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ABSTRACT

A structured, time-referenced, performance examination was designed as part of the certification procedure for Emergency Medical Technicians-Ambulance in an attempt to increase objectivity and standardization. This examination is based on a model developed by the University of Southern California, School of Medicine, Department of Emergency Medicine in Los Angeles. Tasks include the treatment of chest wounds, epilepsy, fractures, head injuries, and cardio-pulmonary resuscitation. The examination procedures were pilot tested and the resulting data were analyzed using a statistical computer package. From the analyses, the desirability of the quantitative performance evaluation procedure was determined, and improvements in the rating form, to enhance predictive value, were made. A methodology for continued evaluation and review of practical performance evaluation procedure is suggested by the researchers. It is anticipated that this project will make a significant contribution towards the establishment of a National Standard Practical Examination that is objective, valid and consistent. Rating forms, scoring templates, and analyses of item performance by those passing and those failing the tests are included in this report. (Author/CTM)

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ED161948

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U. S. DEPARTMENT OF HEALTH,  
EDUCATION & WELFARE  
NATIONAL INSTITUTE OF  
EDUCATION

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EM007 983

## FORWARD

In an attempt to standardize results of the Basic EMT-A Practical Examination, the National Registry of Emergency Medical Technicians has produced a "Videotape" and accompanying "User's Guide" to assist examiners in the administration of the required Practical Performance Examination. This examination is based on a model developed by the University of Southern California, School of Medicine, Department of Emergency Medicine in Los Angeles.

This report will present the Registry's recognition of the problems, and the need to establish a protocol that would ensure the administration of a uniform practical examination.

Page two of this report describes the pilot testing of the examination procedure. Resulting data were analyzed using a statistical computer package. From the analyses, the desirability of the quantitative performance evaluation procedure was determined, and improvements in the rating form, to enhance predictive value, were made. A methodology for continued evaluation and review of practical performance evaluation procedure is suggested by the researchers.

It is anticipated that this project will make a significant contribution towards the establishment of a National Standard Practical Examination that is objective, valid and consistent.

Rocco V. Morando  
Project Director

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## TABLE OF CONTENTS

	<u>Page</u>
FORWARD	i
ACKNOWLEDGMENTS	ii - iv
INTRODUCTION	v - vi
The Emergency Medical Technician - Ambulance Practical Examination	1
Pilot Testing of the Examination	2 - 3
Limitation of the Data	4 - 5
Data Analysis	6 - 8
Results of Analyses	9 - 11
Conclusions	27 - 28

TABLES

<u>Number</u>		<u>Page</u>
1-1	Station A	12
1-2	Station A	13
2-1	Station B	15
2-2	Station B	16
3-1	Station C	18
3-2	Station C	19
4-1	Station F - Part 1	21
4-2	Station F - Part 1	22
5-1	Station F - Part 3	24
5-2	Station F - Part 3	25

## APPENDICES

<u>Appendix</u>		<u>Page</u>
A	Existing Practical Examinations Procedures	A-1 - 6
B	"Time Referenced" Examination Procedure	B-1 - 17
C	Analysis of Variance	C-1
D	Analysis of Variance - Performance Evaluation Approach	D-1
E	Station A - Pearson Correlation Coefficients	E-1
F	Station B - Pearson Correlation Coefficients	F-1 - 2
G	Station C - Pearson Correlation Coefficients	G-1
H	Station F - Part 1 - Pearson Correlation Coefficients	H-1
I	Station F - Part 3 - Pearson Correlation Coefficients	I-1
J	Revised Practical Examination Performance Evaluation Forms	J-1 - 16

## INTRODUCTION

The National Registry of Emergency Medical Technicians has, as a part of its certification procedure for Emergency Medical Technicians - Ambulance, required that applicants successfully complete both a written and a practical examination. Conducted on a national basis according to guidelines established by the Registry, the practical examination became somewhat variable in its administration, as local discretion is used in the setup of the examination. Beginning in 1972, the staff of the Department of Medicine - University of Southern California Medical Center was involved in developing standardized practical examination and an objective scoring procedure.

Dr. Kenneth Kimball, Chairman of the Registry's Examination Committee reviewed U. S. C. 's examination. Recognizing the desirability of a more objective evaluation and scoring procedure, the Registry approached the Department of Health, Education and Welfare for funding to develop such a procedure. In June of 1975, H. E. W. awarded an unsolicited contract to develop a new practical performance examination for Emergency Medical Technicians - Ambulance. In mid 1975, representatives from the Registry met with Dr. Richard Scott, Director of the Department of Special Projects for the U. S. C. School of Medicine to discuss the possibility of developing an outline of this examination for videotape presentation. The Registry contracted with the U. S. C. Department of Medicine in September, 1975 for the development of such a production outline. After the development of a videotape presentation and preliminary written material, the Registry conducted this study of the improved examination technique so as to develop final printed material, instructions and scoring guides.

An objective, consistent approach to structuring a practical examination was developed, permitting the use, if desired, of non-physician examiners. Guidelines for final scoring by a physician, based upon the field studies, were realized in simplified forms that greatly speed the evaluation of candidates while still providing a uniform standard.

Principal researchers were Dr. David Eubanks, Dean of Emergency and Critical Care Technologies, Miami-Dade Community College, and Lester Ascher, Senior Operations Research Analyst, City of Chicago Department of Personnel. Dr. George Hyatt, Professor of Orthopedics, Georgetown University Medical School provided one of the field testing sites and staff used in this study. Ms. Susan Thrash, Examination Research Specialist, City of Chicago Department of Personnel, provided assistance in the experimental design of the study and in analysis of the statistical results associated with this study.

## I. The Emergency Medical Technician - Ambulance Practical Examination

The basic Emergency Medical Technician - Ambulance Practical Examination currently in use consists of guidelines for the physician examiner/coordinator and an examination report showing candidates' passing or failing in six topic areas.

The local physician/examiner is to decide upon the most appropriate situation to present, and to determine the rigorousness of his examination, within the Registry guidelines (See Appendix A). Thus, great latitude was permitted, resulting in broad differences in the practical examination from region to region.

The practical examination developed for use at the University of Southern California provided a more rigid framework within which conduct, evaluation, scoring of the examination would vary to a lesser degree than the current examination described above. Various elements of performance were listed, and a rater (possibly non-medical) would note the time at which the action occurred. The rater would also note the quality of the performance. At a subsequent scoring session, medical personnel could evaluate the candidate's performance using a colored plastic overlay (Scoring Template) as a guide (Forms and overlays are in Appendix B). These scoring templates form a standardized guide for the evaluation of candidate response times.

The Registry, now provided with a model of a new testing procedure, needed first to evaluate whether or not the new procedure provided any benefits over the old examination procedures. Secondly, the printed material provided by the University of Southern California had to be refined, and, based upon practical examining experience, provided with scoring templates based upon empirical data.

## II. Pilot Testing of the Examination

A trial run-through of both the traditional (existing) examination procedure and of the proposed examination procedure was conducted at two sites to assess the differences between the two procedures, and to gather data to guide final revision of the material.

The first location was at the Miami-Dade Community College, which has an extensive emergency and critical care curriculum. Six raters were chosen from Miami-Dade's faculty. In addition, both faculty members and Miami Fire Department paramedics served as programmed patients. Twelve persons from the Miami Fire Department and from local ambulance services volunteered as candidates. A control group of raters, Dr. Eubanks, Dr. Hyatt, and Mr. Ascher, provided additional data to assist with statistical analysis.

An Emergency Medical Technician - Ambulance Practical Examination was then conducted in one day utilizing the procedures typically in use, following the guidelines in Appendix A. Rating sheets, conforming to the elements listed in the three standard stations ( pp. A-2, A-3 & A-4) were used so that each of the raters, plus the programmed patient, could evaluate each one of the candidates. During this examination, the patients' comments would be reflected in the single resultant rating sheet. It was felt that rather than have nine identical patient evaluations one detailed evaluation would do since the programmed patient was himself a paramedic or faculty member and could provide valuable data. On the second day of the pilot study, the EMT - A practical examination was conducted utilizing the new, time-referenced, materials and stations (Appendix B); however, the same raters, patients and candidates were utilized. Each test was conducted by having one candidate observed by all nine raters simultaneously. Thus, each test took considerably longer since no stations could be run simultaneously. Response forms were completed after each candidate, and collected.

The second location of a trial run-through was Georgetown University Medical School in Washington, D. C. Here, Dr. George Hyatt provided seven raters, several programmed patients, and ten candidates. As in the previous test, an EMT - A practical examination was conducted on the first day in the manner typically in use at Georgetown University. On the second day, the EMT - A practical examination was conducted utilizing the new-time-referenced material (Appendix B), again using the same raters, patients and candidates. Every effort was made to keep both the Miami and the Washington, D. C. tests similar in content, scope and presentation.

### III. Limitation of the Data

During the course of the trial runs, a number of factors seemed to be important enough to note as possibly affecting the data. One of the most readily apparent problems was the fatigue and frustration caused by the length of the trial examination. Only one candidate could be examined at one time, since all raters needed to observe the candidate simultaneously. Candidates, volunteering for this examination, were kept isolated in another room, and faced rather long waiting periods between examining stations. Raters also exhibited fatigue as the examinations ran into the late evenings.

Difficulties with the rating forms contributed to raters' uncertainty. Lack of clarity in the videotape presentation, and in a number of instances, lack of applicability to the testing situation, necessitated revision of the performance evaluation forms. This was especially apparent where the rating forms did not follow currently accepted AHA-BLS scenarios for CPR. These types of problems seemed to be the primary cause of missing response data. That data that were missing were eliminated by the computer programs for some of the statistical analyses; however, that necessitated elimination of the bulk of the data collected from the Washington test site. The statistics that will be presented should be considered with the realization that a very limited sample was used. Not all stations in the new, time-referenced, examination procedures were tested. Stations D and E, the largest, longest and most involved in equipment needs, were eliminated as it became apparent that the rater's and candidate's fatigue limit would be severely tried.

When programmed patients did not provide identical performances, candidates showed great variability in responses which were not attributable to this expected field performance. The feedback to the candidate from the programmed patient turns out to be exceptionally important. The best programmed patients were the experienced EMT's and paramedics, who knew how a patient should react.

For each candidate, every rater's response was considered as a separate observation, to provide information on inter-rater reliability. These same data were also used to assess the adequacy of each performance evaluation form element and the appropriateness of the scoring template for that element. The total number of observations ( not individual candidates ) used was typically a maximum of 98; however, it is important to stress that the number of raters and candidates remained fixed at their respective low levels. It must not be presumed that the analysis in this report represent anything more than a preliminary indication of what the performance evaluation design could be. Careful assessment of the first large groups of EMT applicants should provide the necessary information for the further improvement and evaluation of these rating forms.

#### IV. Data Analyses

The rating forms for the "traditional", presently conducted, examination consisted of three stations following in content the elements listed on pp. A-2 through A-4 respectively. For each element, three subjective evaluations, excellent, satisfactory, unsatisfactory were possible. They were assigned arbitrary numerical values of 3, 2 and 1, and coded onto punch cards, recording the candidate's and rater identification on each card. Each rater was also asked to provide a pass/fail evaluation, and this was also coded for each observation as a 2 or a 1, respectively. In addition to each of the 9 raters' evaluations, the programmed patient, a faculty member or paramedic, was asked to provide a rating. These rater responses for the stations - a total of 110 observations and pass/fail decisions - were analyzed using SPSS, the Statistical Package for the Social Sciences, on an IBM 370 computer.

The rating forms for the new, "time-referenced" practical examination proposed by the University of Southern California, originally consisted of six stations, A through F, with the last being divided into three separate sections (Appendix B). When the trial examinations were conducted, only Stations A, B, C and F (Parts 1 & 3) were completed, primarily because of very real consideration for time and fatigue. Station F, part 2, was eliminated because its performance evaluation is essentially identical to part 1. Stations D and E were eliminated because of the lengthy time and large amount of equipment involved. Again, each rater was asked to make a pass/fail evaluation on each of his performance evaluation forms, and the programmed patient was asked to make subjective evaluations for each candidate.

The only change in standard observation procedure occurred on Station F, part 3. Original instructions for this station specified that candidates should be evaluated as a team. However, each candidate was observed by three of the raters, in that each candidate had specific independent actions to perform. The raters felt uncomfortable

attempting to evaluate this group of complex tasks on a team basis within the short time blocks specified. Difficulties were reported by the raters with the performance evaluation form as originally presented, in that it was neither easily adaptable to adequate rating of a team, nor to the current standards for CPR.

These performance evaluation forms had 7 to 10 element time scales and three element qualitative scales. To record a rater's response, each time interval was assigned a number, from 0 through 10, in ascending sequence, up to the maximum number of intervals. The qualitative scale was assigned numbers 3, 2, and 1, like its counterpart in the traditional examination. In addition, the rater's pass/fail evaluation was coded as 2 or 1 and a computer record of the scoring template was constructed on the same pass/fail basis, 2 and 1, based upon the individual rater's responses. This template record was punched into the same data card as other data. Missing data was assigned a special (negative) value by the computer program. Rater's responses were punched onto data cards for each station and analyzed using the SPSS package.

