**2.6**	**2.4**	**2.5**	**3.0**

Frequency and *Harm* Ratings for Procedures and Skills for Intermediate Level EMS Providers

		Frequency				Harm			
	Procedures and Skills	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced
3.15	**Monitor transcutaneous physiologic parameters tissue/plethysmography**								
3.15.1	• Apply pulse oximetry	**3.7**	**3.4**	**3.5**	**3.6**	**3.0**	**3.2**	**3.2**	**3.3**
3.15.2	• Interpret pulse oximetry	**3.7**	**3.4**	**3.4**	**3.6**	**3.2**	**3.4**	**3.4**	**3.4**
3.15.3	• Measure carbon monoxide	**2.1**	**1.7**	**1.6**	**1.8**	**3.3**	**3.2**	**3.3**	**3.2**
3.16	Interpret capnography	**2.3**	**1.9**	**1.8**	**2.3**	**3.4**	**3.4**	**3.3**	**3.5**
3.17	Interpret capnometry	**2.3**	**1.8**	**1.6**	**2.1**	**3.3**	**3.3**	**3.2**	**3.4**
3.18	**Obtain and interpret vital signs**								
3.18.1	• Pulse rate	**3.7**	**3.5**	**3.5**	**3.8**	**3.6**	**3.6**	**3.7**	**3.7**
3.18.2	• Respiratory rate	**3.7**	**3.5**	**3.5**	**3.7**	**3.6**	**3.6**	**3.7**	**3.7**
3.17.3	• Blood pressure	**3.7**	**3.5**	**3.5**	**3.7**	**3.6**	**3.6**	**3.7**	**3.7**
3.19	Obtain and interpret temperature	**2.1**	**2.9**	**2.6**	**2.5**	**2.6**	**3.2**	**3.1**	**3.0**
3.20	Assess skin	**3.7**	**3.5**	**3.4**	**3.7**	**3.1**	**3.3**	**3.4**	**3.3**
3.31	Assess head and neck	**3.6**	**3.4**	**3.3**	**3.7**	**3.3**	**3.5**	**3.6**	**3.5**
3.22	Assess thorax	**3.5**	**3.4**	**3.2**	**3.6**	**3.3**	**3.5**	**3.6**	**3.6**
3.23	Assess heart	**3.6**	**3.4**	**3.2**	**3.6**	**3.5**	**3.6**	**3.6**	**3.7**
3.24	Assess abdomen	**3.6**	**3.3**	**3.2**	**3.5**	**3.2**	**3.5**	**3.6**	**3.6**
3.25	Assess genitalia	**2.7**	**2.3**	**2.3**	**2.6**	**2.8**	**3.1**	**3.0**	**2.9**
3.26	Assess buttocks	**2.8**	**2.4**	**2.4**	**2.7**	**2.7**	**3.1**	**3.0**	**2.9**
3.27	Assess peripheral vascular system and pulses	**3.6**	**3.3**	**3.2**	**3.6**	**3.3**	**3.5**	**3.6**	**3.6**
3.28	Assess musculoskeletal system	**3.5**	**3.4**	**3.1**	**3.5**	**3.1**	**3.4**	**3.5**	**3.3**
3.29	Assess nervous system	**3.4**	**3.3**	**3.1**	**3.5**	**3.3**	**3.5**	**3.5**	**3.5**
3.30	Use trauma score/category	**3.1**	**2.7**	**2.7**	**3.0**	**3.4**	**3.5**	**3.4**	**3.3**
3.31	Use Glasgow Coma Score (GCS)	**3.3**	**3.1**	**3.1**	**3.4**	**3.4**	**3.5**	**3.4**	**3.3**
3.32	Use pre-hospital stroke scale	**3.0**	**2.4**	**2.6**	**2.9**	**3.5**	**3.6**	**3.5**	**3.5**
3.33	Use STEMI checklist	**2.7**	**1.9**	**2.0**	**2.7**	**3.3**	**3.5**	**3.4**	**3.6**

Frequency and *Harm* Ratings for Procedures and Skills for Intermediate Level EMS Providers

		Frequency				Harm			
	Procedures and Skills	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced
	Domain 4: Medicine								
4.1	**Perform electrical cardioversion**								
4.1.1	• Automated external defibrillator (AED) (adult)	**1.7**	**1.8**	**1.9**	**1.8**	**3.6**	**3.8**	**3.8**	**3.6**
4.1.2	• Automated external defibrillator (AED) (pediatric)	**1.5**	**1.5**	**1.6**	**1.6**	**3.6**	**3.6**	**3.8**	**3.6**
4.1.3	• Defibrillation (adult)	**2.1**	**1.7**	**1.9**	**2.1**	**3.8**	**3.7**	**3.8**	**3.9**
4.1.4	• Defibrillation (pediatric)	**1.7**	**1.4**	**1.5**	**1.7**	**3.7**	**3.6**	**3.7**	**3.8**
4.1.5	• Synchronized cardioversion (adult)	**1.8**	**1.3**	**1.4**	**1.9**	**3.7**	**3.5**	**3.7**	**3.9**
4.1.6	• Synchronized cardioversion (pediatric)	**1.6**	**1.2**	**1.3**	**1.6**	**3.7**	**3.5**	**3.7**	**3.8**
4.2	Perform transcutaneous pacing	**1.9**	**1.2**	**1.4**	**1.9**	**3.7**	**3.4**	**3.7**	**3.8**
4.3	Perform Vagal maneuvers (e.g., carotid massage, valsalva maneuvers)	**2.0**	**1.5**	**1.5**	**2.0**	**3.3**	**3.3**	**3.5**	**3.6**
4.4	Use mechanical CPR	**1.6**	**1.3**	**1.5**	**1.6**	**3.5**	**3.4**	**3.6**	**3.4**
4.5	Perform manual CPR	**2.3**	**2.0**	**2.1**	**2.2**	**3.8**	**3.8**	**3.8**	**3.8**
4.6	Perform urinary catheterization	**1.1**	**1.2**	**1.1**	**1.2**	**2.2**	**2.9**	**2.9**	**2.6**
4.7	Perform ocular irrigation	**1.6**	**1.6**	**1.5**	**1.7**	**2.8**	**3.2**	**3.1**	**2.9**
4.8	Remove foreign objects from nose and ears	**1.4**	**1.5**	**1.3**	**1.4**	**2.8**	**3.3**	**3.0**	**2.6**
4.9	Maintain central venus pressure (CVP) monitoring	**1.1**	**1.1**	**1.1**	**1.2**	**2.5**	**3.1**	**3.0**	**2.9**
	Domain 5: Shock and Resuscitation								
5.1	Manage shock	**2.4**	**2.3**	**2.3**	**2.4**	**3.8**	**3.8**	**3.8**	**3.9**
5.2	Initiate and maintain fluid resuscitation	**2.6**	**2.4**	**2.4**	**2.6**	**3.7**	**3.9**	**3.8**	**3.8**
	Domain 6: Trauma and Environmental Emergencies								
6.1	Manage open abdominal wounds	**2.0**	**1.9**	**1.8**	**1.9**	**3.7**	**3.7**	**3.7**	**3.6**
6.2	**Provide manual stabilization**								
6.2.1	• C-spine and spinal injuries	**2.8**	**2.5**	**2.7**	**2.9**	**3.7**	**3.8**	**3.8**	**3.8**
6.2.2	• Extremity fractures	**2.5**	**2.4**	**2.3**	**2.5**	**3.4**	**3.5**	**3.5**	**3.4**
6.3	**Control bleeding**								
6.3.1	• Manual	**2.8**	**2.6**	**2.5**	**2.6**	**3.6**	**3.6**	**3.6**	**3.6**

Frequency and *Harm* Ratings for Procedures and Skills for Intermediate Level EMS Providers

		Frequency				Harm			
	Procedures and Skills	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced
6.3.2	• Mechanical (tourniquet)	**1.6**	**1.5**	**1.5**	**1.4**	**3.5**	**3.6**	**3.6**	**3.6**
6.3.3	• Hemostatic agents	**1.3**	**1.3**	**1.2**	**1.2**	**2.9**	**3.4**	**3.2**	**3.2**
6.4	**Perform and manage thoracostomy (chest decompression)**								
6.4.1	• Chest tubes	**1.1**	**1.1**	**1.1**	**1.2**	**2.7**	**2.8**	**3.3**	**3.7**
6.4.2	• Needle decompression thoracostomy	**1.6**	**1.1**	**1.3**	**1.7**	**3.6**	**3.2**	**3.7**	**3.9**
6.5	Perform pericardiocentesis	**1.1**	**1.1**	**1.1**	**1.1**	**2.8**	**2.8**	**3.2**	**3.6**
6.6	Perform emergency moves (e.g., fireman's carry, clothes drag, extremity drag)	**2.0**	**1.8**	**1.7**	**1.9**	**3.2**	**3.4**	**3.3**	**3.3**
6.7	**Apply spinal immobilization**								
6.7.1	• Cervical collars	**2.9**	**2.6**	**2.8**	**3.0**	**3.5**	**3.7**	**3.8**	**3.6**
6.7.2	• Seated immobilization devices	**1.9**	**2.0**	**2.2**	**2.4**	**3.2**	**3.7**	**3.5**	**3.2**
6.7.3	• Longboard (straps, cervical immobilization device)	**3.0**	**2.6**	**2.8**	**3.0**	**3.5**	**3.7**	**3.7**	**3.6**
6.7.4	• Rapid extrication	**2.2**	**2.1**	**2.1**	**2.4**	**3.5**	**3.7**	**3.7**	**3.6**
6.7.5	• Helmet stabilization	**1.9**	**1.8**	**1.8**	**2.1**	**3.3**	**3.7**	**3.7**	**3.6**
6.7.6	• Helmet removal	**1.8**	**1.7**	**1.7**	**2.0**	**3.4**	**3.7**	**3.6**	**3.5**
6.8	Perform tooth replacement/tooth avulsion care	**1.3**	**1.4**	**1.2**	**1.4**	**2.4**	**3.0**	**2.6**	**2.7**
6.9	Apply splinting techniques	**2.4**	**2.3**	**2.3**	**2.5**	**3.2**	**3.3**	**3.2**	**3.2**
6.10	Use dressings, bandages, and irrigation	**2.8**	**2.6**	**2.5**	**2.7**	**3.0**	**3.2**	**3.1**	**3.2**
6.11	Perform wound closure techniques (e.g., dermabond, steri-strips)	**1.2**	**1.5**	**1.4**	**1.3**	**2.4**	**3.0**	**3.0**	**2.7**
6.12	Managing post-operative incision and drains	**1.3**	**1.6**	**1.3**	**1.4**	**2.5**	**3.1**	**2.7**	**2.8**
	Domain 7: Special Patient Populations								
7.1	Perform newborn resuscitation	**1.6**	**1.4**	**1.4**	**1.7**	**3.7**	**3.7**	**3.8**	**3.8**
7.2	Provide newborn care (warming, drying, positioning, APGAR scores)	**1.8**	**1.5**	**1.5**	**1.8**	**3.6**	**3.7**	**3.6**	**3.8**
7.3	Position pregnant/gravid patient	**2.1**	**1.8**	**1.8**	**2.0**	**3.3**	**3.5**	**3.3**	**3.4**
7.4	Position geriatric patient	**2.5**	**2.7**	**2.4**	**2.7**	**3.2**	**3.4**	**3.2**	**3.2**
7.5	Measure fundal height	**1.4**	**1.4**	**1.2**	**1.4**	**2.7**	**2.7**	**2.7**	**2.5**
7.6	Determine height/weight-based measurement	**1.9**	**2.1**	**1.6**	**1.9**	**3.2**	**3.2**	**3.0**	**2.9**

