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EVALUATION OF A REVISED FIELD MEDICAL CARD FOR NAVY AND MARINE CORPS PERSONNEL

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Summary

Recently, the Medical Readiness Strategic Plan directed the development of a new U.S. Field Medical Card (FMC). A quad-service working group, which included the Naval Health Research Center (NHRC), was formed for this purpose. The group has held several sessions and generated many suggestions for enhancing the effectiveness of a new FMC. Among the proposals having the most appeal are several which have been suggested by NHRC. The following is a list of the major changes adopted for the new test card.

- The new FMC employs a graphic display depicting front and back views of a human figure along with a checklist of common battlefield injuries.
- The back side of the new card has been specifically designed for use at the Battalion Aid Station.
- A special tear-resistant material has been used to improve data survivability.
- Two holes have been placed at the top of the card to permit standard alignment in a medical folder.
- The new card has adopted a format of checkoff boxes for treatment and medication items.
- For administrative purposes, the new card employs a partial copy on carbonless paper.
- A vertical display is used for proper alignment in a medical folder and ease of use.
- The new cards are bundled in packs of ten, as opposed to twenty for the older version.

As a result of the quad-service work group efforts, a new test card has been produced and distributed to the services for field testing. The purpose of this report is to document the results of the Navy's field testing of this form.

Field testing was conducted to determine whether or not the proposed FMC was an improvement over the current FMC. Therefore, a study design was developed to provide a side-by-side card comparison, with criteria for the evaluation established by the quad-service work group. It was agreed that the cards would be judged with respect to durability, sufficiency, ease of use, and simplicity. Navy testing took place in controlled environments as well as typical field environments. Controlled environmental studies were performed by the Naval Medical Research Institute in Bethesda and also at the Naval Health Research Center. Field environment testing took place at the Field Medical Service School (FMSS) at Camp Pendleton. The field environment provided for testing the cards in typical day time and night time Marine Corps maneuvers as well as during Nuclear, Biological, or Chemical (NBC) Warfare operations.

Field test findings identified improvements over the old card, disadvantages of using the new card, and lack of improvement shown by the new card over the old card. In relating the findings to the four evaluation criteria, it was determined that in none of the general areas could the new card be totally accepted as an improvement over the current card.

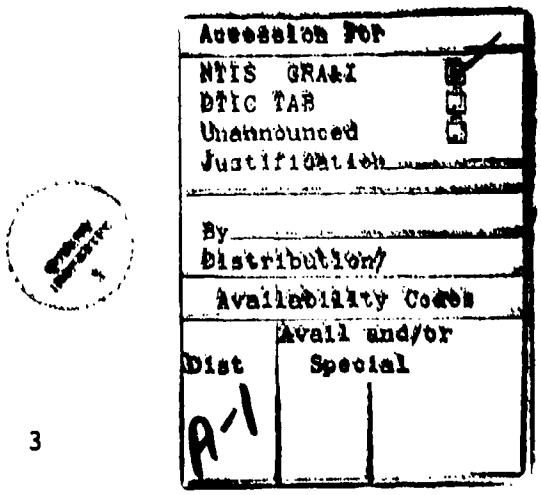
- DURABILITY: It was found that even though the new material was extremely rugged and tear-resistant, there was no significant improvement in legibility over the old card when both cards were cleaned of foreign substances. In addition, the new card failed when used under simulated adverse weather conditions.

- SUFFICIENCY: Although appropriate spaces were provided on the new card to obtain patient identification along with injury and treatment data, it was found that the new card did a less effective job of obtaining the information. The new administrative stub was also less effective at documenting information than the copy used in the current form and the new administrative stub had additional problems with legibility and potential loss.

- EASE OF USE: The new card was rated as easier to use because the check lists and graphic displays were easier to mark and the vertical orientation was more appropriate. However, many items on the card, such as time and date were overlooked or left blank. In general, response rates for the new card were extremely low and some type of writing instrument is still required.

- SIMPLICITY: The time required to fill out the form under ideal conditions has been reduced, but the time required to fill out the card under simulated battle conditions is still unacceptable. The new card can be more quickly read and understood; however, the abbreviations and acronyms on the new card have created interpretation problems. Even with extensive training and close supervision many trainees could not fill out the cards correctly. In addition, the problems related to filling out the card while attired in Arctic and MOPP suits still exist.

It appears that continued work is required to create a Field Medical Card that is a clear improvement over the current version.