The initial task was to determine whether or not the new, "time-referenced" evaluation procedure was in fact an improvement over the previous method of test administration. For this, inter-rater reliability was explored using an analysis of variance. The rater responses for each of the candidates were compared to find how consistently the raters could agree. The responses for each element were also correlated with the rater's overall pass/fail determination using a Pearson Correlation Coefficient. The revised evaluation forms, those having a time scale as well as a subjective or qualitative scale, were subjected to additional statistical comparisons. In examining each individual task, a crosstabulation was done to determine whether failure to perform the task can predict overall performance on the task. This became a possible criterion for exclusion of the task from the station. Pearson correlation coefficients were computed between the qualitative and time scale responses, to determine what, if anything, was the relation between speed of performance and adequacy of such performance.

Both time scales and qualitative scales were correlated with the rater's pass/fail determination. Cross-tabulations of the frequencies of response for each time interval for each station element, and correlation between the rater's pass/fail determination and the computer model of the scoring template were done for each station. Adequacy of the template may be ascertained by examining the relative percentage of passing and failing observations outside the template limits. The need to expand or reduce the template may be indicated by positive or negative correlations with time. The qualitative scale was correlated with overall performances to find where unacceptable performance is truly predictive. A correlation with time can indicate the importance of a red template area over the qualitative scales.

## V. Results of Analyses

Of primary importance in this study was the determination of the desirability of the USC - presented, "time-referenced", approach to evaluating a practical examination over the traditional examination technique. Primary attention was focused on inter-rater reliability, wherein an attempt was made to discern significant rater effects in each station. Utilizing an analysis of variance (ANOVA), the significance of the rater effects was explored. (See Appendix C)

### TRADITIONAL EXAMINATION TECHNIQUES

The initial analysis showed significant rater effects for Stations B and C of the traditional examination. The sub-element responses of the raters were quite variable when compared with their overall pass/fail determination. Station B consisted of a variable number of tasks assigned by one of the raters acting as "chief rater." In the actual examination, the tasks are varied to minimize the candidates' communication of the problem. Raters found it very difficult to accurately evaluate this type of situation. In all the stations, the candidate was asked a number of questions following his performance. However, the questions were typically different for each candidate, and the raters were left to their own judgment as to the candidate's knowledge.

As a second step, the responses of the three individual persons representing the Registry, acting as "umpires" for the test, were identified in the data and analyzed. In this case, the ANOVA showed relatively high inter-rater reliability between these raters. Since it was possible that this consistency, especially in Station A, might mask other raters effects, the observations of the six "volunteer" raters were analyzed separately, and significant rater effects were then found in all stations.

## NEW EXAMINATION TECHNIQUE

All five of the test stations for the new examination format were subjected to the same analysis (ANOVA) (See Appendix D). This calculation showed no significant rater effects. (ie. high inter-rater reliability) in Stations A, F1 and F3. Stations B and C showed significant rater effects; however, several other problems occurred with Station B including a large variability in the programmed patient's responses, and the rater's difficulty in working with the response sheet as originally presented. Rater's comments indicated that a revision of that performance evaluation form would greatly simplify this task. There was also some confusion initially on exactly what problems were being presented in Station C, in particular an airway obstruction was not a part of the patient's program. Only after the first two victims were all the raters aware of the problem, indicating that it is exceptionally important that the rater be thoroughly aware beforehand exactly what is to be presented in the station. Thus, the inconsistency in Station C can probably be attributed to an error in initial briefing of the raters.

Both quantitative information and subjective evaluations indicated that the newer, "time-referenced", examination approach provides a more uniform framework for structuring the evaluation of the candidates. The individual rating sheets, however, still were not satisfactory according to our raters. Additional statistical analyses were performed on the task elements of each station to determine the desirability of retaining the element and to establish a scoring template that would relate to prediction of the candidate's overall pass/fail evaluation.

For each element of each station, a frequency distribution and cross-tabulation, showing how many passes and how many failures were recorded as having responded at any one particular time segment, were produced. Pearson Correlations between the overall Pass/Fail evaluations and times of response qualitative judgments, and a simulation of the template (overlay) were performed, as well as additional statistics.

In the tables that follow, the most significant statistics are presented. Other statistics for these data are presented in Appendices E through I.

TABLE 1 - 1

## STATION A

TASK	Percent of Failures not Performing Task	Percent of Passes not Performing Task	Percent of Failures not Passing Template	Percent of Passes Passing Template
1. Checks and Clears Airways	42.7%	23.8%	39.6%	65.8%
2. Manually seals chest wound	13.3%	14.3%	73.3%	52.7%
3. Effective action to apply dressing to chest wound	25.3%	19.0%	41.4%	23.8%
4. Removes knife		No Candidate "Removed Knife"		
5. Secures knife in place	70.7%	38.1%	0%	4.8%
6. Administers O <sub>2</sub>	80.0%	61.9%	13.2%	33.3%
7. Manages Patient's Restlessness	72.0%	42.9%	*	*
8. Survey exam	48.0%	33.0%	*	*
9. Other Action	**	**	*	*

\* No template originally specified.

\*\* Too few observations.

## TABLE 1 - 2

## STATION A

## Pearson Correlation Coefficients

TASK	Pearson Correlation Time vs Pass/Fail	Pearson Correlation Qualitative vs Pass/Fail	Pearson Correlation Template vs Pass/Fail	Pearson Correlation Qualitative vs Time
1. Checks and Clears Airways	.0975	2844**	.2002*	.2062
2. Manually seals Chest Wound	-.0559	.0291	-.1904*	.1309
3. Effective action to apply dressing to chest wound	-.1041	.0266	-.1935*	.1179
4. Removes knife		NO CANDIDATE REMOVED KNIFE.		
5. Secures knife in place	.3711**	.4304***	.2108**	-.1534
6. Administers O <sub>2</sub>	.2856	.2229	.4257***	.5730***
7. Manages Patient's Restlessness	-.1834	.4263***	****	.5549***
8. Survey Exam	.0079	.1895	****	-.1994
9. Other Action	-.0412	.6770***	****	****

\* Significant at 0.10 Level

\*\* Significant at .05 Level

\*\*\* Significant at .01 Level

\*\*\*\* Computer could not compute coefficient;  
no Template specified, or no cases occurred.

NOTE: Detailed listing in Appendix E.

Station A provided consistent rater responses, and exhibited a reasonable number of well-defined tasks. Tasks 1, 5 and 7 were especially good predictors of overall performance, and were significantly correlated with their respective qualitative scales. Data for Task 2 showed that the lack of qualitative correlation is most probably a result of the EMT's releasing the manual seal to put on a dressing. If the template was changed to 1 minute, 30 seconds, 85% of the passing observations would pass the template, probably increasing this task's predictive value. Task 3 also presented problems, because the candidates found it nearly impossible to effect a good seal over a rubber moulage. Further, the programmed patient may not show any positive signs as a result of the bandaging, again, accounting for the lack of correlation of the qualitative scale. Changing the template to 1 minute, 30 seconds could allow 76.1% of the passing observations to pass the template. The template for Task 5 was set at a point where very few of the candidates can achieve completion. The candidates typically concerned themselves with the chest wound; however, if the mask was moved to 1:45, 47.6% of passing observations would pass the template, whereas only 8.7% of failing observations would pass the template. This, perhaps is the better place for the template limit. The qualitative scale (ie. time scale) for this task is significantly correlated with overall performance. Task 6 had its template set at 1:45, however, no passing observations occurred in the previous time slot, and the mask could be moved to 1:30 without altering the existing data. The qualitative scale was not correlated with overall performance probably because the administration of O<sub>2</sub> created a favorable impression upon the raters, irrespective of other performance. Although no template was specified for Task 7, the qualitative scale was significantly correlated with overall performance. Tasks 8 and 9 were not correlated with overall performance, and the remarks of the raters suggest the elimination of these two tasks.

TABLE 2 - 1

## STATION 6

TASK	Percent of Failures not Performing Task	Percent of Passes not Performing Task	Percent of* Failures Passing Template	Percent of* Passes Passing Template	Proposed Template Location
1. Check and Clear Airway	44%	5.7%	32%	62%	7
2. Adequate Inquiry	38%	8.6%	56%	80%	3
3. Checks: Scalp	74%	65.7%	**	**	
4. Eyes	50%	37.1%	**	**	
5. Ears	86%	77.1%	**	**	
6. Cervical Spines	76%	86.6%	**	**	
7. Chest	74%	51.4%	**	**	
8. Abdomen	72%	62.9%	**	**	
9. Back	72%	74.0%	**	**	
10. Legs	8.0%	11.4%	**	**	
11. Arms	28%	17.1%	**	**	
12. Discovers Seizure	58%	22.9%	42.0%	77.1%	0
13. Identifies Dilantin	88%	62.9%	**	**	
14. Manual Assessment of Elbow	34%	11.4%	32%	77.2%	3
15. Reassures Patient	34%	22.9%	**	**	
16. Splints Elbow	42%	25.7%	58%	74.2%	0

\*No template was originally specified for this station. Selection of template location based upon pass rate.

\*\*The series of checks, having a high proportion of missing observations is either to be compressed into one or two tasks; or no template is to be selected.

TABLE 2 - 2

## STATION B

## Pearson Correlation Coefficients

TASK	Pearson Correlation Time vs Pass/Fail	Pearson Correlation Qualitative vs Pass/Fail	Pearson Correlation Qualitative vs Time
1. Check and Clear Airways	.1656	.4709***	.0626
2. Adequate Inquiry	-.2489**	.3299**	.3538**
3. Checks: Scalp	.1448	.0892	.2397
4. Eyes	-.0356	.3180**	.0029
5. Ears	-.1546	.1349	.0697
6. Cervical Spines	-.3291	.2653	.1297
7. Chest	-.1494	.3365**	-.1029
8. Abdomen	-.2302	.2306	-.3937*
9. Back	-.2336	.2797	.1633
10. Legs	-.2965***	.2743**	-.0402
11. Arms	-.1062	.1444	.0900
12. Discovers Seizures	-.1741	.3881***	-.0636
13. Identifies Dilantin	-.4311*	.3245	-.0632
14. Manual Assessment of Elbow	.3700***	.2806*	.2601*
15. Reassures Patient	-.1417	.3028**	-.0595
16. Splints Elbow	.1210	.3746***	-.0403

\* Significant at 0.10 Level

\*\* Significant at .05 Level

\*\*\* Significant at .01 Level

\*\*\*\* Computer could not compute coefficient.

NOTE: Detailed listing in Appendix F.

Station B received some criticism from the raters, primarily due to the length of the rating form. Careful programming of the patient is necessary to insure consistency in situation presentation. The data generated provided guidance in selecting template limits for this station, as none was provided originally. Tasks 1, 2, 12, 14 and 16 were good predictors of overall performance. Tasks 3-11 were either not adequately observed or bear little relation individually to overall performance. These can be grouped under the general heading of "Patient Survey." Although Task 10 has a significant correlation of its qualitative scale with overall performance, the data indicates that deletion would be advisable. Its time scale is negatively correlated with overall performance, indicating that the leg exam is typically performed later in the problem. However, a thorough leg examination wastes the candidates time and he does not get to complete the problem. While a good leg examination makes a favorable impression on the raters, performance falls off, as shown by the increasing number of failing observations failing to perform subsequent tasks:

TABLE 2 - 3

Task 11	28.0%
Task 12	58.0%
Task 13	88.0%

For this reason, candidates that make an early leg examination subsequently may receive a failing rating on overall performance. Task 13 has a negative Pearson correlation, and is generally performed later. Tasks 14, 15 and 16 all have significant qualitative scale correlations, and should be included.

TABLE 3 - 1

## STATION C

TASK	Percent of Failures not Performing Task	Percent of Passes not Performing Task	Percent of Failures not Passing Template	Percent of Passes Passing Template
1. Checks Airway	73.1%	60.6%	19.2%	36.4%
2. Survey Exam	30.8%	12.1%	67.2%	87.9%
3. Adequate History	17.3%	12.1%	82.7%	88.0%
4. Special Exam Head, chest, abdomen	61.5%	42.4%	36.5%	51.5%
5. Special Exam Ankle, foot	42.3%	33.3%	60.6%	60.6%
6. Selects Leg Splint	57.7%	24.2%	42.5%	75.8%
7. Prepares Splint	34.6%	18.2%	65.4%	81.8%
8. Applies Splint	51.9%	27.3%	48.1%	72.7%
9. Elevate Leg	90.4%	97.0%	9.6%	3.0%
10. Reassures Patient	50.0%	27.3%	*	*
11. Rechecks Patient	82.7%	84.8%	*	*

\* No template originally specified.

TABLE 3 - 2

## STATION C

## Pearson Correlation Coefficients

TASK	Pearson Correlation Time vs Pass/Fail	Pearson Correlation Qualitative vs Pass/Fail	Pearson Correlation Template vs Pass/Fail	Pearson Correlation Qualitative vs Time
1. Checks Airway	.2646	.2159	****	-.2609
2. Survey Exam	.1258	.2741*	.2324**	.1912
3. Adequate History	-.0785	.2913**	.0195	.1012
4. Special Exam Head, Chest, Abdomen	-.3440**	.6027***	.1809*	-.1739
5. Special Exam Ankle, Foot	-.2669*	.2552*	.0595	.0216
6. Selects Leg Splint	-.0747	.0420	.3586***	.0841
7. Prepares Splint	-.1078	.2845**	.1963*	.1886
8. Applies Splint	-.2576*	.3996***	.2251**	.2395
9. Elevate Leg	.3627	-.4166**	-.1162	****
10. Reassures Patient	-.2211	.2066	****	.0417
11. Rechecks Patient	-.6291**	-.0857	****	****

\* Significant at 0.10 Level

\*\* Significant at .05 Level

\*\*\* Significant at .01 Level

\*\*\*\* Computer could not compute coefficient or  
too few cases occurred.