***Frequency* and *Harm* Ratings for Procedures and Skills for Intermediate Level EMS Providers**

		Frequency				Harm			
	Procedures and Skills	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced
7.7	Perform childbirth procedures	**1.8**	**1.5**	**1.4**	**1.6**	**3.6**	**3.7**	**3.6**	**3.5**
	Domain 8: Operations								
8.1	Perform triage	**2.3**	**2.2**	**2.1**	**2.5**	**3.3**	**3.6**	**3.5**	**3.4**
8.2	Perform safe vehicle extrication	**2.4**	**2.1**	**2.2**	**2.4**	**3.5**	**3.6**	**3.7**	**3.6**

Appendix 15
Out of Scope Tables for Procedures and Skills for
First Responders, EMT-Basics, EMT-Intermediates, and EMT-Paramedics

Shading Key:

Out of Scope (60.1% - 100%)
Borderline (40.1% - 60.0%)
In Scope (0 – 40.0%)

Percentage of Respondents Selecting the "Out of Scope" Option on the Harm Rating Scale

		First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic
	Domain 1: Preparatory				
1.1	Donning, doffing, and disinfecting personal protective equipment	**8.1%**	**9.0%**	**7.9%**	**5.7%**
1.2	Lifting and moving	**9.1%**	**10.8%**	**8.8%**	**6.4%**
1.3	Use restraints (chemical and physical)	**29.2%**	**12.7%**	**10.1%**	**9.0%**
1.4	Administer medication via various routes (e.g., oral, sublingual, inhalation, intramuscular, intravenous)	**54.6%**	**27.5%**	**10.4%**	**13.3%**
1.5	Complete oral and written patient care reports	**13.5%**	**10.4%**	**8.0%**	**7.9%**
1.6	Transmit and receive radio communications	**12.2%**	**8.7%**	**8.4%**	**7.2%**
1.7	Engage in interpersonal communications	**8.3%**	**9.1%**	**7.3%**	**6.7%**
1.8	**Adjust communication strategies based on:**				
1.8.1	• Age and stage of development	**11.3%**	**7.9%**	**7.5%**	**5.7%**
1.8.2	• Patients' special needs	**10.5%**	**7.9%**	**7.5%**	**5.6%**
1.8.3	• Culture	**12.8%**	**8.7%**	**8.4%**	**5.1%**
1.9	Calculate drug dosages	**69.5%**	**61.7%**	**15.1%**	**18.9%**
1.10	Central venous access	**68.8%**	**72.7%**	**50.7%**	**47.2%**
1.11	Intraosseous access and infusion	**68.1%**	**72.5%**	**32.5%**	**12.9%**
1.12	**Peripheral venous access and maintenance:**				
1.12.1	• Peripheral vein (arm, leg, external jugular)	**66.0%**	**71.5%**	**9.7%**	**11.6%**
1.12.2	• Umbilical catheter	**68.8%**	**73.3%**	**58.5%**	**43.4%**
1.12.3	• Cut down	**68.8%**	**73.5%**	**66.5%**	**70.2%**

Percentage of Respondents Selecting the "Out of Scope" Option on the Harm Rating Scale

		First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic
1.13	Analgesics (pain medications) (e.g., Tylenol, Advil, Opiates and related narcotics, aspirin)	**67.0%**	**60.5%**	**8.0%**	**2.1%**
1.14	Anesthethetics (numbing medications) (e.g., Chloroseptic, benzocaine)	**75.3%**	**74.9%**	**51.5%**	**34.7%**
1.15	Anticonvulsants (anti-seizure medication)	**74.5%**	**76.1%**	**36.7%**	**4.4%**
1.16	Antidotes (e.g., Narcan, MARK-1 kit, cyanide poisoning kit, amyl nitrate)	**75.0%**	**73.3%**	**6.4%**	**2.6%**
1.17	Antihistamines (e.g., Benadryl)	**71.1%**	**71.7%**	**4.2%**	**1.3%**
1.18	Behavior-altering medications (e.g., Valium, Haldol)	**76.0%**	**79.9%**	**42.0%**	**5.5%**
1.19	Biologicals (e.g., antibiotics, vaccines)	**77.1%**	**80.4%**	**65.4%**	**58.1%**
1.20	Blood/blood products	**77.1%**	**83.5%**	**72.6%**	**61.3%**
1.21	Blood modifiers (e.g., aspirin, blood thinners, antiplatelets, fibrinolytics, hemostatic agents)	**73.2%**	**66.1%**	**18.1%**	**13.5%**
1.22	Cardiovascular agents (e.g., epinephrine, nitroglycerine, Lasix)	**71.9%**	**47.7%**	**7.6%**	**1.8%**
1.23	Dietary supplements/electrolytes (e.g., vitamins, minerals)	**71.1%**	**71.9%**	**59.1%**	**50.0%**
1.24	Gas (e.g., oxygen, nitrous oxide)	**27.8%**	**13.6%**	**4.2%**	**3.8%**
1.25	Gastrointestinal (e.g., antidiarrheals, antacids)	**68.8%**	**74.0%**	**60.1%**	**49.4%**
1.26	Glucose altering agents (e.g., insulin, glucose)	**59.8%**	**29.3%**	**2.9%**	**1.3%**
1.27	Hormones (steroids)	**75.0%**	**80.5%**	**65.4%**	**41.3%**
1.28	Intravenous fluids (IV fluids)	**75.8%**	**81.9%**	**2.5%**	**2.3%**
1.29	Neuromuscular antagonists (e.g., paralyzing medication, paralytics)	**76.0%**	**84.7%**	**69.3%**	**33.4%**
1.30	Respiratory (e.g., Albuterol, Atrovent)	**68.8%**	**44.9%**	**3.3%**	**2.3%**
	Domain 2: Airway Management, Respirations, and Artificial Ventilation				
2.1	**Use airway adjuncts**				
2.1.1	• Oropharyngeal airway	**13.8%**	**7.1%**	**5.5%**	**5.4%**
2.1.2	• Nasopharyngeal airway	**17.0%**	**6.8%**	**6.3%**	**5.9%**
2.2	**Perform airway maneuvers**				
2.2.1	• Head tilt chin lift	**10.5%**	**7.9%**	**5.4%**	**7.4%**
2.2.2	• Jaw thrust	**9.6%**	**7.6%**	**5.5%**	**7.5%**

Percentage of Respondents Selecting the "Out of Scope" Option on the Harm Rating Scale

		First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic
2.2.3	• Chin lift	**10.6%**	**8.3%**	**5.5%**	**7.0%**
2.2.4	• Sellick maneuver (cricoid pressure)	**21.7%**	**23.6%**	**5.9%**	**7.2%**
2.3	Manage existing tracheostomy	**49.4%**	**31.9%**	**16.8%**	**9.0%**
2.4	Use extratracheal airway device (Dual lumen airway, combitube, laryngeal mask airway (LMA), King airway)	**51.1%**	**45.3%**	**9.6%**	**7.8%**
2.5	**Perform cricothyrotomy**				
2.5.1	• Needle	**72.3%**	**79.6%**	**60.3%**	**17.4%**
2.5.2	• Surgical	**72.6%**	**80.1%**	**70.9%**	**40.6%**
2.6	**Clear obstructed airway**				
2.6.1	• Manual (finger sweep)	**13.3%**	**13.6%**	**8.6%**	**7.1%**
2.6.2	• Abdominal / chest thrusts	**12.1%**	**12.0%**	**8.2%**	**7.2%**
2.6.3	• Upper airway mechanical (Magill forceps)	**57.0%**	**54.3%**	**12.8%**	**9.5%**
2.7	Perform nasogastric/orogastric tube insertion	**60.2%**	**66.8%**	**47.6%**	**19.0%**
2.8	**Perform intubation**				
2.8.1	• Nasotracheal	**62.8%**	**73.2%**	**44.9%**	**9.8%**
2.8.2	• Orotracheal	**66.0%**	**71.8%**	**17.2%**	**7.5%**
2.8.3	• Digital	**73.1%**	**77.3%**	**42.7%**	**10.8%**
2.8.4	• Pharmacological facilitation (e.g. sedation-assisted, RSI)	**75.0%**	**80.1%**	**69.4%**	**34.0%**
2.8.5	• Confirmation procedures (e.g., visualization, capnography, esophageal detection)	**72.3%**	**72.8%**	**16.3%**	**8.3%**
2.8.6	• Fiberoptic scope or camera devices	**75.5%**	**79.6%**	**65.2%**	**41.7%**
2.8.7	• Transillumination (e.g. trachlight)	**76.6%**	**78.9%**	**62.9%**	**40.3%**
2.8.8	• Retrograde with guidewire	**77.2%**	**78.6%**	**63.8%**	**46.9%**
2.8.9	• "Bougie" assisted	**75.3%**	**79.1%**	**55.8%**	**30.4%**
2.9	**Deliver oxygen**				
2.9.1	• Nasal cannula	**10.6%**	**5.8%**	**6.0%**	**4.9%**

Percentage of Respondents Selecting the "Out of Scope" Option on the Harm Rating Scale

		First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic
2.9.2	• Venturi mask	**26.9%**	**20.7%**	**19.6%**	**19.2%**
2.9.3	• Simple face mask	**14.3%**	**15.9%**	**17.4%**	**14.6%**
2.9.4	• Rebreathing face mask	**17.2%**	**17.2%**	**20.1%**	**17.7%**
2.9.5	• Partial rebreather face mask	**17.4%**	**19.6%**	**22.2%**	**16.9%**
2.9.6	• Non-rebreather face mask	**11.7%**	**7.6%**	**7.4%**	**5.2%**
2.9.7	• Face tent	**42.6%**	**40.6%**	**40.6%**	**37.5%**
2.9.8	• Tracheal cuff/mask	**47.4%**	**41.6%**	**36.0%**	**23.9%**
2.9.9	• Oxygen hood	**47.3%**	**43.6%**	**44.4%**	**39.4%**
2.9.10	• Flow restricted oxygen powered ventilation device	**40.0%**	**27.5%**	**35.0%**	**21.6%**
2.9.11	• Blow-by-delivery	**35.5%**	**13.0%**	**6.4%**	**6.0%**
2.9.12	• Humidification	**42.4%**	**26.6%**	**20.7%**	**13.1%**
2.10	**Perform suctioning**				
2.10.1	• Pharyngeal	**42.2%**	**24.7%**	**14.3%**	**7.2%**
2.10.2	• Bronchial-tracheal	**48.9%**	**43.5%**	**27.6%**	**15.0%**
2.10.3	• Oral suctioning	**22.2%**	**5.8%**	**5.4%**	**5.7%**
2.10.4	• Tracheostomy suctioning	**53.9%**	**22.7%**	**11.4%**	**7.7%**
2.10.5	• Naso-pharyngeal suctioning	**48.9%**	**22.1%**	**16.7%**	**8.3%**
2.10.6	• Endotracheal suctioning	**52.8%**	**39.5%**	**12.0%**	**6.5%**
2.10.7	• Meconium aspiration neonate with ET	**58.4%**	**49.6%**	**20.5%**	**7.2%**
2.11	**Assist ventilation**				
2.11.1	• Mouth-to-mask	**12.0%**	**9.4%**	**8.2%**	**9.1%**
2.11.2	• Mouth-to-mask with O2	**14.0%**	**10.9%**	**6.9%**	**9.3%**
2.11.3	• Bag-valve-mask neonate/infant	**16.9%**	**9.4%**	**6.0%**	**7.0%**
2.11.4	• Bag-valve-mask child	**18.3%**	**9.1%**	**5.6%**	**6.9%**
2.11.5	• Bag-valve-mask adult	**12.9%**	**9.5%**	**5.4%**	**6.9%**