EVALUATION OF REVISED FIELD MEDICAL CARD FOR NAVY AND MARINE CORPS

Introduction

Accurate and complete documentation of combat injuries is essential to manage battlefield casualties properly, help determine supply and restock needs, and acquire data needed for medical resource planning. The current method of collecting this information on the battlefield is through the use of a Field Medical Card (FMC), the standard DD form 1380. This card has remained unchanged for more than a quarter of a century.

Discussions with combat veterans indicate that requiring medical personnel to fill out the Field Medical Card as a means of documenting their battle field treatment has remained a major problem for years. Invariably, medical personnel with combat experience report that, although a completed field medical card should be attached to all injured personnel at the first echelon of treatment it is often disregarded because of time constraints, battle conditions, and the physical needs of patients. Therefore, the lack of a completed FMC has become tolerated because it is understood that corpsmen have only a limited amount of time to treat any one patient. Finally, in some cases, even though the form has been filled out and attached to the patient, it may get torn off or fall out of the patients medical folder after being removed from the patient.

Recently, the Medical Readiness Strategic Plan directed the fielding of a new U.S. Field Medical Card. The Army was designated as the lead agency and organized a quad-service working group to produce the new card. In view of the experience, resources, and mission of the Naval Health Research Center (NHRC), it was tasked to represent the Navy on this committee. The Naval Health Research Center has, over the last several years, evaluated potential alternatives to the DD form 1380 for collecting and maintaining combat casualty data in hopes of improving upon existing methods.[1,2] Reports describing NHRC's efforts in this area have indicated that the standard form 1380 has many deficiencies as a field medical document and data collection device.[3,4,5]

In view of the experience of combat veterans and the documented weaknesses, it would appear that the current Field Medical Card should be revised so that it could be completed more quickly and be more resistant to damage. The current quad-service efforts to accomplish this have provided NHRC an opportunity to introduce many of the design concepts and alternatives to the current form which have been developed through years of research in this area. It has also allowed the Center to draw from the knowledge and experience of personnel from the Army and Air Force.

Many suggestions which would appear to contribute to better field medical documentation have come out of the quad-service discussions. The best suggestions have been incorporated into a new test card. Before the new card can be accepted as a replacement for the current DD form 1380, however, it was agreed that extensive field testing would be conducted. The purpose of this report is to document the results of the Navy's field test of the revised form.

Proposed Changes

The current Field Medical Card is shown in Figure 1 and the revised test card is shown in Figure 2. Four changes that were initiated by NHRC that have been included as part of the final draft of the test card are listed below:

1. As suggested in earlier NHRC reports [1,2], a graphic display was adopted, depicting the front and back of a human figure next to a checklist of common battlefield injuries. This format is intended to make injury descriptions easier to document and easier to interpret by providers at other echelons of patient care.

2. As discussed in previously mentioned NHRC reports [1,2], the back side of the card has been specifically designed for use at the Battalion Aid Station (BAS). The BAS can devote more time to each patient than the corpsmen in the field; therefore, a more detailed write-up regarding symptoms and treatment can be expected. Recording detailed observations related to blood pressure and respiration on the back side of the card has the advantage of reducing the number of distractions for those required to fill out the front side, thereby reducing the time needed for documentation by front line corpsmen.

1. NAME (Last-First-Middle initial)/NOM, PRENOMS		2. SERVICE NUMBER/NUMERO MATRICULE	3. GRADE/GRADE	4. NATION/NATION (e.g. Etats Unis)

5. FORCE/ARMEE	6. BRANCH AND TRADE/ARME (e.g. Infanterie)	7. UNIT/UNITE	8. SERVICE (Yrs)/DUREE DES SERVICES (e.g. 2 6/12)

9. AGE/AGE	10. RACE/RACE	11. RELIGION/RELIGION	12. FACILITY WHERE TAGGED/LIEU D'ETABLISSEMENT DE LA FICHE	13. DATE AND HOUR TAGGED/DATE ET HEURE D'ETABLISSEMENT DE LA FICHE