NOTE: Detailed listing in Appendix G.

In Station C, Tasks 2, 7, 8 and 10 seemed to be good predictors of overall performance. The poor showing of Task 1, seemingly most important, was simply a reflection of a good airway at the start of the problem. In Task 2, moving the template from 2:00 to 0:45 enhances the predictive ability by permitting 87.9% of the passing observation to pass the mask. More failing observations than passes fall into the green template area of Task 3, and the green should be deleted. Task 4 shows a negative correlation, and is typically completed later. As the existing template is also not well correlated with overall performance, the template green area should be eliminated. However, the qualitative scales of both tasks are correlated with overall performance, and these tasks should be retained.

Tasks 5, 6 and 7 have templates correlated with overall performance, but only on Task 7 is the qualitative scale also correlated with performance. Task 9 is not correlated with performance, and on examination of the data shows that only failing observations typically perform in this area, thus it should be deleted.

Similarly, Task 11 is not correlated with performance, as the raters might be confused as to what constitutes a recheck.

TABLE 4 - 1

## STATION F - PART 1

TASK	Percent of Failures not Performing Task	Percent of Passes not Performing Task
1. Position Head	35.3%	2.6%
2. Check Breathing	29.4%	10.5%
3. Check pulse	67.6%	13.2%
4. Check pupils	97.1%	92.1%
5. Extraneous Acts	-----	-----
6. Begin ventilation	32.4%	2.6%
7. Effectively inflate chest	35.3%	0%
8. Cardiac Compression at 80/min.	20.6%	5.3%
9. Adequate Compression	20.0%	2.6%
10. Proper Head Position	14.7%	0%
11. Alternate with ventilation at proper rate	26.5%	0%
12. Recheck pulse and pupils	79.4%	52.6%

NOTE: Template limits for tasks 1-4 and 6 will be the AHA standards. All other tasks on original template cover entire time span, thus, last two columns can be derived from first two.

## STATION F - PART 1

## Pearson Correlation Coefficients

TASK	Pearson Correlation Time vs Pass/Fail.	Pearson Correlation Qualitative vs Pass/Fail	Pearson Correlation Template vs Pass/Fail	Pearson Correlation Qualitative vs Time
1. Position Head	-.0639	-.5452***	.2891**	.0550
2. Check Breathing	.1235	.3570***	.2891**	.3425***
3. Check pulse	-.2078	.4779***	.5580***	.1376
4. Check pupils	.6366	.2908	.1599	-.2599
5. Extraneous Acts	****	-.0413	****	****
6. Begin ventilation	.0585	.4653***	.3085***	.1072
7. Effectively inflate chest	.2524*	.6552***	.4962***	.1983
8. Cardiac Compression at 80/min.	.0727	.5019***	.2637**	.0374
9. Adequate Compression	-.0176	.4911***	.3155***	.1999*
10. Proper Head Position	-.0513	.4297***	.3188***	.2243*
11. Alternate with ventilation at proper rate	-.0734	.5352***	.4246***	.1492
12. Recheck pupils and pulse	-.0214	.3682**	.3393***	-.0109

\* Significant at 0.10 Level

\*\* Significant at .05 Level

\*\*\* Significant at .01 Level

\*\*\*\* Computer could not compute coefficient; no Template specified, or no cases occurred.

NOTE: Detailed listing in Appendix H.

In Station F, Part 1, it is most noticeable that time is generally not well correlated with overall performance, while the template and qualitative scales are. Rater comments confirmed that the time interval of 10 seconds, with rapid activity change, was too short to adequately record. The template, in broadening the time limits, helped identify this problem. The time limit has been changed to 15 seconds and the Task layout structured to closely resemble the AHA - BLS scenario, a deficiency of the existing evaluation form (See Appendix B).

All tasks, except Task 4 and 5 were predictive of overall performance. The checking of pupils should be dropped in that it is typically not performed and not correlated with overall performance. The notation of extraneous acts properly belongs as a comment, so as not to interfere with the rater's notations. For Task 6 the data analyses indicate that the template limit is appropriately placed at 30 seconds.

## TABLE 5 - 1

## STATION F - PART 3

TASK	Percent of Failures not Performing Task	Percent of Passes not Performing Task
1. Position Head	40.0%	11.8%
2. Check Breathing	60.0%	47.1%
3. Check pulse	60.0%	35.3%
4. Check pupils	100%	94.1%
5. Extraneous Acts	100%	88.2%
6. Begin Ventilation	70.0%	58.8%
7. Effectively Inflate chest	35.0%	17.6%
8. Cardiac Compression	15.0%	11.8%
9. Adequate Compression	35.0%	5.9%
10. Proper Head Position	30.0%	11.8%
11. Proper Ratio	40.0%	5.9%
12. Recheck pulse	19.1%	13.5%
13. Maintain Ventilation	65.0%	17.6%
14. Switch	70.0%	35.3%

NOTE: Template limits for tasks 1-4 and 6 will be the AHA Standards. All other tasks on the original template cover the entire time space, thus, the last two columns can be derived from the first two.

## STATION F - PART 3

## Pearson Correlation Coefficients

TASK	Pearson Correlation Time vs Pass/Fail	Pearson Correlation Qualitative vs Pass/Fail	Pearson Correlation Template vs Pass/Fail	Pearson Correlation Qualitative vs Time
1. Position Head	.1075	.5882***	.2362	.0086
2. Check Breathing	.0617	.6325**	.1336	-.0547
3. Check Pulse	.0548	.4023*	.4135*	-.3805
4. Check Pupils	****	.3651	.1985	****
5. Extraneous Acts	****	-.3721	****	****
6. Begin Ventilation	-.1409	.3568	.1909	.1997
7. Effectively Inflate Chest	-.0230	.6262***	.1803	.3377*
8. Cardiac Compression	.0160	.4685***	.0359	.1260
9. Adequate Compression	.2316	.5592***	.3436**	.0787
10. Proper Head Position	-.0262	.0739	.2582	.1093
11. Proper ratio	.2075	.6298***	.3873**	.2201
12. Recheck Pulse	.2928	.0555	.1256	.2372
13. Maintain Ventilation	-.0178	.5006***	.5292***	.2407
14. Switch	.0660	.4830**	.3857**	-.2147

\* Significant at 0.10 Level

\*\* Significant at .05 Level

\*\*\* Significant at .01 Level

\*\*\*\* Computer could not compute coefficient; no Template specified,  
or no cases occurred.

NOTE: Detailed listing in Appendix I.

Data for Station F - Part 3, showed no significant rater effects, however, a Pearson Correlation was not significant, indicating that possibly the raters had trouble deciding on the candidate's overall performance. The evaluation form does not follow closely enough to the AHA-BLS standards, and the layout of the form is not conducive to ease of rater response. A revision of the sheet is necessary to accommodate the tasks needed, however, all raters raised strong objection to attempting to rate the team. The most acceptable solution here, considering the range of tasks, is to have each candidate rated individually. In this station also, raters complained of the close timing, making it virtually impossible to rate accurately. In this station, as in Part 1, Tasks 1 through 3, 6 through 11, 13 and 14 are predictive of overall performance, although again, time is not correlated with performance. Tasks 4 and 5 show the same lack of import as in Part 1. The recheck of pulse and pupils, Task 12, is not correlated with performance. Over 90% of all observations were missing here.

## VI. Conclusions

The primary objective of this study was to determine the advantage, if any, of a structured, "time-referenced", performance examination procedure (Appendix B), over the existing procedure (Appendix A). The data indicate that the use of this more structured approach, even in the face of less than ideal task selection, can provide a more reliable guide for the evaluation of performance examinations.

Analysis of the six standard stations yields information that can guide the establishment of predictive criteria for the scoring templates. The structure of the performance evaluation forms and the scoring templates provides a source for a large amount of empirical data with which the researcher can objectively evaluate the adequacy of both the station tasks selected and the scoring standards used.

In Appendix J are the performance evaluation forms revised on the basis of the information contained in the previous section. The forms for Station F, Part 2, and its associated scoring template are virtually identical to Station F, Part 1. More difficult to revise were the team stations D and E. Raters complained that where individual tasks could be performed separately, as in Traction Splinting or CPR, it becomes difficult if not impossible to adequately rate both individuals. Thus, traction splinting has been modified to include a demonstration of leadership and manual skills by both candidates. Station D, involving use of a backboard, sufficiently involves both EMT's that both can demonstrate manual skill, as well as show the very necessary ability to perform as a team member. Design of the scoring templates for these two stations was guided by data from Stations B and C. In Station D, survey and evaluation will probably not be well-correlated with overall performance, but the manual skills directly involved in patient welfare will be. The scoring template is extended to account for the performance of most manipulative skills later in the problem. Similarly, in Station E, the manual skills can be expected to be well-correlated with performance, but rechecks are typically not so

predictive. The nature of this activity is such that one EMT typically performs most of the work, thus, each EMT must apply a splint, being evaluated primarily on his skill at controlling the situation.

The CPR stations presented the most vexing general problem, that of a continuing task. Since it is important for the physician/evaluator to know when a candidate is not maintaining various BLS activities, the task was cast in a negative frame, and the scoring template highlighted in a distinctive color. Thus, once the candidate has started, the rater has the somewhat easier task of noting lapses in technique. It is hoped that this will simplify the rater's job, yielding more accurate and consistent data. Station F, Part 3 was rewritten to permit the rater to continuously follow the EMT's activities, by "looping" back up through repeated tasks. Since each EMT is rated individually, the rater (two required for this part) can concentrate on the quality of the CPR throughout the 3 minutes. The maximum time of this station was reduced, based upon our field observations. It is quite clear within the first 45 seconds whether each team member is proficient at CPR.

Rater comments were also noted for the qualitative scales. As shown in Appendix J, the new performance evaluation forms have a simplified qualitative scale: acceptable or unacceptable. There was little benefit seen in having a third category, which can encourage the selection of the center (non-committed) response. Here, raters must decide whether the activity meets minimum criteria for acceptability.

Although the field research for this project was completed using a smaller than desirable sample, the data collected makes a good case for the use of this new approach. It will not only help standardize the various examinations now being given, but will facilitate the evaluation of new practical problems and task groups. Of great importance is the continued monitoring and analysis of this test in the field, utilizing much larger samples to confirm the preliminary indications of this evaluation study.

A P P E N D I X A

EXISTING PRACTICAL EXAMINATION PROCEDURES

NATIONAL REGISTRY OF EMERGENCY MEDICAL TECHNICIANS  
SUGGESTED PROCEDURES FOR THE PRACTICAL EXAMINATION

THE PHYSICIAN IN CHARGE OF THE PRACTICAL EXAMINATION MAY ENLIST THE HELP OF OTHER PHYSICIANS WHO ARE KNOWLEDGEABLE IN EMERGENCY CARE PROCEDURES IN PROVIDING THE EXAMINATION. THE NUMBER OF PHYSICIANS NEEDED WILL BE IN DIRECT RATIO TO THE NUMBER OF EXAMINEES FOR EACH EXAMINING SESSION.

IT IS SUGGESTED THAT THE PHYSICIAN EXAMINER/COORDINATOR SEEK THE COOPERATION OF THE LOCAL HEART ASSOCIATION, RED CROSS, OR SIMILAR AGENCY TO PROVIDE FOR THE USE OF RESUSCIANNES, SPLINTS, BAG-MASK-RESUSCITATORS, AND BOTH SHORT AND LONG BACKBOARDS WITH STRAPS. AT THE DISCRETION OF THE PHYSICIAN EXAMINER/COORDINATOR, THESE ORGANIZATIONS MAY PROVIDE NON-PHYSICIAN HIGHLY TRAINED PERSONNEL TO HELP WITH EXAMINATIONS. THE APPLICANT WILL BE INSTRUCTED TO BRING WITH HIM ALL EXPENDABLE ITEMS SUCH AS CRAVATS, BANDAGES, AND DRESSINGS.

THIS OUTLINE IS PROVIDED MERELY AS A GUIDE TO MAINTAIN SOME UNIFORMITY THROUGHOUT THE NATION IN THE ADMINISTRATION OF THIS PRACTICAL EXAMINATION. THE PHYSICIAN EXAMINER MAY SUPPLEMENT OR DELETE ITEMS AT HIS DISCRETION.

IT IS SUGGESTED THAT THE EXAMINATION SITE BE DIVIDED INTO THREE STATIONS, EACH WITH APPROPRIATE EQUIPMENT AS SHOWN ON THE ATTACHED PAGES. DEPENDING UPON THE NUMBER OF APPLICANTS, A SERIES OF GROUPS OF THREE STATIONS MAY BE NECESSARY.