Percentage of Respondents Selecting the "Out of Scope" Option on the Harm Rating Scale

		First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic
2.11.6	• Continuous Postive Airway Pressure (CPAP)/Bilevel Positive Airway Pressure (BiPAP)	**58.7%**	**44.1%**	**30.8%**	**10.6%**
2.11.7	• Positive End-Expiratory Pressure (PEEP)	**67.7%**	**59.6%**	**47.9%**	**24.3%**
2.11.1	• Transtracheal jet insufflations	**71.0%**	**65.4%**	**66.8%**	**42.3%**
2.11.2	• Mechanical ventilation (manual/automated transport ventilator)	**68.5%**	**59.1%**	**57.1%**	**27.8%**
	Domain 3: Assessment				
3.1	Perform scene size-up, including safety and management	**5.1%**	**4.0%**	**2.9%**	**3.1%**
3.2	Perform primary (initial) assessment	**5.1%**	**4.7%**	**3.3%**	**3.1%**
3.3	Obtain patient history	**6.3%**	**4.4%**	**3.3%**	**3.1%**
3.4	Perform secondary (e.g. detailed, focused, rapid) assessment	**6.3%**	**4.0%**	**3.3%**	**2.9%**
3.5	Perform reassessment	**6.3%**	**5.2%**	**3.3%**	**3.1%**
3.6	Perform blood glucose monitoring	**45.4%**	**34.1%**	**3.7%**	**2.6%**
3.7	Interpret blood glucose monitoring results	**47.9%**	**35.4%**	**3.8%**	**3.9%**
3.8	Obtain electrocardiogram rhythm strip (3/4 lead)	**69.8%**	**67.1%**	**24.2%**	**3.9%**
3.9	Interpret electrocardiogram rhythm strip (3/4 lead)	**72.9%**	**75.6%**	**32.6%**	**4.2%**
3.10	Obtain 12 lead electrocardiogram	**74.0%**	**68.3%**	**25.0%**	**5.0%**
3.11	Interpret 12 lead electrocardiogram	**75.0%**	**78.1%**	**37.4%**	**5.5%**
3.12	Obtain ventricular right (15) lead electrocardiogram	**77.9%**	**77.3%**	**57.4%**	**27.9%**
3.13	Interpret ventricular right (15) lead electrocardiogram	**78.5%**	**79.3%**	**58.7%**	**28.1%**
3.14	Interpret blood chemistry/lab analysis	**78.3%**	**79.3%**	**73.7%**	**47.0%**
3.15	**Monitor transcutaneous physiologic parameters tissue/plethysmography**				
3.15.1	• Apply pulse oximetry	**38.9%**	**13.3%**	**4.2%**	**2.9%**
3.15.2	• Interpret pulse oximetry	**45.3%**	**15.1%**	**4.2%**	**2.6%**
3.15.3	• Measure carbon monoxide	**61.1%**	**42.9%**	**28.4%**	**21.6%**
3.16	Interpret capnography	**72.3%**	**73.0%**	**25.5%**	**6.6%**
3.17	Interpret capnometry	**72.6%**	**74.2%**	**35.3%**	**13.9%**

Percentage of Respondents Selecting the "Out of Scope" Option on the Harm Rating Scale

		First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic
3.18	**Obtain and interpret vital signs**				
3.18.1	• Pulse rate	**6.3%**	**2.9%**	**3.7%**	**2.5%**
3.18.2	• Respiratory rate	**6.2%**	**2.5%**	**3.7%**	**2.8%**
3.17.3	• Blood pressure	**7.1%**	**2.5%**	**3.7%**	**2.3%**
3.19	Obtain and interpret temperature	**7.3%**	**8.6%**	**11.7%**	**4.1%**
3.20	Assess skin	**4.2%**	**2.2%**	**3.3%**	**2.8%**
3.31	Assess head and neck	**5.3%**	**3.3%**	**3.7%**	**2.3%**
3.22	Assess thorax	**8.7%**	**3.6%**	**3.3%**	**2.6%**
3.23	Assess heart	**12.8%**	**6.2%**	**5.8%**	**2.6%**
3.24	Assess abdomen	**5.3%**	**3.7%**	**3.3%**	**2.6%**
3.25	Assess genitalia	**7.7%**	**4.4%**	**5.3%**	**2.8%**
3.26	Assess buttocks	**8.6%**	**4.4%**	**3.3%**	**2.3%**
3.27	Assess peripheral vascular system and pulses	**8.5%**	**4.4%**	**2.9%**	**2.3%**
3.28	Assess musculoskeletal system	**7.4%**	**4.3%**	**3.3%**	**2.3%**
3.29	Assess nervous system	**15.4%**	**5.5%**	**3.3%**	**2.3%**
3.30	Use trauma score/category	**19.4%**	**6.6%**	**3.7%**	**2.8%**
3.31	Use Glasgow Coma Score (GCS)	**28.0%**	**5.5%**	**2.9%**	**2.3%**
3.32	Use pre-hospital stroke scale	**31.9%**	**11.3%**	**4.6%**	**2.3%**
3.33	Use STEMI checklist	**42.6%**	**39.0%**	**19.5%**	**6.1%**
	Domain 4: Medicine				
4.1	**Perform electrical cardioversion**				
4.1.1	• Automated external defibrillator (AED) (adult)	**7.6%**	**5.1%**	**6.3%**	**3.3%**
4.1.2	• Automated external defibrillator (AED) (pediatric)	**12.0%**	**6.9%**	**8.8%**	**3.6%**
4.1.3	• Defibrillation (adult)	**38.5%**	**44.4%**	**16.9%**	**2.3%**
4.1.4	• Defibrillation (pediatric)	**39.1%**	**45.8%**	**19.9%**	**2.6%**

Percentage of Respondents Selecting the "Out of Scope" Option on the Harm Rating Scale

		First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic
4.1.5	• Synchronized cardioversion (adult)	**64.5%**	**76.4%**	**40.2%**	**2.8%**
4.1.6	• Synchronized cardioversion (pediatric)	**65.6%**	**75.8%**	**40.4%**	**3.1%**
4.2	Perform transcutaneous pacing	**76.9%**	**79.6%**	**41.0%**	**2.8%**
4.3	Perform Vagal maneuvers (e.g., carotid massage, valsalva maneuvers)	**69.6%**	**69.4%**	**31.4%**	**3.8%**
4.4	Use mechanical CPR	**41.3%**	**36.7%**	**25.4%**	**15.8%**
4.5	Perform manual CPR	**6.6%**	**4.8%**	**5.0%**	**2.3%**
4.6	Perform urinary catheterization	**75.5%**	**79.9%**	**75.9%**	**57.0%**
4.7	Perform ocular irrigation	**56.0%**	**42.8%**	**22.9%**	**12.9%**
4.8	Remove foreign objects from nose and ears	**48.4%**	**32.2%**	**27.1%**	**27.0%**
4.9	Maintain central venus pressure (CVP) monitoring	**69.9%**	**74.5%**	**73.6%**	**65.8%**
	Domain 5: Shock and Resuscitation				
5.1	Manage shock	**7.1%**	**3.6%**	**1.9%**	**2.2%**
5.2	Initiate and maintain fluid resuscitation	**55.4%**	**66.4%**	**3.4%**	**1.8%**
	Domain 6: Trauma and Environmental Emergencies				
6.1	Manage open abdominal wounds	**5.6%**	**2.2%**	**2.6%**	**.8%**
6.2	**Provide manual stabilization**				
6.2.1	• C-spine and spinal injuries	**6.4%**	**2.9%**	**2.9%**	**.8%**
6.2.2	• Extremity fractures	**5.2%**	**1.1%**	**2.1%**	**.8%**
6.3	**Control bleeding**				
6.3.1	• Manual	**5.3%**	**1.5%**	**2.1%**	**.8%**
6.3.2	• Mechanical (tourniquet)	**21.5%**	**12.5%**	**9.9%**	**8.5%**
6.3.3	• Hemostatic agents	**59.8%**	**59.5%**	**50.9%**	**48.2%**
6.4	**Perform and manage thoracostomy (chest decompression)**				
6.4.1	• Chest tubes	**80.0%**	**83.0%**	**78.3%**	**66.8%**

Percentage of Respondents Selecting the "Out of Scope" Option on the Harm Rating Scale

		First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic
6.4.2	• Needle decompression thoracostomy	**80.6%**	**81.4%**	**40.4%**	**4.4%**
6.5	Perform pericardiocentesis	**81.7%**	**81.5%**	**77.8%**	**77.4%**
6.6	Perform emergency moves (e.g., fireman's carry, clothes drag, extremity drag)	**9.9%**	**5.0%**	**2.5%**	**2.6%**
6.7	**Apply spinal immobilization**				
6.7.1	• Cervical collars	**6.3%**	**2.2%**	**2.5%**	**1.0%**
6.7.2	• Seated immobilization devices	**6.5%**	**2.2%**	**2.1%**	**1.0%**
6.7.3	• Longboard (straps, cervical immobilization device)	**6.3%**	**2.2%**	**2.1%**	**1.3%**
6.7.4	• Rapid extrication	**14.0%**	**1.8%**	**2.5%**	**1.8%**
6.7.5	• Helmet stabilization	**16.3%**	**2.9%**	**2.1%**	**1.3%**
6.7.6	• Helmet removal	**22.0%**	**4.6%**	**4.2%**	**1.5%**
6.8	Perform tooth replacement/tooth avulsion care	**54.3%**	**37.5%**	**36.1%**	**33.2%**
6.9	Apply splinting techniques	**4.2%**	**.7%**	**2.5%**	**1.6%**
6.10	Use dressings, bandages, and irrigation	**5.2%**	**.0%**	**2.1%**	**1.3%**
6.11	Perform wound closure techniques (e.g., dermabond, steri-strips)	**42.1%**	**45.6%**	**53.4%**	**60.5%**
6.12	Managing post-operative incision and drains	**63.2%**	**56.0%**	**53.4%**	**49.9%**
	Domain 7: Special Patient Populations				
7.1	Perform newborn resuscitation	**19.1%**	**8.8%**	**3.8%**	**1.8%**
7.2	Provide newborn care (warming, drying, positioning, APGAR scores)	**20.2%**	**5.5%**	**3.0%**	**1.3%**
7.3	Position pregnant/gravid patient	**19.1%**	**4.7%**	**3.0%**	**.8%**
7.4	Position geriatric patient	**18.3%**	**3.0%**	**2.9%**	**1.0%**
7.5	Measure fundal height	**48.9%**	**39.3%**	**23.6%**	**25.8%**
7.6	Determine height/weight-based measurement	**39.1%**	**28.0%**	**9.5%**	**13.4%**
7.7	Perform childbirth procedures	**18.3%**	**6.2%**	**3.8%**	**1.3%**

Percentage of Respondents Selecting the "Out of Scope" Option on the Harm Rating Scale

		First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic
	Domain 8: Operations				
8.1	Perform triage	**4.7%**	**1.2%**	**1.4%**	**.9%**
8.2	Perform safe vehicle extrication	**13.0%**	**1.8%**	**3.0%**	**2.1%**

Appendix 16
Out of Scope Tables for Procedures and Skills for EMT-Intermediates by State/Title

Shading Key:

Out of Scope (60.1% - 100%)
Borderline (40.1% - 60.0%)
In Scope (0 – 40.0%)

Percentage of Intermediate Level Respondents Selecting the "Out of Scope" Option on the Harm Rating Scale

		MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enh
	Domain 1: Preparatory				
1.1	Donning, doffing, and disinfecting personal protective equipment	**8.6**	**10.3**	**6.4**	**2.7**
1.2	Lifting and moving	**8.7**	**13.8**	**6.4**	**5.3**
1.3	Use restraints (chemical and physical)	**5.7**	**17.5**	**9.2**	**5.3**
1.4	Administer medication via various routes (e.g., oral, sublingual, inhalation, intramuscular, intravenous)	**11.4**	**17.5**	**6.3**	**12.0**
1.5	Complete oral and written patient care reports	**8.7**	**10.3**	**6.4**	**4.0**
1.6	Transmit and receive radio communications	**8.8**	**10.5**	**7.2**	**2.7**
1.7	Engage in interpersonal communications	**7.1**	**11.3**	**5.6**	**4.0**
1.8	**Adjust communication strategies based on:**				
1.8.1	• Age and stage of development	**7.2**	**10.3**	**6.3**	**1.3**
1.8.2	• Patients' special needs	**7.4**	**10.3**	**6.3**	**1.4**
1.8.3	• Culture	**5.9**	**12.1**	**8.1**	**1.4**
1.9	Calculate drug dosages	**14.5**	**21.4**	**12.6**	**17.8**
1.10	Central venous access	**27.3**	**73.6**	**53.7**	**53.3**
1.11	Intraosseous access and infusion	**7.2**	**67.9**	**31.8**	**6.7**
1.12	**Peripheral venous access and maintenance:**				
1.12.1	• Peripheral vein (arm, leg, external jugular)	**10.1**	**14.8**	**7.2**	**9.3**
1.12.2	• Umbilical catheter	**34.3**	**76.4**	**64.5**	**36.5**
1.12.3	• Cut down	**49.3**	**80.0**	**69.7**	**72.0**

Percentage of Intermediate Level Respondents Selecting the "Out of Scope" Option on the Harm Rating Scale

		MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enh
1.13	Analgesics (pain medications) (e.g., Tylenol, Advil, Opiates and related narcotics, aspirin)	**7.4**	**6.9**	**9.2**	**2.6**
1.14	Anesthethetics (numbing medications) (e.g., Chloroseptic, benzocaine)	**28.4**	**69.0**	**55.6**	**30.7**
1.15	Anticonvulsants (anti-seizure medication)	**4.3**	**72.4**	**38.9**	**5.3**
1.16	Antidotes (e.g., Narcan, MARK-1 kit, cyanide poisoning kit, amyl nitrate)	**2.9**	**12.1**	**5.6**	**3.9**
1.17	Antihistamines (e.g., Benadryl)	**1.4**	**5.4**	**4.5**	**1.3**
1.18	Behavior-altering medications (e.g., Valium, Haldol)	**13.2**	**78.0**	**41.3**	**3.9**
1.19	Biologicals (e.g., antibiotics, vaccines)	**57.6**	**68.4**	**67.9**	**52.6**
1.20	Blood/blood products	**64.7**	**77.6**	**74.3**	**59.2**
1.21	Blood modifiers (e.g., aspirin, blood thinners, antiplatelets, fibrinolytics, hemostatic agents)	**10.3**	**20.7**	**22.0**	**11.8**
1.22	Cardiovascular agents (e.g., epinephrine, nitroglycerine, Lasix)	**4.3**	**8.6**	**9.2**	**2.6**
1.23	Dietary supplements/electrolytes (e.g., vitamins, minerals)	**59.1**	**51.7**	**62.3**	**51.3**
1.24	Gas (e.g., oxygen, nitrous oxide)	**5.9**	**5.1**	**2.7**	**6.6**
1.25	Gastrointestinal (e.g., antidiarrheals, antacids)	**61.2**	**51.8**	**63.0**	**46.7**
1.26	Glucose altering agents (e.g., insulin, glucose)	**2.9**	**3.4**	**2.7**	**2.7**
1.27	Hormones (steroids)	**65.7**	**68.4**	**63.0**	**42.1**
1.28	Intravenous fluids (IV fluids)	**1.4**	**5.1**	**1.8**	**2.6**
1.29	Neuromuscular antagonists (e.g., paralyzing medication, paralytics)	**60.3**	**76.3**	**70.6**	**28.0**
1.30	Respiratory (e.g., Albuterol, Atrovent)	**4.3**	**5.1**	**1.8**	**3.9**
	Domain 2: Airway Management, Respirations, and Artificial Ventilation				
2.1	**Use airway adjuncts**				
2.1.1	• Oropharyngeal airway	**6.0**	**7.1**	**4.4**	**5.4**
2.1.2	• Nasopharyngeal airway	**6.0**	**8.9**	**5.3**	**5.4**
2.2	**Perform airway maneuvers**				
2.2.1	• Head tilt chin lift	**5.9**	**7.1**	**4.4**	**4.1**
2.2.2	• Jaw thrust	**5.9**	**7.1**	**4.5**	**4.1**

Percentage of Intermediate Level Respondents Selecting the "Out of Scope" Option on the Harm Rating Scale

		MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enh
2.2.3	• Chin lift	**5.9**	**7.3**	**4.5**	**2.7**
2.2.4	• Sellick maneuver (cricoid pressure)	**3.0**	**8.9**	**6.3**	**4.1**
2.3	Manage existing tracheostomy	**8.3**	**32.1**	**14.3**	**4.3**
2.4	Use extratracheal airway device (Dual lumen airway, combitube, laryngeal mask airway (LMA), King airway)	**7.8**	**11.1**	**10.0**	**6.8**
2.5	**Perform cricothyrotomy**				
2.5.1	• Needle	**30.8**	**87.3**	**64.5**	**17.6**
2.5.2	• Surgical	**43.1**	**89.1**	**77.7**	**35.1**
2.6	**Clear obstructed airway**				
2.6.1	• Manual (finger sweep)	**7.7**	**5.5**	**10.9**	**2.7**
2.6.2	• Abdominal / chest thrusts	**7.7**	**5.5**	**10.1**	**2.7**
2.6.3	• Upper airway mechanical (Magill forceps)	**7.6**	**12.7**	**16.2**	**4.1**
2.7	Perform nasogastric/orogastric tube insertion	**16.4**	**68.5**	**57.3**	**28.8**
2.8	**Perform intubation**				
2.8.1	• Nasotracheal	**47.1**	**47.3**	**42.3**	**14.9**
2.8.2	• Orotracheal	**7.6**	**12.5**	**25.7**	**5.4**
2.8.3	• Digital	**20.6**	**51.8**	**51.4**	**12.2**
2.8.4	• Pharmacological facilitation (e.g. sedation-assisted, RSI)	**62.1**	**82.1**	**66.7**	**25.7**
2.8.5	• Confirmation procedures (e.g., visualization, capnography, esophageal detection)	**9.1**	**10.7**	**23.9**	**8.1**
2.8.6	• Fiberoptic scope or camera devices	**51.5**	**74.5**	**68.2**	**48.6**
2.8.7	• Transillumination (e.g. trachlight)	**50.8**	**64.3**	**68.8**	**43.2**
2.8.8	• Retrograde with guidewire	**44.6**	**75.0**	**68.9**	**44.6**
2.8.9	• "Bougie" assisted	**40.0**	**60.7**	**62.7**	**38.9**
2.9	**Deliver oxygen**				
2.9.1	• Nasal cannula	**6.0**	**8.9**	**4.6**	**5.5**

Percentage of Intermediate Level Respondents Selecting the "Out of Scope" Option on the Harm Rating Scale

		MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enh
2.9.2	• Venturi mask	**12.7**	**22.6**	**22.6**	**23.3**
2.9.3	• Simple face mask	**14.5**	**20.0**	**18.1**	**16.2**
2.9.4	• Rebreathing face mask	**12.5**	**19.3**	**24.5**	**20.3**
2.9.5	• Partial rebreather face mask	**14.5**	**23.6**	**25.5**	**17.8**
2.9.6	• Non-rebreather face mask	**9.0**	**8.6**	**5.8**	**5.4**
2.9.7	• Face tent	**35.5**	**49.1**	**38.1**	**41.1**
2.9.8	• Tracheal cuff/mask	**26.6**	**50.0**	**34.0**	**25.0**
2.9.9	• Oxygen hood	**38.1**	**53.7**	**42.5**	**42.5**
2.9.10	• Flow restricted oxygen powered ventilation device	**31.7**	**46.3**	**29.9**	**16.2**
2.9.11	• Blow-by-delivery	**7.5**	**10.5**	**3.7**	**5.4**
2.9.12	• Humidification	**22.2**	**30.4**	**14.2**	**9.5**
2.10	**Perform suctioning**				
2.10.1	• Pharyngeal	**11.8**	**14.0**	**16.4**	**4.1**
2.10.2	• Bronchial-tracheal	**19.4**	**30.4**	**31.8**	**16.4**
2.10.3	• Oral suctioning	**5.8**	**7.0**	**4.5**	**4.1**
2.10.4	• Tracheostomy suctioning	**4.4**	**21.1**	**10.9**	**4.1**
2.10.5	• Naso-pharyngeal suctioning	**11.9**	**26.3**	**14.8**	**4.2**
2.10.6	• Endotracheal suctioning	**6.0**	**21.1**	**11.2**	**4.1**
2.10.7	• Meconium aspiration neonate with ET	**6.0**	**26.8**	**26.6**	**5.5**
2.11	**Assist ventilation**				
2.11.1	• Mouth-to-mask	**9.2**	**8.8**	**7.4**	**5.6**
2.11.2	• Mouth-to-mask with O2	**6.2**	**7.0**	**7.4**	**5.5**
2.11.3	• Bag-valve-mask neonate/infant	**7.5**	**7.1**	**4.6**	**5.5**
2.11.4	• Bag-valve-mask child	**6.2**	**7.0**	**4.6**	**5.5**
2.11.5	• Bag-valve-mask adult	**5.7**	**6.9**	**4.5**	**5.6**

Percentage of Intermediate Level Respondents Selecting the "Out of Scope" Option on the Harm Rating Scale

		MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enh
2.11.6	• Continuous Postive Airway Pressure (CPAP)/Bilevel Positive Airway Pressure (BiPAP)	**10.3**	**60.7**	**27.9**	**11.1**
2.11.7	• Positive End-Expiratory Pressure (PEEP)	**36.4**	**63.0**	**47.3**	**16.7**
2.11.1	• Transtracheal jet insufflations	**55.2**	**82.1**	**66.4**	**34.2**
2.11.2	• Mechanical ventilation (manual/automated transport ventilator)	**45.6**	**73.7**	**55.9**	**24.7**
	Domain 3: Assessment				
3.1	Perform scene size-up, including safety and management	**1.5**	**6.7**	**1.8**	**2.7**
3.2	Perform primary (initial) assessment	**2.9**	**6.7**	**1.8**	**2.8**
3.3	Obtain patient history	**2.9**	**6.7**	**1.8**	**2.8**
3.4	Perform secondary (e.g. detailed, focused, rapid) assessment	**2.9**	**6.7**	**1.8**	**2.7**
3.5	Perform reassessment	**2.9**	**6.7**	**1.8**	**2.8**
3.6	Perform blood glucose monitoring	**2.9**	**6.7**	**2.7**	**2.7**
3.7	Interpret blood glucose monitoring results	**2.9**	**6.8**	**2.7**	**2.7**
3.8	Obtain electrocardiogram rhythm strip (3/4 lead)	**2.9**	**28.8**	**35.1**	**2.7**
3.9	Interpret electrocardiogram rhythm strip (3/4 lead)	**2.9**	**49.1**	**43.2**	**2.7**
3.10	Obtain 12 lead electrocardiogram	**1.5**	**37.9**	**33.0**	**6.8**
3.11	Interpret 12 lead electrocardiogram	**1.5**	**68.4**	**44.1**	**6.9**
3.12	Obtain ventricular right (15) lead electrocardiogram	**28.8**	**74.1**	**65.8**	**39.2**
3.13	Interpret ventricular right (15) lead electrocardiogram	**29.2**	**77.6**	**66.4**	**39.2**
3.14	Interpret blood chemistry/lab analysis	**45.5**	**91.4**	**81.8**	**43.2**
3.15	**Monitor transcutaneous physiologic parameters tissue/plethysmography**				
3.15.1	• Apply pulse oximetry	**2.9**	**8.3**	**2.8**	**2.7**
3.15.2	• Interpret pulse oximetry	**2.9**	**6.7**	**3.7**	**2.7**
3.15.3	• Measure carbon monoxide	**10.4**	**37.9**	**33.9**	**20.3**
3.16	Interpret capnography	**6.1**	**41.4**	**29.4**	**6.8**
3.17	Interpret capnometry	**9.1**	**50.9**	**43.9**	**13.7**