14. DIAGNOSIS (Including cause)/DIAGNOSTIC (Cause comprise)	NATURE OF CASUALTY OR ILLNESS / NATURE DE LA BLESSURE OU MALADIE		18. DATE & HOUR INJURED/DATE ET HEURE DE LA BLESSURE
	DISABILITY/INCAPACITE	ENEMY ACTION/ DU FAIT DE L'ENNEMI	
	16. INJURY/BLESSURE	☐ YES/OUI ☐ NO/NON	
	17. SICK/MALADIE	☐ YES/OUI ☐ NO/NON	
15. LINE OF DUTY/EN RELATION AVEC LE SERVICE	19. WHAT WAS HE DOING WHEN INJURED/QUE FAISAIT-IL LORSQU'IL FUT BLESSE		

20. TREATMENT GIVEN (For antibiotics specify which and give dose, hour and date)/ TRAITEMENT EFFECTUE (Si des antibiotiques ont été donnés, précisez leur nature, la dose, l'heure et la date)	TREATMENT/TRAITEMENT EFFECTUE	a. DOSE/ DOSE	b. HOUR AND DATE/ HEURE-DATE
	22. MORPHINE- 1st/MORPHINE- 1ere		
	23. MORPHINE- 2nd/MORPHINE- 2eme		
	24. MORPHINE- 3rd /MORPHINE- 3eme		
	25. TETANUS TOXOID/ VACCIN ANTITETANIQUE		
21. TOURNIQUET (Yes or No; Time & date applied)/ MISE EN PLACE D'UN GARROT (Oui ou Non; heure et date)	26. A. T. SERUM/SERUM ANTITETANIQUE		

27. DISPOSITION-DISPOSAL/DESTINATION DONNEE AU BLESSE	28. HOUR AND DATE/ HEURE ET DATE	29. MEDICAL OFFICER (Signature & Grade)/SIGNATURE ET GRADE DU MEDECIN

DD FORM 1380, 1 JUN 62

U. S. FIELD MEDICAL CARD/FICHE MEDICALE DE L'AVANT ETATS-UNIS

S/N 0102-LF-013-5500

30.	a. ABSOLUTION/CONFESSION	b. HOLY COMMUNION/SAINTS COMMUNION	c. EXTREME UNCTION/EXTREME ONCTION
	d. OTHER MINISTRATIONS/AUTRES MINISTERES	e. CHAPLAIN (Signature)/SIGNATURE DE L'AUMONIER	