THE APPLICANTS MAY PROGRESS THROUGH THE STATIONS IN PAIRS. THE EXAMINER SHOULD EVALUATE THE SKILLS OF EACH APPLICANT IN APPLICATION OF THE EMERGENCY CARE PROCEDURES, QUESTION HIS METHOD, QUESTION ABOUT OTHER RELATED TASKS, AND EVALUATE HIS PROFESSIONAL ATTITUDE TOWARD THE VICTIM AND OTHERS.

GRADING IS TO BE MERELY ON A PASS OR FAIL BASIS FOR EACH OF THE SIX SECTIONS OF THE PRACTICAL EXAMINATION. FAILING ONE OR TWO SECTIONS PERMITS THE EXAMINEE TO BE RE-EXAMINED IN THE SECTIONS FAILED. HOWEVER, FAILING THREE OR MORE SECTIONS, CONSTITUTES TOTAL FAILURE OF THE EXAMINATION.

STATION # 1

CARDIO-PULMONARY-RESUSCITATION

NECESSARY EQUIPMENT

Resuscitantes and cleaning swabs  
Bag-mask  
Airways  
Blankets

THE PROCEDURES TO BE EVALUATED ARE:

1. POSITION OF THE VICTIMS HEAD AND NECK TO ESTABLISH AN OPEN AIRPASSAGE
2. THE PROPER USE OF AIRWAYS - SIZE AND INSERTION
3. APPLICATION OF MOUTH TO MOUTH AND THE USE OF THE BAG-MASK
4. RECOGNITION OF SIGNS INDICATING THE NEED FOR C.P.R.
5. LOCATES PROPER AREA TO APPLY PRESSURE ON THE STERNUM
6. MAINTAINS A RATE OF 60 TO 80 COMPRESSIONS PER MINUTE
7. HAVE SECOND EMT MONITOR CAROTID PULSE TO CHECK THE EFFECTIVENESS OF PROCEDURE
8. HAVE APPLICANTS CHANGE POSITION AS VENTILATOR AND COMPRESSOR
9. QUESTION APPLICANTS ON RELATED PROBLEMS, (FACE INJURIES, CHEST INJURIES, TRANSPORTATION, ETC.)

STATION # 2

IMMOBILIZATION OF FRACTURES

NECESSARY EQUIPMENT

Half-Ring splints  
Board splints - assorted lengths  
Inflatable splints  
Half-spine board and Long-spine board with straps  
Blankets

THE PROCEDURES TO BE EVALUATED ARE:

1. RECOGNIZES THE SIGNS AND SYMPTOMS OF FRACTURES AND DISLOCATIONS
2. MAINTAINS AND OPEN AIRWAY AND TREATS FOR SHOCK
3. IMMOBILIZES ALL FRACTURES BEFORE MOVING VICTIM (EXCEPT FOR IMPENDING DANGERS)
4. CONTROLS BLEEDING AND DRESSES WOUNDS OF ALL OPEN FRACTURES
5. IMMOBILIZES BEYOND THE ADJACENT JOINTS
6. APPLIES AND MAINTAINS TRACTION UNTIL SPLINT IS FIXED IN PLACE
7. SPLINTS SECURELY APPLIED, BUT DOES NOT INTERFERE WITH CIRCULATION
8. DEMONSTRATES THE PROPER APPLICATION OF ONE OR MORE OF THE FOLLOWING:  
THE HALF-RING SPLINT, BOARD SPLINTS, INFLATABLE SPLINTS, HALF-BOARD,  
LONG-BOARD, AND BLANKET ROLL SPLINT
9. QUESTION APPLICANT ON RELATED PROBLEMS, (EXTRICATION, TRANSPORTATION, ET

STATION # 3

BLEEDING CONTROL - SHOCK - WOUND CARE

NECESSARY EQUIPMENT

Applicants will be instructed to bring bandages, dressings, and cravats.

THE PROCEDURES TO BE EVALUATED ARE:

1. RECOGNITION OF WOUND TYPES,  
OPEN - ABRASIONS, LACERATIONS, AND PUNCTURES  
CLOSED - BRUISES AND CONTUSIONS
2. DEMONSTRATES METHODS OF BLEEDING CONTROL, DIRECT PRESSURE, PRESSURE DRESSING, PRESSURE POINTS, AND LIMITED USE OF THE TOURNIQUET AND ITS DANGERS.
3. HANDLING OF DRESSINGS TO MAINTAIN STERILITY
4. SECURES DRESSING WITH PROPER BANDAGE (NO ELASTIC BANDAGES)
5. USE OF NON-POROUS MATERIAL FOR SEALING A SUCKING CHEST WOUND
6. IMMOBILIZATION OF SEVERELY INJURED PARTS
7. DOES NOT REMOVE PROTRUDING OBJECTS
8. AVULSED PART TO ACCOMPANY VICTIM TO THE HOSPITAL
9. RECOGNIZES THE SIGNS AND SYMPTOMS OF SHOCK
10. ATTEMPTS TO PREVENT SHOCK BY TREATING THE CAUSE

GENERAL KNOWLEDGE

THE EXAMINING PHYSICIAN, AT HIS DISCRETION, MAY QUESTION THE APPLICANT AS TO THE GENERAL KNOWLEDGE OF AMBULANCE OPERATIONS. SUCH QUESTIONS MAY INCLUDE:

1. DRIVING OF THE AMBULANCE, TO THE SCENE, AND FROM THE SCENE TO HOSPITAL
2. SAFETY AT THE EMERGENCY SITE TO PREVENT FURTHER ACCIDENTS
3. MOVEMENT OF THE VICTIM FROM THE ACCIDENT AREA TO THE AMBULANCE
4. COMMUNICATIONS AND THE USE OF RADIO TO BASE AND/OR HOSPITAL
5. WRITTEN AND VERBAL REPORTING

THE  
NATIONAL REGISTRY  
of

SOCIAL SECURITY NO. \_\_\_\_\_

EMERGENCY MEDICAL TECHNICIANS

REGISTRY No. \_\_\_\_\_

PASS

RETEST

FAIL

E.M.T. AMBULANCE - EXAMINATION REPORT

Name of Applicant \_\_\_\_\_  
LAST FIRST MIDDLE INITIAL

Address \_\_\_\_\_  
STREET CITY STATE ZIP

Place of Written Exam: \_\_\_\_\_ Date \_\_\_\_\_

Signature of physician monitoring written exam: \_\_\_\_\_

Remarks:

Place of Practical Exam: \_\_\_\_\_ Date \_\_\_\_\_

Section on Cardiopulmonary Resuscitation	Passed _____	Failed _____
Splinting	Passed _____	Failed _____
Bandaging	Passed _____	Failed _____
Wound Care	Passed _____	Failed _____
Shock	Passed _____	Failed _____
General Knowledge	Passed _____	Failed _____

Remarks:

Signature of physician monitoring practical exam: \_\_\_\_\_

Retest Location \_\_\_\_\_ Date \_\_\_\_\_

Section: \_\_\_\_\_ Passed \_\_\_\_\_ Failed \_\_\_\_\_

\_\_\_\_\_ Passed \_\_\_\_\_ Failed \_\_\_\_\_

Signature of physician monitoring retest: \_\_\_\_\_

A P P E N D I X B

"Time Referenced" Examination Procedure

The audiovisual presentation and the User's Guide were developed as a result of the National Registry's awareness of the need for a standardized practical examination to coincide with the Registry's written examination. It was obvious that a practical exam be both standardized, and relatively easy to administer to a large number of candidates.

It is anticipated that this examination format will make a significant contribution to the goal of the National Registry in establishing a nationally standardized practical examination procedure which will be objective, valid and consistent.

The "User's Guide" will enhance and support the audiovisual presentation and will describe in detail the technique of organizing and conducting a practical performance examination for the EMT-Ambulance. However, the User's Guide alone should provide complete direction and instructions in the administration of subsequent practical examinations, without the audiovisual presentation. The objective scoring procedure that has been developed is based on specific performance criteria; thereby allowing the exam procedure to be reproducible whenever and wherever the test is administered. As such, this examination format is flexible and adaptable to change to meet local needs and situations and still maintain its uniformity.

We ask that you address all questions, problems, changes and modifications of this examination to the National Registry so that we may evaluate, and share all meaningful adaptations with the entire nation. Your reports should be sent to the Executive Director, National Registry of Emergency Medical Technicians, P. O. Box 29233, Columbus, Ohio 43229.

EMT-A  
PRACTICAL EXAM

TIME

NOTE:  
Please Check  
Technique

STATION A  
CHEST WOUND

:15	:30	:45	1:00	1:15	1:30	1:45	2:00	2:15	2:30
-----	-----	-----	------	------	------	------	------	------	------

Excellent	Adequate	Poor
-----------	----------	------

TASK

CHECKS & CLEARS  
AIRWAY

MANUALLY SEALS  
CHEST WOUND

EFFECTIVE ACTION TO  
APPLY DRESSING TO  
CHEST WOUND

REMOVES KNIFE

SECURES KNIFE IN  
PLACE

ADMINISTERS O<sub>2</sub>

MANAGES PATIENT'S  
RESTLESSNESS

SURVEY EXAM: VITAL  
SIGNS, EXTREMITIES,  
HEAD, TORSO

OTHER ACTION  
(DESCRIBE)

NOTE: Mark Patient's Evaluation of Candidate →

STATION A  
CHEST WOUND

CANDIDATE: \_\_\_\_\_

EXAM DATE: \_\_\_\_\_

& TIME: \_\_\_\_\_

EXAMINER: \_\_\_\_\_

VICTIM: \_\_\_\_\_

COMMENTS:

PROBLEMS, ETC.:

EXAMINERS: DO NOT WRITE BELOW THIS LINE \_\_\_\_\_

SCORING  
OUTCOME

PASS

FAIL

Confirmation:

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Signature

EMT-A  
PRACTICAL EXAM

TIME

NOTE:  
Please Check  
Technique

STATION A  
CHEST WOUND

:15	:30	:45	1:00	1:15	1:30	1:45	2:00	2:15	2:30
-----	-----	-----	------	------	------	------	------	------	------

Excellent	Adequate	Poor
-----------	----------	------

TASK

CHECKS & CLEARS  
AIRWAY

MANUALLY SEALS  
CHEST WOUND

EFFECTIVE ACTION TO  
APPLY DRESSING TO  
CHEST WOUND

REMOVES KNIFE

SECURES KNIFE IN  
PLACE

ADMINISTERS O<sub>2</sub>

MANAGES PATIENT'S  
RESTLESSNESS

SURVEY EXAM: VITAL  
SIGNS, EXTREMITIES,  
HEAD, TORSO

OTHER ACTION  
(DESCRIBE)

NOTE: Mark Patient's Evaluation of Candidate →

SCORING OVERLAY, COLOR AREAS



EMT-A  
PRACTICAL EXAM

STATION B  
EPILEPSY

TASK

:30

1:00

1:30

2:00

2:30

3:00

3:30

4:00

Check Technique

Excellent

Good

Poor

CHECK AND CLEAR AIRWAY

ADEQUATE INQUIRY RE IMMEDIATE PROBLEM

CHECKS:

SCALP

EYES

EARS

CERVICAL SPINE

CHEST

ABDOMEN

BACK

LEGS

ARMS

DISCOVERS SEIZURE AS PRECIPITATING FACTOR BY HISTORY

IDENTIFIES DILANTIN

MANUAL ASSESSMENT OF LEFT ELBOW  
BEGINS EFFECTIVE SPLINTING OF ELBOW

REASSURES PATIENT

NOTE:

Mark Patient's Examination of Candidate →

STATION B

EPILEPSY

CANDIDATE: \_\_\_\_\_

EXAM DATE: \_\_\_\_\_

& TIME: \_\_\_\_\_

EXAMINER: \_\_\_\_\_

VICTIM: \_\_\_\_\_

COMMENTS:

PROBLEMS, ETC.:

EXAMINERS: DO NOT WRITE BELOW THIS LINE

SCORING  
OUTCOME

PASS

FAIL

Confirmation:

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Signature

B-5

50

TECHNIQUE  
(Please Mark  
For Each Task  
Completed)

Very  
Competent  
Adequate  
Poor

EMT-A PRACTICAL EXAM	TIME									Very Competent	Adequate	Poor	
	:15	:30	:45	1:00	1:15	1:30	1:45	2:00	2:15				2:30
STATION C CLOSED Fx TIBIA/ANKLE													
TASK													
CHECKS AIRWAY													
SURVEY EXAM													
ADEQUATE HISTORY													
SPECIAL EXAM, HEAD CHEST, ABDOMEN													
SPECIAL EXAM, ANKLE FOOT NERVES, CIRCULATORY													
SELECTS SHORT LEG SPLINT													
PREPARES SPLINT													
APPLIES SPLINT													
ELEVATE LEG													
REASSURES PATIENT													
RECHECKS PATIENT													

EXAMINER: Note Technique Rating Reported By  
Victim:

B-6

5

STATION C  
CLOSED Fx  
TIBIA/ANKLE

CANDIDATE: \_\_\_\_\_

EXAM DATE: \_\_\_\_\_

& TIME: \_\_\_\_\_

EXAMINER: \_\_\_\_\_

VICTIM: \_\_\_\_\_

COMMENTS:

PROBLEMS, ETC.:

EXAMINERS: DO NOT WRITE BELOW THIS LINE

SCORING  
OUTCOME

PASS

FAIL

Confirmation:

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Signature

EMT-A  
PRACTICAL EXAM

TIME

TECHNIQUE  
(Please Mark  
For Each Task  
Completed)

STATION C  
CLOSED Fx  
TIBIA/ANKLE

:15	:30	:45	1:00	1:15	1:30	1:45	2:00	2:15	2:30
-----	-----	-----	------	------	------	------	------	------	------

Very Competent	Adequate	Poor
-------------------	----------	------

TASK

CHECKS AIRWAY

SURVEY EXAM

ADEQUATE HISTORY

SPECIAL EXAM, HEAD  
CHEST, ABDOMEN

SPECIAL EXAM, ANKLE  
FOOT NERVES,  
CIRCULATORY

SELECTS SHORT LEG  
SPLINT

PREPARES SPLINT

APPLIES SPLINT

ELEVATE LEG

REASSURES PATIENT

RECHECKS PATIENT

EXAMINER: Note Technique Rating Reported By  
Victim:

SCORING OVERLAY, COLOR AREAS

EMT-A PRACTICAL EXAM  STATION D HEAD & SPINE INJURY (IN CAR)  TASK	TIME									NOTE: Please Check Technique			
	:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	Excellent	Adequate	Poor
ORGANIZED TEAM APPROACH													
SURVEY EXAM													
RECOGNIZES SIGNS OF SKULL FRACTURE													
RECOGNIZES (FROM PAIN IN T-6 AREA & PLACID LEGS) SPINAL FRACTURE													
MANAGE AIRWAY													
PATIENT'S SPINE ALIGNED WITH TRACTION													
PATIENT SECURED TO BACKBOARD													
PATIENT'S BACK BENT OR TWISTED IMPROPERLY													
UTILIZE SANDBAGS													
UTILIZES CERVICAL COLLAR OR SHEET													
NOTE: Mark <u>Patient's</u> Evaluation of Candidate													

STATION D  
HEAD & SPINE INJURY  
(IN CAR)

CANDIDATE TEAM:

1. \_\_\_\_\_
2. \_\_\_\_\_

(GRADE AS A TEAM ONLY, USING SINGLE SCORING FORM)

EXAM DATE: \_\_\_\_\_

& TIME: \_\_\_\_\_

EXAMINER: \_\_\_\_\_

VICTIM: \_\_\_\_\_

COMMENTS:

PROBLEMS, ETC.:

EXAMINERS: DO NOT WRITE BELOW THIS LINE

SCORING  
OUTCOME

PASS

FAIL

Confirmation:

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Signature

EMT-A PRACTICAL EXAM  STATION D HEAD & SPINE INJURY (IN CAR)  TASK	TIME										NOTE: Please Check Technique		
	:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	Excellent	Adequate	Poor
ORGANIZED TEAM APPROACH													
SURVEY EXAM													
RECOGNIZES SIGNS OF SKULL FRACTURE													
RECOGNIZES (FROM PAIN IN T-6 AREA & PLACID LEGS) SPINAL FRACTURE													
MANAGE AIRWAY													
PATIENT'S SPINE ALIGNED WITH TRACTION													
PATIENT SECURED TO BACKBOARD													
PATIENT'S BACK BENT OR TWISTED IMPROPERLY													
UTILIZE SANDBAGS													
UTILIZES CERVICAL COLLAR OR SHEET													
	NOTE: Mark <u>Patient's</u> Evaluation of Candidate												
	SCORING OVERLAY, COLOR AREAS												
	50												

EMT-A PRACTICAL EXAM  STATION E TRACTION SPLINT  TASK	TIME										NOTE: Please Check Technique		
	:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	Excellent	Adequate	Poor
SELECTS HARE OR THOMAS (Circle which)													
ADJUST LENGTH (H) OR PREPARE WINDLASS (T)													
DISTRIBUTE CROSS STRAPS (H) OR PREPARE SLINGS (T)													
ANKLE HITCH READIED													
CRADLE LEG AT FRACTURE SITE													
APPLY TRACTION													
(TRACTION RELEASED)													
SIDE SPLINT TO PELVIS CONTACT													
SECURES INGUINAL STRAP													
(ENTRAP GONADS)													
TIGHTEN TRACTION DEVICE													
TIE LEG IN													
CHECK PELVIC CONTACT													

NOTE: Mark Patient's Evaluation of Candidate



STATION E  
TRACTION SPLINT

CANDIDATE TEAM:

1. \_\_\_\_\_
2. \_\_\_\_\_

(GRADE AS A TEAM ONLY, USING SINGLE SCORING FORM)

EXAM DATE: \_\_\_\_\_

& TIME: \_\_\_\_\_

EXAMINER: \_\_\_\_\_

VICTIM: \_\_\_\_\_

COMMENTS:

PROBLEMS, ETC.:

EXAMINERS: DO NOT WRITE BELOW THIS LINE

---

SCORING  
OUTCOME

PASS

FAIL

Confirmation:

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Signature

EMT-A  
PRACTICAL EXAM

STATION E  
TRACTION SPLINT

TASK

TIME

NOTE:  
Please Check  
Technique.

SELECTS HARE OR  
THOMAS (Circle which)

ADJUST LENGTH (H)  
OR PREPARE  
WINDLASS (T)

DISTRIBUTE CROSS  
STRAPS (H) OR  
PREPARE SLINGS (T)

ANKLE HITCH  
READIED

CRADLE LEG AT  
FRACTURE SITE

APPLY TRACTION

(TRACTION RELEASED)

SIDE SPLINT TO  
PELVIS CONTACT

SECURES INGUINAL  
STRAP

(ENTRAP GONADS)

TIGHTEN TRACTION  
DEVICE

TIE LEG IN

CHECK PELVIC  
CONTACT

:30

1:00

1:30

2:00

2:30

3:00

3:30

4:00

4:30

5:00

Excellent

Adequate

Poor

NOTE: Mark Patient's Evaluation of Candidate  
SCORING OVERLAP, COLOR AREAS

EMT-A  
PRACTICAL EXAM

TIME

NOTE:  
Please Check  
Technique

TASK	:10	:20	:30	:45	1:00	1:15	1:30	1:45	2:00	Excellent	Adequate	Poor
	STATION F - Part I CPR - ADULT (ALONE)											
POSITION HEAD TO ESTABLISH AIRWAY												
CHECK BREATHING												
CHECK PULSE (CAROTID)												
CHECK PUPILS												
(EXTRANEOUS ACTS)												
BEGINS VENTIL- ATION UNTIL 3-4 GOOD BREATHS												
EFFECTIVELY INFLATES CHEST												
CARDIA COMPRES- SION ± 80/MIN.												
ADEQUATE COMPRESSION												
PROPER HAND POSITION												
ALTERNATES WITH VENTILATION AT PROPER RATIO												
RECHECK PULSE & PUPILS												

STATION F - PART I  
CPR - ADULT (ALONE)

CANDIDATE: \_\_\_\_\_

EXAM DATE: \_\_\_\_\_

& TIME: \_\_\_\_\_

EXAMINER: \_\_\_\_\_

VICTIM: \_\_\_\_\_

COMMENTS:

PROBLEMS, ETC.:

EXAMINERS: DO NOT WRITE BELOW THIS LINE

SCORING  
OUTCOME

PASS

FAIL

Confirmation:

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Signature

EMT-A  
PRACTICAL EXAM

TIME

NOTE:  
Please Check  
Technique

TASK	:10	:20	:30	:45	1:00	1:15	1:30	1:45	2:00	Excellent	Adequate	Poor
	STATION F - Part I CPR - ADULT (ALONE)											
POSITION HEAD TO ESTABLISH AIRWAY												
CHECK BREATHING												
CHECK PULSE (CAROTID)												
CHECK PUPILS												
(EXTRANEOUS ACTS)												
BEGINS VENTIL- ATION UNTIL 3-4 GOOD BREATHS												
EFFECTIVELY INFLATES CHEST												
CARDIA COMPRES- SION ± 80/MIN.												
ADEQUATE COMPRESSION												
PROPER HAND POSITION												
ALTERNATES WITH VENTILATION AT PROPER RATIO												
RECHECK PULSE & PUPILS												

SCORING OVERLAY, COLOR AREAS

~~EXIT A~~  
PRACTICAL EXAM

TIME

NOTE:  
Please Check  
Technique

STATION F - Part II CPR - INFANT (ALONE)	:10	:20	:30	:45	1:00	1:15	1:30	1:45	2:00	Excellent	Adequate	Poor
	TASK											
POSITION BABY TO ESTABLISH AIRWAY												
CHECK BREATHING												
CHECK PULSE (CAROTID)												
CHECK PUPILS												
(EXTRANEOUS ACTS)												
BEGIN 4 VENTILATIONS (PUFFS)												
EFFECTIVELY INFLATES CHEST												
CARDIAC COMPRES- SIONS 100 - 120/MIN.												
ADEQUATE COM- PRESSION 1/2 to 3/4 INCHES												
PROPER FINGER POSITION												
ALTERNATES COM- PRESSIONS WITH VENTILATIONS 5:1												
RECHECKS PULSE AND PUPILS												

STATION F - PART II  
CPR - INFANT (ALONE)

CANDIDATE: \_\_\_\_\_

EXAM DATE: \_\_\_\_\_

& TIME: \_\_\_\_\_

EXAMINER: \_\_\_\_\_

VICTIM: \_\_\_\_\_

COMMENTS:

PROBLEMS, ETC.:

EXAMINERS: DO NOT WRITE BELOW THIS LINE

SCORING  
OUTCOME

PASS

FAIL

Confirmation:

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Signature

EMT-A  
PRACTICAL EXAM

TIME

NOTE:  
Please Check  
Technique

STATION F - Part II CPR - INFANT (ALONE)	:10	:20	:30	:45	1:00	1:15	1:30	1:45	2:00	Technique		
	TASK									Excellent	Adequate	Poor
POSITION BABY TO ESTABLISH AIRWAY												
CHECK BREATHING												
CHECK PULSE (CAROTID)												
CHECK PUPILS												
(EXTRANEOUS ACTS)												
BEGIN 4 VENTILATIONS (PUFFS)												
EFFECTIVELY INFLATES CHEST												
CARDIAC COMPRESSIONS 100 - 120/MIN.												
ADEQUATE COMPRESSION 1/2 to 3/4 INCHES												
PROPER FINGER POSITION												
ALTERNATES COMPRESSIONS WITH VENTILATIONS 5:1												
RECHECKS PULSE AND PUPILS												

SCORING OVERLAY, COLOR AREAS

EMT-A PRACTICAL EXAM	TIME								Check Technique			
	:10	:20	:30	:45	1:00	1:30	2:00	3:00	4:00	Excellent	Adequate	Poor
STATION F - Part III CPR - ADULT (TEAM)												
TASK												
POSITION HEAD TO ESTABLISH AIRWAY												
CHECK BREATHING												
CHECK PULSE (CAROTID)												
CHECK PUPILS												
(EXTRANEOUS ACTS)												
BEGINS VENTILATION UNTIL 3-4 GOOD BREATHS												
EFFECTIVELY INFLATES CHEST												
CARDIA COMPRESSION ± 80 MIN.												
ADEQUATE COMPRESSION												
PROPER HAND POSITION												
PROPER RATIO & TIMING BETWEEN VENTILATION & COMPRESSION												
RECHECK PULSE & PUPILS												
MAINTAIN VENTILATION & COMPRESS.												
TEAM MEMBERS SWITCH, MAINTAIN RATIO, TIMING & TECHNIQUE												



STATION F - PART III  
CPR - ADULT (TEAM)

CANDIDATE TEAM:

1. \_\_\_\_\_
2. \_\_\_\_\_

(GRADE AS A TEAM ONLY, USING SINGLE SCORING FORM)

EXAM DATE: \_\_\_\_\_

& TIME: \_\_\_\_\_

EXAMINER: \_\_\_\_\_

VICTIM: \_\_\_\_\_

COMMENTS:

PROBLEMS, ETC.:

EXAMINERS: DO NOT WRITE BELOW THIS LINE

SCORING  
OUTCOME

PASS

FAIL

Confirmation:

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Signature

TASK	:10	:20	:30	:45	1:00	1:30	2:00	3:00	4:00	Check Technique		
										Excellent	Adequate	Poor
EMT-7 PRACTICAL EXAM												
STATION F - Part III CPR - ADULT (TEAM)												
POSITION HEAD TO ESTABLISH AIRWAY												
CHECK BREATHING												
CHECK PULSE (CAROTID)												
CHECK PUPILS												
(EXTRANEOUS ACTS)												
BEGINS VENTILATION UNTIL 3-4 GOOD BREATHS												
EFFECTIVELY INFLATES CHEST												
CARDIA COMPRESSION ± 80 MIN.												
ADEQUATE COMPRESSION												
PROPER HAND POSITION												
PROPER RATIO & TIMING BETWEEN VENTILATION & COMPRESSION												
RECHECK PULSE & PUPILS												
MAINTAIN VENTILATION & COMPRESS.												
TEAM MEMBERS SWITCH, MAINTAIN RATIO, TIMING & TECHNIQUE												

SCORING OVERLAY COLOR AREAS

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A P P E N D I X C

Analysis of Variance

"Traditional Style" of Examination

All raters taken together:

<u>Station A</u>	<u>Station B</u>	<u>Station C</u>
F = 1.220	F = 3.748	F = 4.986
P = 0.300	P = .001	P = .001

Six volunteer raters (Exclusion of primary researchers):

<u>Station A</u>	<u>Station B</u>	<u>Station C</u>
F = 1.987	F = 4.859	F = 2.462
P = .097	P = .001	P = .048

Primary researchers alone (Exam "umpires"):

<u>Station A</u>	<u>Station B</u>	<u>Station C</u>
F = .279	F = 2.243	*
P = .999	P = .131	P = .999

\* Observations showed no variance.