Percentage of Intermediate Level Respondents Selecting the "Out of Scope" Option on the Harm Rating Scale

		MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enh
3.18	**Obtain and interpret vital signs**				
3.18.1	• Pulse rate	**5.7**	**5.0**	**1.8**	**2.6**
3.18.2	• Respiratory rate	**5.7**	**5.0**	**1.8**	**2.6**
3.17.3	• Blood pressure	**5.7**	**5.0**	**1.8**	**1.3**
3.19	Obtain and interpret temperature	**18.8**	**5.1**	**10.9**	**2.7**
3.20	Assess skin	**4.3**	**5.1**	**1.8**	**2.6**
3.31	Assess head and neck	**4.3**	**5.0**	**2.7**	**1.3**
3.22	Assess thorax	**4.3**	**5.0**	**1.8**	**2.6**
3.23	Assess heart	**5.7**	**5.1**	**6.3**	**2.6**
3.24	Assess abdomen	**4.3**	**5.2**	**1.8**	**2.6**
3.25	Assess genitalia	**4.3**	**6.7**	**5.4**	**1.3**
3.26	Assess buttocks	**2.9**	**3.3**	**3.6**	**1.3**
3.27	Assess peripheral vascular system and pulses	**2.9**	**3.4**	**2.7**	**2.6**
3.28	Assess musculoskeletal system	**2.9**	**5.0**	**2.7**	**1.3**
3.29	Assess nervous system	**4.3**	**5.1**	**1.8**	**1.3**
3.30	Use trauma score/category	**2.9**	**5.0**	**3.7**	**2.6**
3.31	Use Glasgow Coma Score (GCS)	**2.9**	**5.0**	**1.8**	**1.3**
3.32	Use pre-hospital stroke scale	**2.9**	**8.3**	**3.6**	**1.3**
3.33	Use STEMI checklist	**4.3**	**32.1**	**23.1**	**6.5**
	Domain 4: Medicine				
4.1	**Perform electrical cardioversion**				
4.1.1	• Automated external defibrillator (AED) (adult)	**7.4**	**8.6**	**4.5**	**1.3**
4.1.2	• Automated external defibrillator (AED) (pediatric)	**7.4**	**13.8**	**7.2**	**1.3**
4.1.3	• Defibrillation (adult)	**4.6**	**27.6**	**18.8**	**1.3**
4.1.4	• Defibrillation (pediatric)	**2.9**	**34.5**	**23.1**	**1.3**

Percentage of Intermediate Level Respondents Selecting the "Out of Scope" Option on the Harm Rating Scale

		MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enh
4.1.5	• Synchronized cardioversion (adult)	**4.4**	**78.3**	**42.3**	**1.3**
4.1.6	• Synchronized cardioversion (pediatric)	**4.4**	**78.3**	**42.7**	**2.6**
4.2	Perform transcutaneous pacing	**4.4**	**81.7**	**42.2**	**1.3**
4.3	Perform Vagal maneuvers (e.g., carotid massage, valsalva maneuvers)	**5.8**	**53.4**	**36.4**	**2.6**
4.4	Use mechanical CPR	**14.9**	**41.4**	**22.9**	**13.2**
4.5	Perform manual CPR	**5.8**	**6.9**	**3.6**	**1.3**
4.6	Perform urinary catheterization	**65.7**	**86.4**	**76.1**	**55.3**
4.7	Perform ocular irrigation	**11.9**	**22.4**	**30.3**	**9.2**
4.8	Remove foreign objects from nose and ears	**20.9**	**19.0**	**35.8**	**25.0**
4.9	Maintain central venus pressure (CVP) monitoring	**65.7**	**84.7**	**72.1**	**61.8**
	Domain 5: Shock and Resuscitation				
5.1	Manage shock	**3.3**	**2.1**	**1.0**	**1.7**
5.2	Initiate and maintain fluid resuscitation	**2.9**	**5.2**	**2.8**	**0.0**
	Domain 6: Trauma and Environmental Emergencies				
6.1	Manage open abdominal wounds	**3.0**	**1.8**	**2.8**	**0.0**
6.2	**Provide manual stabilization**				
6.2.1	• C-spine and spinal injuries	**4.4**	**3.4**	**1.8**	**0.0**
6.2.2	• Extremity fractures	**2.9**	**1.7**	**1.8**	**0.0**
6.3	**Control bleeding**				
6.3.1	• Manual	**2.9**	**1.7**	**1.8**	**0.0**
6.3.2	• Mechanical (tourniquet)	**7.6**	**10.3**	**11.3**	**9.1**
6.3.3	• Hemostatic agents	**42.2**	**44.8**	**58.3**	**46.8**
6.4	**Perform and manage thoracostomy (chest decompression)**				
6.4.1	• Chest tubes	**66.2**	**89.8**	**79.3**	**57.3**

Percentage of Intermediate Level Respondents Selecting the "Out of Scope" Option on the Harm Rating Scale

		MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enh
6.4.2	• Needle decompression thoracostomy	**4.5**	**85.0**	**38.7**	**1.3**
6.5	Perform pericardiocentesis	**64.2**	**89.8**	**79.3**	**68.8**
6.6	Perform emergency moves (e.g., fireman's carry, clothes drag, extremity drag)	**1.5**	**1.7**	**3.6**	**0.0**
6.7	**Apply spinal immobilization**				
6.7.1	• Cervical collars	**2.9**	**3.3**	**1.8**	**0.0**
6.7.2	• Seated immobilization devices	**2.9**	**1.7**	**1.8**	**0.0**
6.7.3	• Longboard (straps, cervical immobilization device)	**2.9**	**1.7**	**1.8**	**0.0**
6.7.4	• Rapid extrication	**2.9**	**1.7**	**2.7**	**1.3**
6.7.5	• Helmet stabilization	**2.9**	**1.7**	**1.8**	**0.0**
6.7.6	• Helmet removal	**4.5**	**3.4**	**4.5**	**0.0**
6.8	Perform tooth replacement/tooth avulsion care	**41.8**	**19.0**	**41.5**	**26.3**
6.9	Apply splinting techniques	**1.4**	**3.4**	**2.8**	**0.0**
6.10	Use dressings, bandages, and irrigation	**2.9**	**1.7**	**1.8**	**0.0**
6.11	Perform wound closure techniques (e.g., dermabond, steri-strips)	**61.2**	**45.6**	**52.7**	**50.0**
6.12	Managing post-operative incision and drains	**51.5**	**47.4**	**57.8**	**37.3**
	Domain 7: Special Patient Populations				
7.1	Perform newborn resuscitation	**6.0**	**1.8**	**3.7**	**1.3**
7.2	Provide newborn care (warming, drying, positioning, APGAR scores)	**4.6**	**1.7**	**2.8**	**1.3**
7.3	Position pregnant/gravid patient	**3.0**	**1.7**	**3.6**	**0.0**
7.4	Position geriatric patient	**4.4**	**1.7**	**2.7**	**0.0**
7.5	Measure fundal height	**29.2**	**12.5**	**26.4**	**25.3**
7.6	Determine height/weight-based measurement	**10.8**	**1.8**	**13.0**	**12.0**
7.7	Perform childbirth procedures	**4.5**	**1.7**	**4.6**	**0.0**

Percentage of Intermediate Level Respondents Selecting the "Out of Scope" Option on the Harm Rating Scale

		MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enh
	Domain 8: Operations				
8.1	Perform triage	**1.6**	**0.0**	**2.0**	**0.0**
8.2	Perform safe vehicle extrication	**0.0**	**1.8**	**5.5**	**0.0**

Appendix 17
Write-in Responses Regarding the Completeness of the Delineation

Knowledge Missing from Survey: Write-in Responses

- A basic knowledge of oncological emergencies would be good, i.e. SOB from lung cancer, etc
- A section on how to present public education
- Additional classroom and practical training in MCI/incident command principles
- Additional knowledge in vehicle extrication
- AED - knowledge of how to use it could save a life or keep someone going until paramedics arrive
- cardiac rhythm disturbances
- Cardiovascular anatomy and physiology
- Cardiovascular disease processes
- COBRA laws (under ethics with HIPPA)
- Command of a scene
- Communication with families of patients
- Continuity of care, example: patient turnovers/reports from BLS to ALS and from ALS to Emergency department Interactions and teamwork between levels of care
- CPAP operation and uses SCBA Personal safety
- CPR, family crisis assistance, drug administration routes, cervical spine immobilization techniques
- Crime Scene protection
- Critical Care Paramedic
- Dealing with certain biomedical equipment during intra-facility transfers
- Defibrillation/Cardioversion
- Diabetic monitoring
- Direction/interaction of lower level providers to accomplish the mission
- Drug calculations
- Elicit street drugs; such as cocaine, marijuana, ecstasy, etc.
- EMS as potential terrorism target
- Epinephrine
- Ethics
- Field training and supervision of new hires/students
- Firefighter exposure to hazards
- Home ventilators
- How to be a firefighter and still be an ALS tech in the fire service
- I think burns, mass bleeding and loss of limb (mostly crashes)
- I think more can be done on the physics of safe moving of the patient from floor or chair of bed to our cot We cover cot to bed, and vehicle to cot, but little of the physical mechanics of patient movements (particularly involving the geriatric patient movements)
- Interaction with other medical professionals and documentation for billing practices
- Knowledge and use of ventilators including settings (A/C, SIMV, CPAP) and ABG sampling including ABG interpretation
- Local SOP and receiving hospital procedures
- Low angle rescue
- More Pharmacology knowledge
- NIH Stroke assessment
- Operating at a crime scene or violent area

- Pacing, AICDs, Central Access Devices, AV Shunt Access, Porta Cath Access, PIC lines, Insulin Pumps, RSI procedure and medications, Charting by exception
- Performing amputations cricoidthotomy
- Physical patient restraint (non-chemical)
- Post cardiac arrest treatment
- RSI – pre-hospital and in-house use, So we may assist if needed at bed side Initially response procedures and how to get help to assist you until others show up after the first 2 days in a large disaster
- Sedation pharmacology
- Self limitations - mental and physical
- Sepsis recognition and treatment
- Since WV just recently went to electronic run sheets, I believe there should be instructions on entering adequate documentation
- Supervision Skills
- The information that was listed was all base knowledge for any ALS provider Some consideration might be directed to advanced practices and/or critical care environment
- The Use of RSI drugs for ground paramedic
- Vasopressors, anti-arrhythmics, basic lab values(ABGs, Metabolic panel, BUN, Creatine, CBC) due to the increase of field paramedics doing inter-facility transfers
- Vehicle maintenance and monitoring is a regular and needed knowledge for providers
- Views on assessment of profusion by visual, hands on, and mental status examination over the miss usage of devices such as EKGs and Pulse Ox in assessment of patient's conditions Many providers will state they are comfortable in evaluation of patients but on observation many take unverified short cuts with electronic devices and don' truly put hands on
- Water rescue knowledge
- Work place issues {sexual harassment, violence, diversity}
- Working with non-traditional medical providers i.e.: Athletic Trainers at high schools and colleges

Procedures and Skills Missing from Survey: Write-in Responses

- Assess nervous system
- Combitube insertion, Glucagon administration, Activated Charcoal (although hardly ever used). Epinephrine was mentioned, however the use of Epi-Pen's (under EMT-b protocol.)
- Dealing with Home Infusion Devices
- Delivering oxygen to people who breath through a Trach or stoma is not mentioned usually. Venturi adapters to deliver a correct amount of Oxygen to the patient are useful, but not mentioned in most trainings.
- Effective report writing should be emphasized, as well as more emphasis on pharmacology.
- EMT-B - Epi Pen, currently limited use in NJ EMT-B - LMA, legistration approved but not implemented in NJ
- Endotracheal intubation (maybe I missed it)
- Ethical Responsibilities
- I think central lines would be a nice addition to MICP scope of practice
- I think we should be able to administer breathing treatments as EMT-B's
- Interpersonal skills while dealing with stressful situations (to include non-compliant pts, family members and other EMS staff).
- Intubation for EMT's. I used to be a CRT and intubation would be helpful.
- IO adult insertion
- Knowing when (and when not) to call for more advanced help (ex. when to call ALS for BLS providers)
- Lifting and moving with partner assist to include bariatric care and considerations
- Need to include a section dealing with the various medical emergencies and other issues dealing with the geriatric patient.
- Neuromuscular Antagonists
- Provider Physical Requirements
- Psychological evaluation
- Rope Rescue-Water Rescue-ETC
- RSI is needed and it needs to be done proficiently in every case.
- Solumedrol for respiratory issues is very needed but I presume that would qualify under steroids.
- T-POD's or other pelvic stabilizing devices
- Umbilical cannulation
- Use Glasgow coma score
- Use pre-hospital stroke scale
- Use STEMI checklist
- Use trauma score/category

Appendix 18
Application of Validation Criteria to Knowledge Statements

✓ **Meets threshold requirements**
× **Does not meet threshold requirements**

Results of Application of Validation Criteria to Knowledge Areas

Knowledge		Practitioner Level				State-specific Intermediate Level			
		First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enh
	Domain 1: Preparatory								
1.1	Overview of EMS systems (e.g., roles and responsibilities of EMS personnel, quality improvement, history of EMS)	✓	✓	✓	✓	✓	✓	✓	✓
1.2	How research affects practice in the EMS field	✓	✓	✓	✓	✓	✓	✓	✓
1.3	Personal safety (e.g., scene safety, personal protective equipment, self-defense, Occupational Safety and Health Administration (OSHA) requirements)	✓	✓	✓	✓	✓	✓	✓	✓
1.4	Personal wellness (e.g., sleep deprivation, nutrition, weight management, stress)	✓	✓	✓	✓	✓	✓	✓	✓
1.5	Principles of medical documentation and report writing	✓	✓	✓	✓	✓	✓	✓	✓
1.6	EMS system communication	✓	✓	✓	✓	✓	✓	✓	✓
1.7	Communication with patients to achieve a positive relationship (therapeutic communication, multicultural awareness)	✓	✓	✓	✓	✓	✓	✓	✓
1.8	Medical/legal and ethics (e.g., Do not resuscitate (DNR), consent, confidentiality, Health Insurance Portability and Accountability Act [HIPPA])	✓	✓	✓	✓	✓	✓	✓	✓
1.9	Anatomy and physiology	✓	✓	✓	✓	✓	✓	✓	✓
1.10	Medical terminology	✓	✓	✓	✓	✓	✓	✓	✓
1.11	Pathophysiology (human biological and chemical processes)	✓	✓	✓	✓	✓	✓	✓	✓
1.12	Life span development (understanding of changes occurring across different stages of life)	✓	✓	✓	✓	✓	✓	✓	✓
1.13	Public Health (role of EMS in public health emergencies, health promotion, injury and illness prevention)	✓	✓	✓	✓	✓	✓	✓	✓
1.14	Principles of pharmacology	✓	✓	✓	✓	✓	✓	✓	✓
1.15	Medication administration	✓	✓	✓	✓	✓	✓	✓	✓

Results of Application of Validation Criteria to Knowledge Areas

Knowledge		Practitioner Level				State-specific Intermediate Level			
		First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enh
1.16	Analgesics(pain medications) (e.g., Tylenol, Advil, Opiates and related narcotics, aspirin)	✓	✓	✓	✓	✓	✓	✓	✓
1.17	Anesthethetics (numbing medications) (e.g., Chloroseptic, benzocaine)	✓	✓	✓	✓	✓	✓	✗	✓
1.18	Anticonvulsants (anti-seizure medication)	✓	✓	✓	✓	✓	✓	✓	✓
1.19	Antidotes (e.g., Narcan, MARK-1 kit, cyanide poisoning kit, amyl nitrate)	✓	✓	✓	✓	✓	✓	✓	✓
1.20	Antihistamines (e.g., Benadryl)	✓	✓	✓	✓	✓	✓	✓	✓
1.21	Behavior-altering medications (e.g., Valium, Haldol)	✓	✓	✓	✓	✓	✓	✓	✓
1.22	Biologicals (e.g., antibiotics, vaccines)	✓	✓	✓	✓	✗	✓	✓	✓
1.23	Blood/blood products	✓	✓	✓	✓	✓	✓	✓	✓
1.24	Blood modifiers (e.g., aspirin, blood thinners, antiplatelets, fibrinolytics, hemostatic agents)	✓	✓	✓	✓	✓	✓	✓	✓
1.25	Cardiovascular agents (e.g., epinephrine, nitroglycerine, Lasix)	✓	✓	✓	✓	✓	✓	✓	✓
1.26	Dietary supplements/electrolytes(e.g., vitamins, minerals)	✓	✓	✓	✓	✓	✗	✓	✓
1.27	Gas (e.g., oxygen, nitrous oxide)	✓	✓	✓	✓	✓	✓	✓	✓
1.28	Gastrointestinal (e.g., antidiarrheals, antacids)	✓	✓	✓	✓	✓	✓	✓	✓
1.29	Glucose altering agents (e.g., insulin, glucose)	✓	✓	✓	✓	✗	✓	✓	✓
1.30	Hormones(steroids)	✓	✓	✓	✓	✓	✓	✓	✓
1.31	Intravenous fluids (IV fluids)	✓	✓	✓	✓	✓	✓	✓	✓
1.32	Neuromuscular antagonists (e.g., paralyzing medication, paralytics)	✓	✓	✓	✓	✗	✓	✓	✓
1.33	Respiratory (e.g., Albuterol, Atrovent)	✓	✓	✓	✓	✓	✓	✓	✓

Results of Application of Validation Criteria to Knowledge Areas

Knowledge		Practitioner Level				State-specific Intermediate Level			
		First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enh
	Domain 2: Airway Management, Respirations, and Artificial Ventilation								
2.1	Airway anatomy and physiology	✓	✓	✓	✓	✓	✓	✓	✓
2.2	Normal and abnormal respiration	✓	✓	✓	✓	✓	✓	✓	✓
2.3	Airway assessment	✓	✓	✓	✓	✓	✓	✓	✓
2.4	Causes of upper airway obstruction	✓	✓	✓	✓	✓	✓	✓	✓
2.5	Causes of lower airway obstruction	✓	✓	✓	✓	✓	✓	✓	✓
2.6	Techniques for assuring patent airway	✓	✓	✓	✓	✓	✓	✓	✓
2.7	Artificial ventilation (e.g., assisted ventilation)	✓	✓	✓	✓	✓	✓	✓	✓
2.8	Oxygen delivery systems	✓	✓	✓	✓	✓	✓	✓	✓
	Domain 3: Assessment								
3.1	Scene size-up (e.g., scene safety, hazards, violence, additional resources, mass casualties)	✓	✓	✓	✓	✓	✓	✓	✓
3.2	Primary (initial) assessment	✓	✓	✓	✓	✓	✓	✓	✓
3.3	History-taking	✓	✓	✓	✓	✓	✓	✓	✓
3.4	Secondary (e.g. detailed, focused, rapid) assessment	✓	✓	✓	✓	✓	✓	✓	✓
3.5	Reassessment (ongoing)	✓	✓	✓	✓	✓	✓	✓	✓
3.6	Monitoring devices (e.g. indications, contraindications, values, false negatives/ positives)	✓	✓	✓	✓	✓	✓	✓	✓
3.7	Techniques of physical examination (normal findings)	✓	✓	✓	✓	✓	✓	✓	✓
	Domain 4: Medicine								
4.1	Neurology	✓	✓	✓	✓	✓	✓	✓	✓
4.2	Abdominal and gastrointestinal disorders	✓	✓	✓	✓	✓	✓	✓	✓

Results of Application of Validation Criteria to Knowledge Areas

Knowledge		Practitioner Level				State-specific Intermediate Level			
		First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enh
4.3	Immunology	✓	✓	✓	✓	✓	✓	✓	✓
4.4	Infectious diseases	✓	✓	✓	✓	✓	✓	✓	✓
4.5	Endocrine disorders	✓	✓	✓	✓	✓	✓	✓	✓
4.6	Psychiatric disorders	✓	✓	✓	✓	✓	✓	✓	✓
4.7	Cardiovascular disorders	✓	✓	✓	✓	✓	✓	✓	✓
4.8	Toxicology	✓	✓	✓	✓	✓	✓	✓	✓
4.9	Respiratory disorders	✓	✓	✓	✓	✓	✓	✓	✓
4.10	Hematology	✗	✓	✓	✓	✓	✓	✓	✓
4.11	Genitourinary/renal disorders	✗	✓	✓	✓	✓	✓	✓	✓
4.12	Gynecology	✗	✓	✓	✓	✓	✓	✓	✓
4.13	Non-traumatic musculoskeletal disorders	✓	✓	✓	✓	✓	✓	✓	✓
4.14	Diseases of the eyes, ears, nose, and throat	✗	✓	✓	✓	✓	✓	✓	✓
Domain 5: Shock and Resuscitation									
5.1	Signs and symptoms of shock	✓	✓	✓	✓	✓	✓	✓	✓
5.2	Pathophysiology of various types of shock	✓	✓	✓	✓	✓	✓	✓	✓
Domain 6: Trauma and Environmental Emergencies									
6.1	Bleeding	✓	✓	✓	✓	✓	✓	✓	✓
6.2	Chest trauma	✓	✓	✓	✓	✓	✓	✓	✓
6.3	Abdominal and genitourinary trauma	✓	✓	✓	✓	✓	✓	✓	✓
6.4	Orthopedic trauma (e.g., fractures, amputations, sprains)	✓	✓	✓	✓	✓	✓	✓	✓
6.5	Soft tissue trauma	✓	✓	✓	✓	✓	✓	✓	✓