---

A P P E N D I X D

Analysis of Variance

Performance Evaluation Approach

Appendix D  
Analysis of Variance  
Performance Evaluation Approach

Station A                    F = .829  
                                  P = .999

Station B                    F = 2.485  
                                  P = .049

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Station C                    F = 4.633  
                                  P = .003

Station F-1                  F = 1.795  
                                  P = .139

Station F-3                  F = 0.945  
                                  P = .999

---

A P P E N D I X - E

Station A

Pearson Correlation Coefficients

Station A

Pearson Correlation Coefficients

TASK	Time vs Pass/Fail	Qualitative vs Pass/Fail	Template vs Pass/Fail	Qualitative vs Time
1. Checks & Clears Airway	C = .0975 N = ( 59) P = .463	C = .2844 N = ( 68) P = .019	C = .2002 N = ( 85) P = .066	C = .2062 N = ( 51) P = .147
2. Manually Seals Chest Wound	C = -.0559 N = ( 83) P = .616	C = .0291 N = ( 68) P = .814	C = -.1904 N = ( 86) P = .079	C = .1309 N = ( 68) P = .287
3. Effective action to apply dressing to chest wound	C = -.1041 N = ( 73) P = .381	C = .0266 N = ( 67) P = .831	C = -.1935 N = ( 86) P = .074	C = .1179 N = ( 65) P = .350
4. Removes knife	****	****	****	****
5. Secures knife in place	C = .3711 N = ( 35) P = .028	C = .4304 N = ( 47) R = .003	C = .2108 N = ( 86) P = .051	C = -.1534 N = ( 27) P = .445
6. Administers O <sub>2</sub>	C = .2856 N = ( 23) P = .186	C = .2229 N = ( 45) P = .141	C = .4257 N = ( 86) P = .001	C = .5730 N = ( 20) P = .008
7. Manages Patient's Restlessness	C = -.1834 N = ( 33) P = .307	C = .4263 N = ( 54) P = .001	****	C = .5549 N = ( 25) P = .004
8. Survey exam	C = .0079 N = ( 53) P = .955	C = .1895 N = ( 53) P = .174	****	C = -.1994 N = ( 36) P = .244
9. Other Action	C = -.0412 N = ( 9) P = .916	C = .6770 N = ( 13) P = .011	****	****

\*\*\*\* Computers could not compute coefficient.

A P P E N D I X F

Station B

Pearson Correlation Coefficients

## Appendix F

## Station B

## Pearson Correlation Coefficients

TASK	Time vs Pass/Fail	Qualitative vs Pass/Fail	Qualitative vs Time
1. Check and Clear Airway	C = .1656 N = ( 61) P = .202	C = .4709 N = ( 52) P = .001	C = .0626 N = ( 50) P = .666
2. Adequate Inquiry	C = .2489 N = ( 63) P = .049	C = .3299 N = ( 56) P = .013	C = .3538 N = ( 51) P = .011
3. Checks: Scalp	C = .1448 N = ( 25) P = .490	C = .0892 N = ( 32) P = .627	C = .2397 N = ( 19) P = .323
4. Eyes	C = -.0356 N = ( 47) P = .812	C = .3180 N = ( 46) P = .031	C = .0029 N = ( 39) P = .986
5. Ears	C = -.1546 N = ( 15) P = .582	C = .1349 N = ( 26) P = .511	C = .0679 N = ( 11) P = .839
6. Cervical Spines	C = -.3291 N = ( 23) P = .125	C = .2653 N = ( 38) P = .107	C = .1297 N = ( 22) P = .565
7. Chest	C = -.1494 N = ( 30) P = .431	C = .3365 N = ( 36) P = .045	C = -.1029 N = ( 25) P = .625
8. Abdomen	C = -.2302 N = ( 27) P = .248	C = .2306 N = ( 35) P = .183	C = -.3937 N = ( 20) P = .086
9. Back	C = -.2336 N = ( 23) P = .283	C = .2797 N = ( 31) P = .128	C = .1633 N = ( 12) P = .612
10. Legs	C = -.2965 N = ( 77) P = .009	C = .2743 N = ( 64) P = .028	C = -.0402 N = ( 64) P = .753

## Appendix F

## Station B

## Pearson Correlation Coefficients

TASK, cont.	Time vs Pass/Fail	Qualitative vs Pass/Fail	Qualitative vs Time
11. Arms	C = -.1062 N = ( 65) P = .400	C = .1444 N = ( 54) P = .297	C = .0900 N = ( 53) P = .522
12. Discovers Seizure	C = -.1741 N = ( 48) P = .237	C = .3881 N = ( 48) P = .006	C = -.0636 N = ( 40) P = .696
13. Identifies Dilantin	C = -.4311 N = ( 19) P = .065	C = .3245 N = ( 26) P = .106	C = .0632 N = ( 14) P = .830
14. Manual Assessment of Elbow	C = .3700 N = ( 64) P = .003	C = .2806 N = ( 49) P = .051	C = .2601 N = ( 48) P = .074
15. Reassures Patient	C = .1417 N = ( 60) P = .280	C = .3208 N = ( 46) P = .041	C = -.0595 N = ( 45) P = .698
16. Splints Elbow	C = .1210 N = ( 55) P = .379	C = .3746 N = ( 48) P = .009	C = -.0403 N = ( 42) P = .800

A P P E N D I X G

Station C

Pearson Correlation Coefficients

## Appendix G

## Station C

## Pearson Correlation Coefficients

TASK	Time vs Pass/Fail	Qualitative vs Pass/Fail	Template vs Pass/Fail	Qualitative vs Time
1. Checks Airway	C = .2646 N = ( 27) P = .182	C = .2159 N = ( 33) P = .228	C = **** N = **** P = ****	C = -.2609 N = ( 24) P = .218
2. Survey Exam	C = .1258 N = ( 65) P = .318	C = .2741 N = ( 48) P = .059	C = .2324 N = ( 85) P = .032	C = .1912 N = ( 48) P = .193
3. Adequate History	C = -.0785 N = ( 72) P = .512	C = .2913 N = ( 57) P = .028	C = .0195 N = ( 85) P = .860	C = .1012 N = ( 55) P = .462
4. Special exam; Head, chest, abdomen	C = -.3440 N = ( 39) P = .032	C = .6027 N = ( 41) P = .001	C = .1809 N = ( 84) P = .100	C = -.1739 N = ( 30) P = .358
5. Special exam; ankle, foot	C = -.2669 N = ( 52) P = .056	C = .2552 N = ( 54) P = .063	C = .0595 N = ( 84) P = .591	C = .0216 N = ( 41) P = .893
6. Selects leg splint	C = -.0747 N = ( 47) P = .618	C = .0420 N = ( 43) P = .789	C = .3586 N = ( 85) P = .001	C = .0841 N = ( 37) P = .621
7. Prepares splint	C = -.1078 N = ( 61) P = .408	C = .2845 N = ( 50) P = .045	C = .1963 N = ( 85) P = .072	C = .1886 N = ( 44) P = .220
8. Applies splint	C = -.2576 N = ( 49) P = .074	C = .3996 N = ( 48) P = .005	C = .2251 N = ( 85) P = .038	C = .2395 N = ( 37) P = .153
9. Elevate leg	C = .3627 N = ( 6) P = .480	C = -.4166 N = ( 26) P = .034	C = -.1162 N = ( 82) P = .299	C = **** N = **** P = ****
10. Reassures patient	C = -.2211 N = ( 50) P = .123	C = .2066 N = ( 40) P = .201	****	C = .0417 N = ( 33) P = .818
11. Rechecks patient	C = -.6291 N = ( 14) P = .016	C = -.0857 N = ( 27) P = .671	****	****

\*\*\*\* Coefficient could not be computed or too few cases observed.

APPENDIX H

Station F - Part 1

Pearson Correlation Coefficients

Appendix H

Station F-Part 1

Pearson Correlation Coefficients

TASK	Time vs Pass/Fail	Qualitative vs Pass/Fail	Template vs Pass/Fail	Qualitative vs Time
1. Position Head	C = -.0639 N = ( 59) P = .631	C = .5452 N = ( 55) P = .001	C = .2891 N = ( 72) P = .014	C = .0550 N = ( 57) P = .684
2. Check Breathing	C = .1235 N = ( 58) P = .356	C = .3570 N = ( 57) P = .006	C = .2891 N = ( 72) P = .014	C = .3425 N = ( 57) P = .009
3. Check Pulse	C = -.2078 N = ( 44) P = .176	C = .4779 N = ( 54) P = .001	C = .5580 N = ( 72) P = .001	C = .1376 N = ( 45) P = .367
4. Check Pupils	C = .6365 N = ( 4) P = .363	C = .2908 N = ( 27) P = .141	C = .1599 N = ( 72) P = .180	C = -.2599 N = ( 6) P = .619
5. Extravenous Acts	****	C = -.0413 N = ( 16) P = .879	****	****
6. Begin Ventilation	C = .0585 N = ( 60) P = .657	C = .4653 N = ( 60) P = .001	C = .3085 N = ( 72) P = .008	C = .1072 N = ( 64) P = .399
7. Effectively inflate chest	C = .2524 N = ( 60) P = .052	C = .6552 N = ( 59) P = .001	C = .4962 N = ( 72) P = .001	C = .1983 N = ( 65) P = .113
8. Cardiac Compression at 80/min.	C = .0727 N = ( 63) P = .571	C = .5019 N = ( 63) P = .001	C = .2637 N = ( 72) P = .025	C = .0374 N = ( 72) P = .755
9. Adequate Compression	C = -.0176 N = ( 64) P = .890	C = .4911 N = ( 67) P = .001	C = .3155 N = ( 72) P = .007	C = .1999 N = ( 74) P = .088
10. Proper Head Position	C = -.0513 N = ( 67) P = .680	C = .4297 N = ( 62) P = .001	C = .3188 N = ( 72) P = .006	C = .2243 N = ( 72) P = .058
11. Alternates with Ventilation at Proper rate	C = .0734 N = ( 63) P = .568	C = .5352 N = ( 59) P = .001	C = .4246 N = ( 72) P = .001	C = .1492 N = ( 64) P = .239
12. Recheck pulse and pupils	C = .0214 N = ( 25) P = .919	C = .3682 N = ( 43) P = .015	C = .3393 N = ( 72) P = .004	C = -.0109 N = ( 25) P = .959

A P P E N D I X I

Station F - Part 3

Pearson Correlation Coefficient

Station F - Part 3

Pearson Correlation Coefficients

TASK	Time vs Pass/Fail	Qualitative vs Pass/Fail	Template vs Pass/Fail	Qualitative vs Time
1. Position Head	C = .1075 N = ( 27) P = .594	C = .5882 N = ( 24) P = .003	C = .2362 N = ( 30) P = .209	C = .0086 N = ( 25) P = .967
2. Check Breathing	C = .0617 N = ( 17) P = .814	C = .6325 N = ( 15) P = .011	C = .1336 N = ( 30) P = .481	C = -.0547 N = ( 16) P = .840
3. Check Pulse	C = .0548 N = ( 19) P = .824	C = .4023 N = ( 21) P = .071	C = .4135 N = ( 30) P = .023	C = -.3205 N = ( 16) P = .146
4. Check Pupils	****	C = .3651 N = ( 13) P = .220	C = .985 N = ( 30) P = .293	****
5. Extraneous Acts	****	C = -.3721 N = ( 7) P = .11	****	****
6. Begin Ventilation	C = .1409 N = ( 13) P = .646	C = .0721 N = ( 13) P = .55	C = .1909 N = ( 30) P = .312	C = .1997 N = ( 14) P = .494
7. Effectively inflate chest	C = .0230 N = ( 27) P = .909	C = .6262 N = ( 26) P = .001	C = .1803 N = ( 36) P = .293	C = .3377 N = ( 30) P = .068
8. Cardiac Compression	C = .0160 N = ( 32) P = .931	C = .4685 N = ( 30) P = .009	C = .0359 N = ( 36) P = .835	C = .1260 N = ( 32) P = .492
9. Adequate Compression	C = .2316 N = ( 29) P = .227	C = .5592 N = ( 28) P = .002	C = .3436 N = ( 36) P = .040	C = .0787 N = ( 32) P = .668
10. Proper Head position	C = -.0262 N = ( 29) P = .893	C = .0739 N = ( 28) P = .709	C = .2582 N = ( 36) P = .128	C = .1093 N = ( 33) P = .545
11. Proper ratio...	C = .2075 N = ( 28) P = .289	C = .6298 N = ( 30) P = .001	C = .3873 N = ( 36) P = .020	C = .2201 N = ( 32) P = .226
12. Recheck pulse	C = .2928 N = ( 8) P = .482	C = .0555 N = ( 18) P = .827	C = .1256 N = ( 36) P = .466	C = .2372 N = ( 9) P = .539
13. Maintain Ventilation	C = -.0178 N = ( 21) P = .920	C = .5006 N = ( 27) P = .002	C = .5292 N = ( 36) P = .001	C = .2407 N = ( 23) P = .260