Results of Application of Validation Criteria to Knowledge Areas

Knowledge		Practitioner Level				State-specific Intermediate Level			
		First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enh
6.6	Traumatic brain injury/head injury	✓	✓	✓	✓	✓	✓	✓	✓
6.7	Facial trauma	✓	✓	✓	✓	✓	✓	✓	✓
6.8	Spine trauma/spinal cord injury	✓	✓	✓	✓	✓	✓	✓	✓
6.9	Multi-system trauma	✓	✓	✓	✓	✓	✓	✓	✓
6.10	Special populations in trauma (i.e., pediatrics, pregnant, geriatric, cognitively impaired)	✓	✓	✓	✓	✓	✓	✓	✓
6.11	Traumatic cardiac arrest	✓	✓	✓	✓	✓	✓	✓	✓
6.12	Environmental emergencies (e.g., heat, cold, bites)	✓	✓	✓	✓	✓	✓	✓	✓
	Domain 7: Special Patient Populations								
7.1	Obstetrics	✓	✓	✓	✓	✓	✓	✓	✓
7.2	Neonatal care	✓	✓	✓	✓	✓	✓	✓	✓
7.3	Pediatric patient care	✓	✓	✓	✓	✓	✓	✓	✓
7.4	Geriatric patient care	✓	✓	✓	✓	✓	✓	✓	✓
7.5	Considerations for patients with special challenges (e.g. abuse, neglect, bariatric, hospice, developmental disabilities)	✓	✓	✓	✓	✓	✓	✓	✓
	Domain 8: Operations								
8.1	Principles of safely operating a ground ambulance	✓	✓	✓	✓	✓	✓	✓	✓
8.2	Incident management	✓	✓	✓	✓	✓	✓	✓	✓
8.3	Multiple casualty incidents	✓	✓	✓	✓	✓	✓	✓	✓
8.4	Criteria for utilizing air medical response	✓	✓	✓	✓	✓	✓	✓	✓
8.5	Air medical safety procedures	✓	✓	✓	✓	✓	✓	✓	✓
8.6	Vehicle extrication	✓	✓	✓	✓	✓	✓	✓	✓

Results of Application of Validation Criteria to Knowledge Areas

Knowledge		Practitioner Level				State-specific Intermediate Level			
		First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enh
8.7	Risks and responsibilities at hazardous materials situation	✓	✓	✓	✓	✓	✓	✓	✓
8.8	Risks and responsibilities of operating on the scene of a natural or manmade disaster	✓	✓	✓	✓	✓	✓	✓	✓

Appendix 19
Application of Validation Criteria to Procedures and Skills

✓ **Meets threshold requirements**
× **Does not meet threshold requirements**

Results of Application of Validation Criteria to Procedures and Skills

		Practitioner Level				State-specific Intermediate Level			
	Procedures and Skills	First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced
	Domain 1: Preparatory								
1.1	Donning, doffing, and disinfecting personal protective equipment	✓	✓	✓	✓	✓	✓	✓	✓
1.2	Lifting and moving	✓	✓	✓	✓	✓	✓	✓	✓
1.3	Use restraints (chemical and physical)	✓	✓	✓	✓	✓	✓	✓	✓
1.4	Administer medication via various routes (e.g., oral, sublingual, inhalation, intramuscular, intravenous)	×	✓	✓	✓	✓	✓	✓	✓
1.5	Complete oral and written patient care reports	✓	✓	✓	✓	✓	✓	✓	✓
1.6	Transmit and receive radio communications	✓	✓	✓	✓	✓	✓	✓	✓
1.7	Engage in interpersonal communications	✓	✓	✓	✓	✓	✓	✓	✓
1.8	**Adjust communication strategies based on:**								
1.8.1	• Age and stage of development	✓	✓	✓	✓	✓	✓	✓	✓
1.8.2	• Patients' special needs	✓	✓	✓	✓	✓	✓	✓	✓
1.8.3	• Culture	✓	✓	✓	✓	✓	✓	✓	✓
1.9	Calculate drug dosages	×	×	✓	✓	✓	✓	✓	✓
1.10	Central venous access	×	×	✓	✓	✓	×	✓	✓
1.11	Intraosseous access and infusion	×	×	✓	✓	✓	×	✓	✓
1.12	**Peripheral venous access and maintenance:**								
1.12.1	• Peripheral vein (arm, leg, external jugular)	×	×	✓	✓	✓	✓	✓	✓
1.12.2	• Umbilical catheter	×	×	✓	✓	✓	×	×	✓

Results of Application of Validation Criteria to Procedures and Skills

		Practitioner Level				State-specific Intermediate Level			
	Procedures and Skills	First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced
1.12.3	• Cut down	✗	✗	✗	✗	✗	✗	✗	✗
1.13	Analgesics(pain medications) (e.g., Tylenol, Advil, Opiates and related narcotics, aspirin)	✗	✗	✓	✓	✓	✓	✓	✓
1.14	Anesthethetics (numbing medications) (e.g., Chloroseptic, benzocaine)	✗	✗	✓	✓	✓	✗	✓	✓
1.15	Anticonvulsants (anti-seizure medication)	✗	✗	✓	✓	✓	✓	✓	✓
1.16	Antidotes (e.g., Narcan, MARK-1 kit, cyanide poisoning kit, amyl nitrate)	✗	✗	✓	✓	✓	✓	✓	✓
1.17	Antihistamines (e.g., Benadryl)	✗	✗	✓	✓	✓	✓	✓	✓
1.18	Behavior-altering medications (e.g., Valium, Haldol)	✗	✗	✓	✓	✓	✗	✓	✓
1.19	Biologicals (e.g., antibiotics, vaccines)	✗	✗	✗	✓	✓	✗	✗	✓
1.20	Blood/blood products	✗	✗	✗	✗	✗	✗	✗	✗
1.21	Blood modifiers (e.g., aspirin, blood thinners, antiplatelets, fibrinolytics, hemostatic agents)	✗	✗	✓	✓	✓	✓	✓	✓
1.22	Cardiovascular agents (e.g., epinephrine, nitroglycerine, Lasix)	✗	✓	✓	✓	✓	✓	✓	✓
1.23	Dietary supplements/electrolytes(e.g., vitamins, minerals)	✗	✗	✗	✗	✗	✓	✗	✗
1.24	Gas (e.g., oxygen, nitrous oxide)	✓	✓	✓	✓	✓	✓	✓	✓
1.25	Gastrointestinal (e.g., antidiarrheals, antacids)	✗	✗	✗	✓	✗	✓	✗	✗
1.26	Glucose altering agents (e.g., insulin, glucose)	✓	✓	✓	✓	✓	✓	✓	✓
1.27	Hormones(steroids)	✗	✗	✓	✓	✗	✗	✗	✓
1.28	Intravenous fluids (IV fluids)	✗	✗	✓	✓	✓	✓	✓	✓
1.29	Neuromuscular antagonists (e.g., paralyzing medication, paralytics)	✗	✗	✓	✓	✗	✗	✗	✓
1.30	Respiratory (e.g., Albuterol, Atrovent)	✗	✓	✓	✓	✓	✓	✓	✓

Results of Application of Validation Criteria to Procedures and Skills

		Practitioner Level				State-specific Intermediate Level			
	Procedures and Skills	First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced
	Domain 2: Airway Management, Respirations, and Artificial Ventilation								
2.1	**Use airway adjuncts**								
2.1.1	• Oropharyngeal airway	✓	✓	✓	✓	✓	✓	✓	✓
2.1.2	• Nasopharyngeal airway	✓	✓	✓	✓	✓	✓	✓	✓
2.2	**Perform airway maneuvers**								
2.2.1	• Head tilt chin lift	✓	✓	✓	✓	✓	✓	✓	✓
2.2.2	• Jaw thrust	✓	✓	✓	✓	✓	✓	✓	✓
2.2.3	• Chin lift	✓	✓	✓	✓	✓	✓	✓	✓
2.2.4	• Sellick maneuver (cricoid pressure)	✓	✓	✓	✓	✓	✓	✓	✓
2.3	Manage existing tracheostomy	✓	✓	✓	✓	✓	✓	✓	✓
2.4	Use extratracheal airway device (Dual lumen airway, combitube, laryngeal mask airway (LMA), King airway)	✓	✓	✓	✓	✓	✓	✓	✓
2.5	**Perform cricothyrotomy**								
2.5.1	• Needle	✗	✗	✗	✓	✓	✗	✗	✓
2.5.2	• Surgical	✗	✗	✗	✓	✓	✗	✗	✓
2.6	**Clear obstructed airway**								
2.6.1	• Manual (finger sweep)	✓	✓	✓	✓	✓	✓	✓	✓
2.6.2	• Abdominal / chest thrusts	✓	✓	✓	✓	✓	✓	✓	✓
2.6.3	• Upper airway mechanical (Magill forceps)	✗	✓	✓	✓	✓	✓	✓	✓
2.7	Perform nasogastric/orogastric tube insertion	✗	✗	✓	✓	✓	✗	✓	✓

Results of Application of Validation Criteria to Procedures and Skills

	Procedures and Skills	Practitioner Level				State-specific Intermediate Level			
		First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced
2.8	**Perform intubation**								
2.8.1	• Nasotracheal	✗	✗	✓	✓	✓	✓	✓	✓
2.8.2	• Orotracheal	✗	✗	✓	✓	✓	✓	✓	✓
2.8.3	• Digital	✗	✗	✓	✓	✓	✓	✓	✓
2.8.4	• Pharmacological facilitation (e.g. sedation-assisted, RSI)	✗	✗	✗	✓	✗	✗	✗	✓
2.8.5	• Confirmation procedures (e.g., visualization, capnography, esophageal detection)	✗	✗	✓	✓	✓	✓	✓	✓
2.8.6	• Fiberoptic scope or camera devices	✗	✗	✗	✓	✗	✗	✗	✓
2.8.7	• Transillumination (e.g. trachlight)	✗	✗	✗	✓	✗	✗	✗	✓
2.8.8	• Retrograde with guidewire	✗	✗	✗	✓	✓	✗	✗	✓
2.8.9	• "Bougie" assisted	✗	✗	✗	✓	✓	✗	✗	✓
2.9	**Deliver oxygen**								
2.9.1	• Nasal cannula	✓	✓	✓	✓	✓	✓	✓	✓
2.9.2	• Venturi mask	✗	✓	✓	✓	✓	✓	✗	✗
2.9.3	• Simple face mask	✓	✓	✓	✓	✓	✓	✓	✓
2.9.4	• Rebreathing face mask	✓	✓	✓	✓	✓	✓	✓	✓
2.9.5	• Partial rebreather face mask	✓	✓	✓	✓	✗	✓	✓	✓
2.9.6	• Non-rebreather face mask	✓	✓	✓	✓	✓	✓	✓	✓
2.9.7	• Face tent	✗	✓	✗	✗	✗	✗	✗	✗
2.9.8	• Tracheal cuff/mask	✗	✓	✗	✓	✗	✓	✗	✓
2.9.9	• Oxygen hood	✗	✓	✗	✗	✗	✗	✗	✗
2.9.10	• Flow restricted oxygen powered ventilation device	✗	✓	✓	✓	✗	✓	✓	✓

Results of Application of Validation Criteria to Procedures and Skills

	Procedures and Skills	Practitioner Level				State-specific Intermediate Level			
		First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced
2.9.11	• Blow-by-delivery	✗	✓	✓	✓	✓	✓	✓	✓
2.9.12	• Humidification	✗	✓	✗	✓	✗	✓	✓	✓
2.10	**Perform suctioning**								
2.10.1	• Pharyngeal	✓	✓	✓	✓	✓	✓	✓	✓
2.10.2	• Bronchial-tracheal	✓	✓	✓	✓	✓	✓	✓	✓
2.10.3	• Oral suctioning	✓	✓	✓	✓	✓	✓	✓	✓
2.10.4	• Tracheostomy suctioning	✓	✓	✓	✓	✓	✓	✓	✓
2.10.5	• Naso-pharyngeal suctioning	✓	✓	✓	✓	✓	✓	✓	✓
2.10.6	• Endotracheal suctioning	✓	✓	✓	✓	✓	✓	✓	✓
2.10.7	• Meconium aspiration neonate with ET	✓	✓	✓	✓	✓	✓	✓	✓
2.11	**Assist ventilation**								
2.11.1	• Mouth-to-mask	✓	✓	✓	✓	✓	✓	✓	✓
2.11.2	• Mouth-to-mask with O2	✓	✓	✓	✓	✓	✓	✓	✓
2.11.3	• Bag-valve-mask neonate/infant	✓	✓	✓	✓	✓	✓	✓	✓
2.11.4	• Bag-valve-mask child	✓	✓	✓	✓	✓	✓	✓	✓
2.11.5	• Bag-valve-mask adult	✓	✓	✓	✓	✓	✓	✓	✓
2.11.6	• Continuous Postive Airway Pressure (CPAP)/Bilevel Positive Airway Pressure (BiPAP)	✓	✓	✓	✓	✓	✗	✓	✓
2.11.7	• Positive End-Expiratory Pressure (PEEP)	✗	✓	✓	✓	✓	✗	✓	✓
2.11.8	• Transtracheal jet insufflations	✗	✗	✗	✓	✗	✗	✗	✓
2.11.9	• Mechanical ventilation (manual/automated transport ventilator)	✗	✓	✓	✓	✓	✗	✓	✓

Results of Application of Validation Criteria to Procedures and Skills

		Practitioner Level				State-specific Intermediate Level			
	Procedures and Skills	First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced
	Domain 3: Assessment								
3.1	Perform scene size-up, including safety and management	✓	✓	✓	✓	✓	✓	✓	✓
3.2	Perform primary (initial) assessment	✓	✓	✓	✓	✓	✓	✓	✓
3.3	Obtain patient history	✓	✓	✓	✓	✓	✓	✓	✓
3.4	Perform secondary (e.g. detailed, focused, rapid) assessment	✓	✓	✓	✓	✓	✓	✓	✓
3.5	Perform reassessment	✓	✓	✓	✓	✓	✓	✓	✓
3.6	Perform blood glucose monitoring	✓	✓	✓	✓	✓	✓	✓	✓
3.7	Interpret blood glucose monitoring results	✓	✓	✓	✓	✓	✓	✓	✓
3.8	Obtain electrocardiogram rhythm strip (3/4 lead)	✗	✗	✓	✓	✓	✓	✓	✓
3.9	Interpret electrocardiogram rhythm strip (3/4 lead)	✗	✗	✓	✓	✓	✓	✓	✓
3.10	Obtain 12 lead electrocardiogram	✗	✗	✓	✓	✓	✓	✓	✓
3.11	Interpret 12 lead electrocardiogram	✗	✗	✓	✓	✓	✗	✓	✓
3.12	Obtain ventricular right (15) lead electrocardiogram	✗	✗	✓	✓	✓	✗	✗	✓
3.13	Interpret ventricular right(15) lead electrocardiogram	✗	✗	✓	✓	✓	✗	✗	✓
3.14	Interpret blood chemistry/lab analysis	✗	✗	✗	✓	✓	✗	✗	✓
3.15	**Monitor transcutaneous physiologic parameters tissue/plethysmography**								
3.15.1	• Apply pulse oximetry	✓	✓	✓	✓	✓	✓	✓	✓
3.15.2	• Interpret pulse oximetry	✓	✓	✓	✓	✓	✓	✓	✓
3.15.3	• Measure carbon monoxide	✗	✓	✓	✓	✓	✓	✓	✓
3.16	Interpret capnography	✗	✗	✓	✓	✓	✓	✓	✓

Results of Application of Validation Criteria to Procedures and Skills

		Practitioner Level				State-specific Intermediate Level			
	Procedures and Skills	First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced
3.17	Interpret capnometry	✗	✗	✓	✓	✓	✓	✓	✓
3.18	**Obtain and interpret vital signs**	✓	✓	✓	✓	✓	✓	✓	✓
3.18.1	• Pulse rate	✓	✓	✓	✓	✓	✓	✓	✓
3.18.2	• Respiratory rate	✓	✓	✓	✓	✓	✓	✓	✓
3.17.3	• Blood pressure	✓	✓	✓	✓	✓	✓	✓	✓
3.19	Obtain and interpret temperature	✓	✓	✓	✓	✓	✓	✓	✓
3.20	Assess skin	✓	✓	✓	✓	✓	✓	✓	✓
3.31	Assess head and neck	✓	✓	✓	✓	✓	✓	✓	✓
3.22	Assess thorax	✓	✓	✓	✓	✓	✓	✓	✓
3.23	Assess heart	✓	✓	✓	✓	✓	✓	✓	✓
3.24	Assess abdomen	✓	✓	✓	✓	✓	✓	✓	✓
3.25	Assess genitalia	✓	✓	✓	✓	✓	✓	✓	✓
3.26	Assess buttocks	✓	✓	✓	✓	✓	✓	✓	✓
3.27	Assess peripheral vascular system and pulses	✓	✓	✓	✓	✓	✓	✓	✓
3.28	Assess musculoskeletal system	✓	✓	✓	✓	✓	✓	✓	✓
3.29	Assess nervous system	✓	✓	✓	✓	✓	✓	✓	✓
3.30	Use trauma score/category	✓	✓	✓	✓	✓	✓	✓	✓
3.31	Use Glasgow Coma Score (GCS)	✓	✓	✓	✓	✓	✓	✓	✓
3.32	Use pre-hospital stroke scale	✓	✓	✓	✓	✓	✓	✓	✓
3.33	Use STEMI checklist	✓	✓	✓	✓	✓	✓	✓	✓

Results of Application of Validation Criteria to Procedures and Skills

		Practitioner Level				State-specific Intermediate Level			
	Procedures and Skills	First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced
	Domain 4: Medicine								
4.1	**Perform electrical cardioversion**								
4.1.1	• Automated external defibrillator (AED) (adult)	✓	✓	✓	✓	✓	✓	✓	✓
4.1.2	• Automated external defibrillator (AED) (pediatric)	✓	✓	✓	✓	✓	✓	✓	✓
4.1.3	• Defibrillation (adult)	✓	✓	✓	✓	✓	✓	✓	✓
4.1.4	• Defibrillation (pediatric)	✓	✓	✓	✓	✓	✓	✓	✓
4.1.5	• Synchronized cardioversion (adult)	✗	✗	✓	✓	✓	✗	✓	✓
4.1.6	• Synchronized cardioversion (pediatric)	✗	✗	✓	✓	✓	✗	✓	✓
4.2	Perform transcutaneous pacing	✗	✗	✓	✓	✓	✗	✓	✓
4.3	Perform Vagal maneuvers (e.g., carotid massage, valsalva maneuvers)	✗	✗	✓	✓	✓	✓	✓	✓
4.4	Use mechanical CPR	✓	✓	✓	✓	✓	✓	✓	✓
4.5	Perform manual CPR	✓	✓	✓	✓	✓	✓	✓	✓
4.6	Perform urinary catheterization	✗	✗	✗	✗	✗	✗	✗	✗
4.7	Perform ocular irrigation	✓	✓	✓	✓	✓	✓	✓	✓
4.8	Remove foreign objects from nose and ears	✓	✓	✓	✓	✓	✓	✓	✗
4.9	Maintain central venus pressure (CVP) monitoring	✗	✗	✗	✗	✗	✗	✗	✗
	Domain 5: Shock and Resuscitation								
5.1	Manage shock	✓	✓	✓	✓	✓	✓	✓	✓
5.2	Initiate and maintain fluid resuscitation	✓	✗	✓	✓	✓	✓	✓	✓
	Domain 6: Trauma and Environmental Emergencies								
6.1	Manage open abdominal wounds	✓	✓	✓	✓	✓	✓	✓	✓

Results of Application of Validation Criteria to Procedures and Skills

	Procedures and Skills	Practitioner Level				State-specific Intermediate Level			
		First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced
6.2	**Provide manual stabilization**								
6.2.1	• C-spine and spinal injuries	✓	✓	✓	✓	✓	✓	✓	✓
6.2.2	• Extremity fractures	✓	✓	✓	✓	✓	✓	✓	✓
6.3	**Control bleeding**								
6.3.1	• Manual	✓	✓	✓	✓	✓	✓	✓	✓
6.3.2	• Mechanical (tourniquet)	✓	✓	✓	✓	✓	✓	✓	✓
6.3.3	• Hemostatic agents	✓	✓	✓	✓	✓	✓	✓	✓
6.4	**Perform and manage thoracostomy (chest decompression)**								
6.4.1	• Chest tubes	✗	✗	✗	✗	✗	✗	✗	✓
6.4.2	• Needle decompression thoracostomy	✗	✗	✓	✓	✓	✓	✓	✓
6.5	Perform pericardiocentesis	✗	✗	✗	✗	✗	✗	✗	✗
6.6	Perform emergency moves (e.g., fireman's carry, clothes drag, extremity drag)	✓	✓	✓	✓	✓	✓	✓	✓
6.7	**Apply spinal immobilization**								
6.7.1	• Cervical collars	✓	✓	✓	✓	✓	✓	✓	✓
6.7.2	• Seated immobilization devices	✓	✓	✓	✓	✓	✓	✓	✓
6.7.3	• Longboard (straps, cervical immobilization device)	✓	✓	✓	✓	✓	✓	✓	✓
6.7.4	• Rapid extrication	✓	✓	✓	✓	✓	✓	✓	✓
6.7.5	• Helmet stabilization	✓	✓	✓	✓	✓	✓	✓	✓
6.7.6	• Helmet removal	✗	✓	✓	✓	✓	✓	✓	✓
6.8	Perform tooth replacement/tooth avulsion care	✗	✓	✗	✗	✗	✓	✗	✗
6.9	Apply splinting techniques	✓	✓	✓	✓	✓	✓	✓	✓

Results of Application of Validation Criteria to Procedures and Skills

		Practitioner Level				State-specific Intermediate Level			
	Procedures and Skills	First Responder	EMT-Basic	EMT-Inter.	EMT-Paramedic	MD CRT-99	NC EMT-Inter.	VA EMT-Inter.	VA EMT Enhanced
6.10	Use dressings, bandages, and irrigation	✓	✓	✓	✓	✓	✓	✓	✓
6.11	Perform wound closure techniques (e.g., dermabond, steri-strips)	✓	✓	✓	✗	✗	✓	✓	✗
6.12	Managing post-operative incision and drains	✗	✓	✓	✓	✗	✓	✗	✓
	Domain 7: Special Patient Populations								
7.1	Perform newborn resuscitation	✓	✓	✓	✓	✓	✓	✓	✓
7.2	Provide newborn care (warming, drying, positioning, APGAR scores)	✓	✓	✓	✓	✓	✓	✓	✓
7.3	Position pregnant/gravid patient	✓	✓	✓	✓	✓	✓	✓	✓
7.4	Position geriatric patient	✓	✓	✓	✓	✓	✓	✓	✓
7.5	Measure fundal height	✗	✓	✗	✗	✗	✗	✗	✗
7.6	Determine height/weight-based measurement	✓	✓	✓	✓	✓	✓	✓	✓
7.7	Perform childbirth procedures	✓	✓	✓	✓	✓	✓	✓	✓
	Domain 8: Operations								
8.1	Perform triage	✓	✓	✓	✓	✓	✓	✓	✓
8.2	Perform safe vehicle extrication	✓	✓	✓	✓	✓	✓	✓	✓