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A P P E N D I X J

Revised Practical Examination Performance Evaluation Forms

NATIONAL REGISTRY OF EMERGENCY MEDICAL TECHNICIANS  
 PERFORMANCE EVALUATION FORM  
 BASIC EMT-A

STATION A	TIME										NOTE	
											TECHNIQUE	
	:15	:30	:45	1:00	1:15	1:30	1:45	2:00	2:15	2:30	ACCEPTABLE	NOT ACCEPTABLE
AIRWAY CHECKED AND CLEARED												
CHEST WOUND MANUALLY SEALED												
EFFECTIVE ACTION TO APPLY DRESSING TO CHEST WOUND												
KNIFE REMOVED												
KNIFE SECURED IN PLACE												
OXYGEN ADMINISTERED												
PATIENT'S RESTLESSNESS MANAGED												
ADEQUATE PATIENT SURVEY PERFORMED												
PATIENT'S EVALUATION OF THE CANDIDATE												

COMMENTS:

NOTE EXTRANEIOUS ACTIONS:

NATIONAL REGISTRY OF EMERGENCY MEDICAL TECHNICIANS  
PERFORMANCE EVALUATION FORM  
BASIC EMT - A

Station A Chest and Abdominal Wounds

Candidates Name: \_\_\_\_\_

Exam Date \_\_\_\_\_ Time \_\_\_\_\_

Examiners Signature: \_\_\_\_\_

EXAMINERS: DO NOT WRITE BELOW THIS LINE

Final Scoring

Pass

Fail

Confirmation

Date

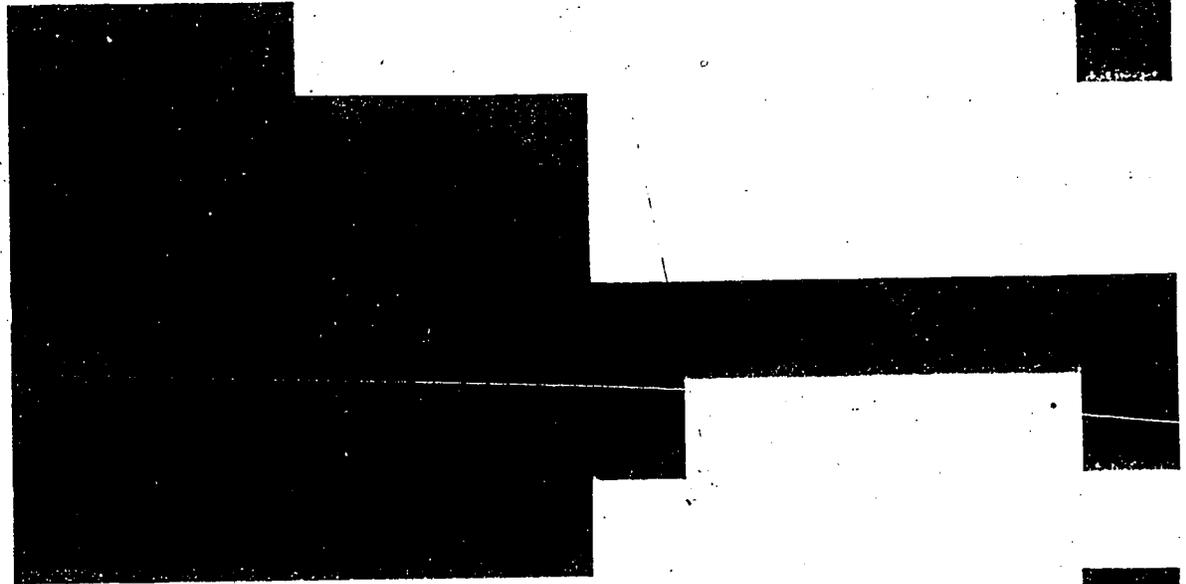
Signature

Signature

NATIONAL REGISTRY OF EMERGENCY MEDICAL TECHNICIANS  
EXAMINATION SCORING TEMPLATE

STATION A

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NATIONAL REGISTRY OF EMERGENCY MEDICAL TECHNICIANS  
 PERFORMANCE EVALUATION FORM  
 BASIC EMT-A

STATION B	TIME								NOTE TECHNIQUE	
									ACCEPTABLE	NOT ACCEPTABLE
	:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00		
AIRWAY CHECKED AND CLEARED										
ADEQUATE INQUIRY INTO IMMEDIATE PROBLEM										
THOROUGH PATIENT SURVEY PERFORMED										
ELBOW FRACTURE ADEQUATELY ASSESSED										
ELBOW FRACTURE ADEQUATELY SPLINTED										
SEIZURE AS A FACTOR DISCOVERED BY HISTORY										
DILANTIN IDENTIFIED										
PATIENT REASSURED										
PATIENT'S EVALUATION OF THE CANDIDATE										

COMMENTS:

NOTE EXTRANEOUS ACTIONS:

NATIONAL REGISTRY OF EMERGENCY MEDICAL TECHNICIANS

PERFORMANCE EVALUATION FORM

BASIC EMT - A

Station B

Epilepsy

Candidates Name: \_\_\_\_\_

Exam Date: \_\_\_\_\_ Time \_\_\_\_\_

Examiners Signature: \_\_\_\_\_

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EXAMINERS: DO NOT WRITE BELOW THIS LINE

Final Scoring

Pass

Fail

Confirmation

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Date

Signature

Signature

NATIONAL REGISTRY OF EMERGENCY MEDICAL TECHNICIANS  
EXAMINATION SCORING TEMPLATE

STATION B



NATIONAL REGISTRY OF EMERGENCY MEDICAL TECHNICIANS  
 PERFORMANCE EVALUATION FORM  
 BASIC EMT-A

STATION C											NOTE TECHNIQUE	
	:15	:30	:45	1:00	1:15	1:30	1:45	2:00	2:15	2:30	ACCEPTABLE	NOT ACCEPTABLE
AIRWAY CHECKED												
ADEQUATE PATIENT SURVEY PERFORMED												
ADEQUATE HISTORY OBTAINED												
SPECIAL EXAM OF HEAD AND TRUNK												
SPECIAL EXAM OF ANKLE AND FOOT, NERVES & CIRCULATION												
SHORT LEG SPLINT SELECTED												
SPLINT PREPARED												
SPLINT APPLIED												
PATIENT REASSURED												
PATIENT'S EVALUATION OF THE CANDIDATE												

COMMENTS:

NOTE EXTRANEOUS ACTIONS:

NATIONAL REGISTRY OF EMERGENCY MEDICAL TECHNICIANS  
PERFORMANCE EVALUATION FORM  
BASIC EMT - A

Station C

Closed Fracture

Candidates Name: \_\_\_\_\_

Exam Date: \_\_\_\_\_ Time \_\_\_\_\_

Examiners Signature: \_\_\_\_\_

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EXAMINERS: DO NOT WRITE BELOW THIS LINE

Final Scoring

Pass

Fail

Confirmation

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Date

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Signature

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Signature

95

NATIONAL REGISTRY OF EMERGENCY MEDICAL TECHNICIANS  
EXAMINATION SCORING TEMPLATE

STATION C



93

NATIONAL REGISTRY OF EMERGENCY MEDICAL TECHNICIANS  
 PERFORMANCE EVALUATION FORM  
 BASIC EMT-A

STATION D TEAM EVALUATION											NOTE TECHNIQUE	
	:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	ACCEPTABLE	NOT ACCEPTABLE
ADEQUATE PATIENT SURVEY PERFORMED												
SITUATION ADEQUATELY EVALUATED												
POSSIBLE SKULL FRACTURE RECOGNIZED												
POSSIBLE SPINAL FRACTURE RECOGNIZED												
SPINE HELD IN ALIGNMENT												
PATIENT SECURED TO BACKBOARD												
<u>DOES NOT</u> MAINTAIN SPINE ALIGNMENT												
HEAD SECURED USING COLLAR, SANDBAGS												
ORGANIZED TEAM APPROACH												
PATIENT'S EVALUATION OF CANDIDATES <u>AS A TEAM</u>												

COMMENTS:

NOTE EXTRANEIOUS ACTIONS:

NATIONAL REGISTRY OF EMERGENCY MEDICAL TECHNICIANS  
PERFORMANCE EVALUATION FORM  
BASIC EMT - A

Station D

Head and Spine Injury

Candidates Name: 1) \_\_\_\_\_  
2) \_\_\_\_\_

(Grade as a team, using only one evaluation form)

Exam Date: \_\_\_\_\_ Time: \_\_\_\_\_

Examiners Signature: \_\_\_\_\_

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EXAMINERS: DO NOT WRITE BELOW THIS LINE

Final Scoring

Pass

Fail

Confirmation

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Date

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Signature

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Signature

NATIONAL REGISTRY OF EMERGENCY MEDICAL TECHNICIANS  
EXAMINATION SCORING TEMPLATE

STATION D



NOTE COMMENTS



NATIONAL REGISTRY OF EMERGENCY MEDICAL TECHNICIANS  
 PERFORMANCE EVALUATION FORM  
 BASIC EMT-A

STATION E									NOTE TECHNIQUE	
									ACCEPTABLE	NOT ACCEPTABLE
	NOTE SPLINT SELECTION: HARE; THOMAS	TIME								
	:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00		
LENGTH ADJUSTED (H) OR WINDLASS PREPARED (T)										
CROSS STRAPS OR SLINGS PREPARED										
ANKLE HITCH PREPARED										
<u>DOES NOT</u> ASSURE CONTINUOUS MAINTENANCE OF TRACTION										
SPLINT FITTED TO THE PELVIC AREA										
INGUINAL STRAPS SECURED										
GENITALIA ENTRAPPED										
TRACTION APPLIED WITH THE SPLINT										
LEG ADEQUATELY SECURED IN SPLINT										
PELVIC CONTACT RECHECKED										
CIRCULATORY SUFFICIENCY RECHECKED										

PATIENT'S EVALUATION OF THE CANDIDATE

COMMENTS:

NOTE EXTRANEIOUS ACTIONS

NATIONAL REGISTRY OF EMERGENCY MEDICAL TECHNICIANS

PERFORMANCE EVALUATION FORM

BASIC EMT - A

Station E

ion Splinting

Candidates Name: \_\_\_\_\_

(Each candidate is graded individually, even though another assists.)

Partner's Name: \_\_\_\_\_

Exam Date: \_\_\_\_\_ Time \_\_\_\_\_

Examiners Signature: \_\_\_\_\_

EXAMINERS: DO NOT WRITE BELOW THIS LINE

Final Scoring

Pass

Fail

Confirmation

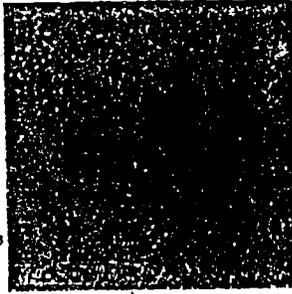
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Date

\_\_\_\_\_  
Signature

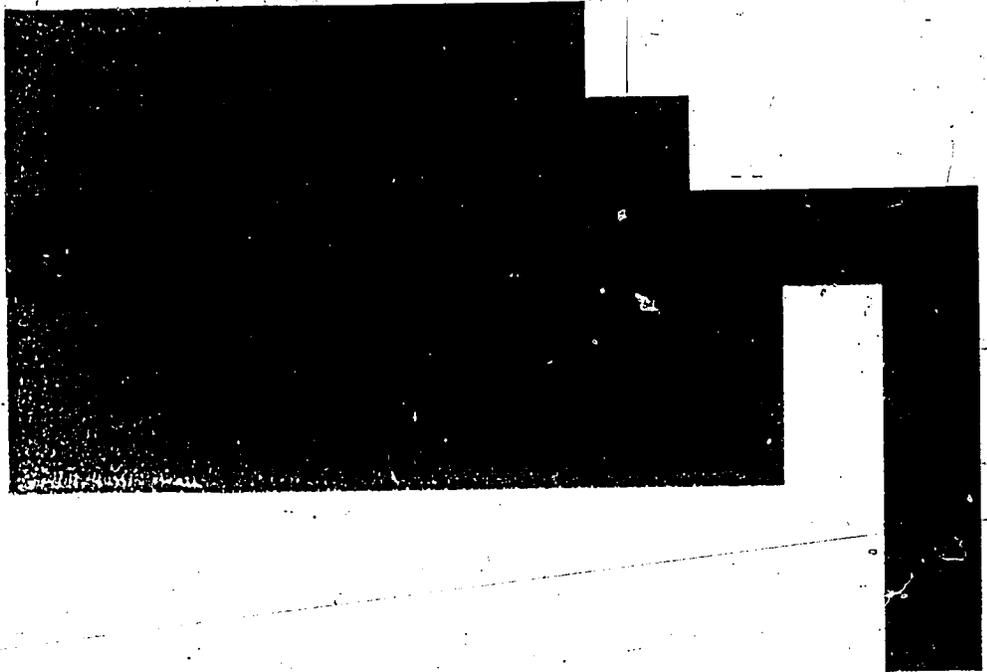
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Signature

NATIONAL REGISTRY OF EMERGENCY MEDICAL TECHNICIANS  
EXAMINATION SCORING TEMPLATE

STATION E



NOTE COMMENTS



NATIONAL REGISTRY OF EMERGENCY MEDICAL TECHNICIANS  
 PERFORMANCE EVALUATION FORM  
 BASIC EMT-A

STATION F - PART 1  CFR - ADULT ALONE - UNWITNESSED	TIME								NOTE TECHNIQUE	
	:15	:30	:45	1:00	1:15	1:30	1:45	2:00	ACCEPTABLE	NOT ACCEPTABLE
LEVEL OF CONSCIOUSNESS ESTABLISHED										
HEAD POSITIONED TO ESTABLISH AIRWAY										
BREATHING CHECKED										
FOUR QUICK VENTILATIONS										
PULSE CHECKED										
CARDIAC COMPRESSION STARTED										
DOES NOT MAINTAIN CORRECT HAND POSITION										
DOES NOT MAINTAIN CORRECT RATE (80/MIN)										
DOES NOT MAINTAIN CORRECT FORCE (1-1/2 - 2)										
DOES NOT MAINTAIN CORRECT RATIO (15:2)										
DOES NOT PROVIDE EFFECTIVE VENTILATION										
PULSE RECHECKED										

COMMENTS:

NOTE EXTRANEIOUS ACTIONS:

NATIONAL REGISTRY OF EMERGENCY MEDICAL TECHNICIANS  
PERFORMANCE EVALUATION FORM  
BASIC EMT - A

Station F - Part I

CPR - Adult, alone, unwitnessed.

Candidates Name: \_\_\_\_\_

Exam Date: \_\_\_\_\_ Time: \_\_\_\_\_

Examiners Signature: \_\_\_\_\_

EXAMINERS: DO NOT WRITE BELOW THIS LINE

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~~Final Scoring~~

Pass

Fail

Confirmation

Date

Signature

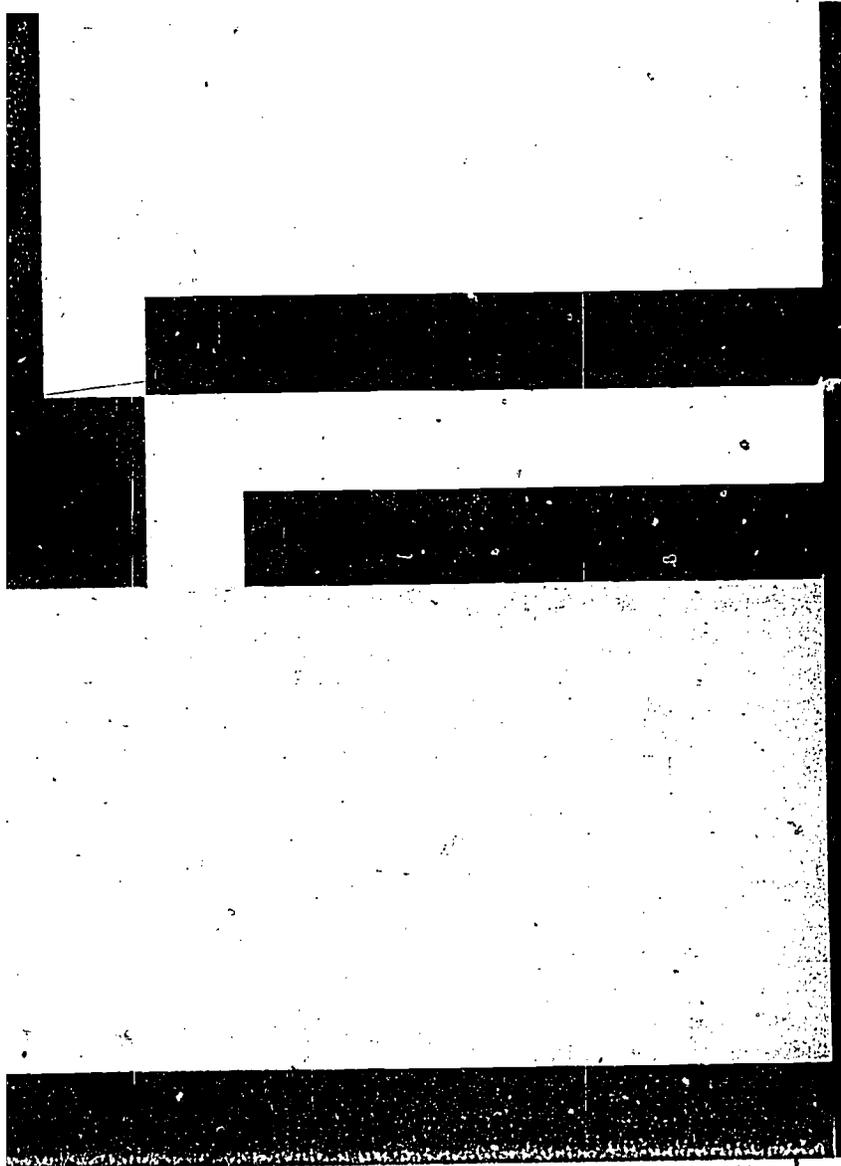
Signature

NATIONAL REGISTR  
EXAMINA

NATION.F - PART 1



OF EMERGENCY MEDICAL TECHNICIANS  
ION SCORING TEMPLATE



# NATIONAL REGISTRY OF EMERGENCY MEDICAL TECHNICIANS

## PERFORMANCE EVALUATION FORM

### BASIC EMT-A

STATION F - PART 2

CPR - INFANT  
ALONE - UNWITNESSED

	TIME								NOTE TECHNIQUE	
	:15	:30	:45	1:00	1:15	1:30	1:45	2:00	ACCEPTABLE	NOT ACCEPTABLE
LEVEL OF CONSCIOUSNESS ESTABLISHED										
INFANT POSITIONED TO ESTABLISH AIRWAY										
BREATHING CHECKED										
FOUR QUICK VENTILATIONS										
PULSE CHECKED										
CARDIAC COMPRESSION STARTED										
<u>DOES NOT</u> MAINTAIN CORRECT FINGER POSITION										
<u>DOES NOT</u> MAINTAIN CORRECT COMPRESSION RATE										
<u>DOES NOT</u> MAINTAIN CORRECT FORCE (1/2-3/4 IN.)										
<u>DOES NOT</u> MAINTAIN CORRECT RATIO (5:1)										
<u>DOES NOT</u> PROVIDE EFFECTIVE VENTILATION										
PULSE RECHECKED										

COMMENTS:

NOTE EXTRANEOUS ACTIONS:

NATIONAL REGISTRY OF EMERGENCY MEDICAL TECHNICIANS  
PERFORMANCE EVALUATION FORM  
BASIC EMT - A

Station F - Part 2

CPR - Infant, alone, unwitnessed

Candidates Name: \_\_\_\_\_

Exam Date: \_\_\_\_\_ Time \_\_\_\_\_

Examiners Signature: \_\_\_\_\_

EXAMINERS: DO NOT WRITE BELOW THIS LINE

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Final Scoring

Pass

Fail

Confirmation

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Date

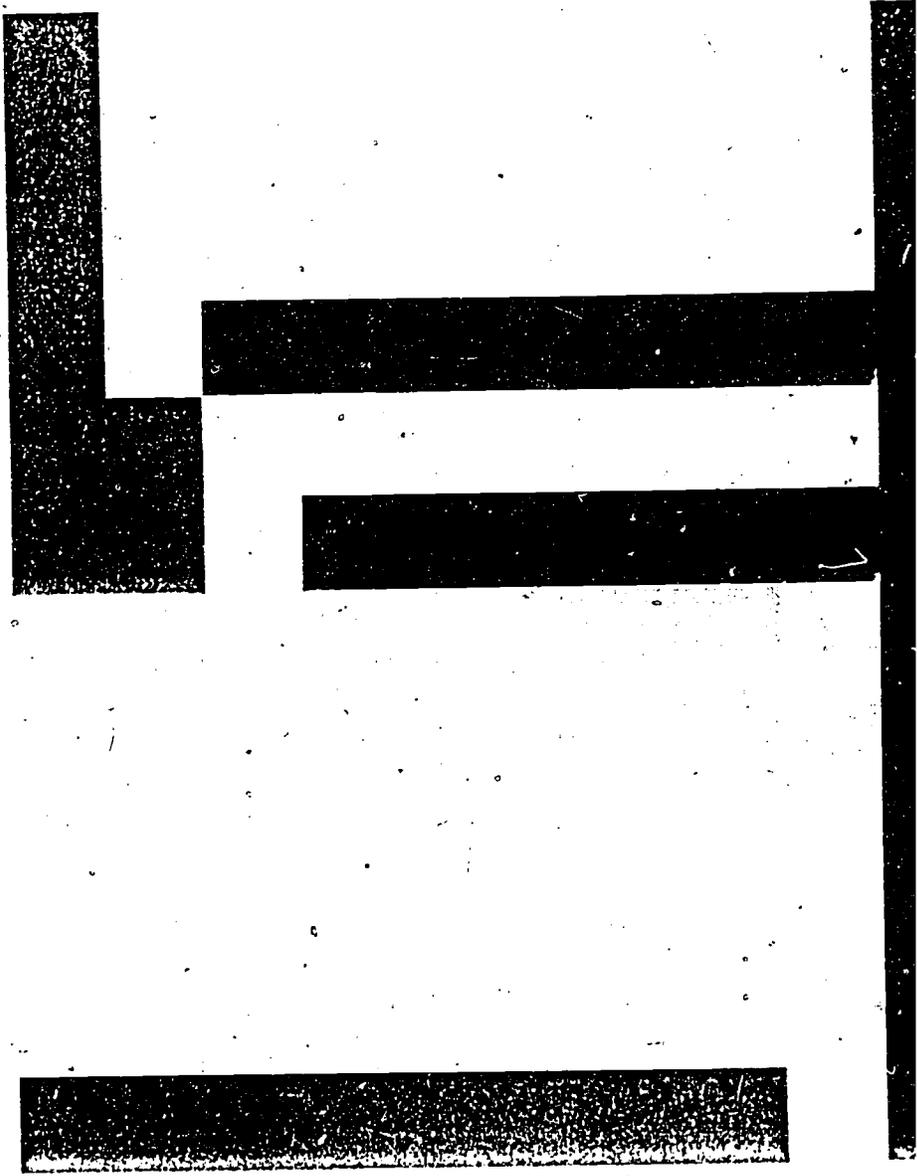
Signature

Signature

197

NATIONAL REGISTRY OF EMERGENCY MEDICAL TECHNICIANS,  
EXAMINATION SCORING TEMPLATE

STATION F - PART 2



# NATIONAL REGISTRY OF EMERGENCY MEDICAL TECHNICIANS

## PERFORMANCE EVALUATION FORM

### BASIC EMT-A

STATION F - PART 3

TIME

NOTE  
TECHNIQUE

CPR - ADULT

TEAM - UNWITNESSED

CANDIDATE STARTED WITH [CHECK]:  
VENTILATION; COMPRESSION

		:15	:30	:45	1 :00	1 :15	1 :30	1 :45	2 :00	2 :15	2 :30	2 :45	3 :00	ACCEPTABLE	NOT ACCEPTABLE
ONLY FOR CANDIDATE BEGINNING VENTILATION	LEVEL OF CONSCIOUSNESS ESTABLISHED														
	HEAD POSITIONED TO ESTABLISH AIRWAY														
	BREATHING CHECKED														
	FOUR QUICK VENTILATIONS														
	PULSE CHECKED														
---VENTILATION TASKS---															
DOES NOT PROVIDE EFFECTIVE VENTILATION															
DOES NOT MAINTAIN CORRECT RATE (5:1)															
PULSE RECHECKED															
SUCCESSFUL SWITCH MAINTAINING RHYTHM															
---COMPRESSION TASKS---															
DOES NOT MAINTAIN CORRECT HAND POSITION															
DOES NOT MAINTAIN CORRECT RATE (60/MIN)															
DOES NOT MAINTAIN CORRECT FORCE (1-1/2 - 2)															
CORRECT TECHNIQUE USED FOR SWITCH															
SWITCH SITUATION ADEQUATELY CONTROLLED															

COMMENTS:

NOTE EXTRANEOUS ACTIONS:

NATIONAL REGISTRY OF EMERGENCY MEDICAL TECHNICIANS  
PERFORMANCE EVALUATION FORM  
BASIC EMT - A

Station F - Part 3

CPR - Adult, team, unwitnessed

Candidates Name: \_\_\_\_\_

Partner's Name: \_\_\_\_\_

(Each candidate is graded individually, even though another assists.)

Exam Date: \_\_\_\_\_ Time \_\_\_\_\_

Examiners Signature: \_\_\_\_\_

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EXAMINERS: DO NOT WRITE BELOW THIS LINE

Final Scoring

Pass

Fail

Confirmation

---

Date

Signature

Signature

NATIONAL REGISTRY OF EMERGENCY MEDICAL TECHNICIANS  
EXAMINATION SCORING TEMPLATE

SECTION F - PART 3