31. DIET/REGIME ALIMENTAIRE

☐ REGULAR/NORMAL ☐ LIQUID/LIQUIDE ☐ NOTHING BY MOUTH/RIEN PAR VOIE ORALE

32. REMARKS/REMARQUES

☆ U.S. GOVERNMENT PRINTING OFFICE: 1987-707-466

Figure 1. Current Field Medical Card

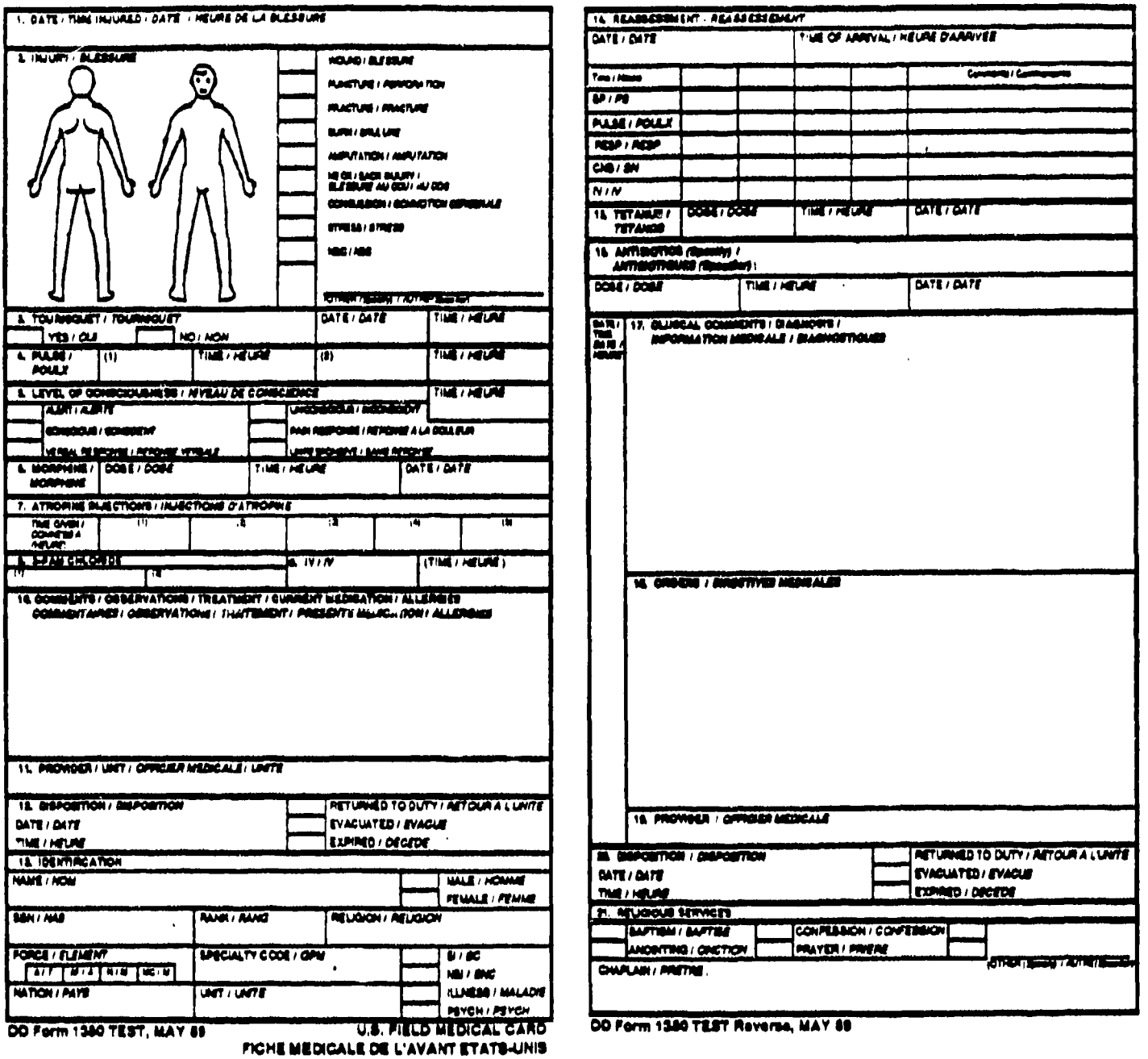


Figure 2. Revised Field Medical Card

3. The new test card has been printed on a special tear-resistant material as was suggested by NHRC[1]. These types of materials have been under review by the Navy for several years because they provide for a greater chance of data survivability than standard card stock used in the current DD form 1380.

4. Two holes have been placed at the top end of the new test card to allow for standard alignment within a medical folder. This change was suggested by NHRC because a loose card or one hanging lop-sided, could easily become lost or torn out.[3]

In addition to the above differences, the new card does not rely heavily on narrative information as does the old card. Instead, treatment and medication data are collected in a checklist format as well as the time and date for each treatment action.

The old card produces a full carbon copy through the use of carbon paper. An insert between the original and the carbon copy keeps the carbon copy from becoming smudged prior to use. The new form uses carbonless paper, eliminating the need for carbon paper or the insert. The new form does not produce a full copy, however, but only a patient ID stub, which is about 1/3 the size of the full card.

The dimensions of both cards are virtually identical. However, the old forms are laid out with information presented horizontally whereas the new forms present a vertical display. This was done to allow for a more natural manner of holding the booklet during the recording process, and proper alignment for reading once it has been placed into a folder.

Both versions of the card have a copper wire for attaching the card to the patient. The old card has the wire in the middle of one end while the new card has the wire more toward the corner of the card.

The new test cards are bundled into booklets of ten cards as opposed to the old booklets of twenty each. This change, coupled with the elimination of the carbon paper and protective inserts makes the new booklets much thinner than the old ones and thus easier for the corpsmen to carry.

Methods

Field testing of the revised Field Medical Card and the current DD form 1380 was conducted juxtaposed the current DD form 1380 so that it could be determined whether or not the new card was an improvement over the old card. The evaluation was conducted on four general criteria that were agreed upon by the four services prior to testing. This list of issues and criteria is provided as APPENDIX A. The four criteria agreed upon were: durability, sufficiency, ease of use, and simplicity. Within each of these general areas there are specific conditions which can be objectively measured. These measures have been identified in the following table.

Table 1

SPECIFIC AREAS TO BE OBJECTIVELY MEASURED

DURABILITY
- o Effect of rough handling
- o Results of contact with obstacles and equipment
- o Results of being cleaned of foreign materials
- o Effects of adverse weather conditions

SIMPLICITY
- o Are questions easily understood?
- o Can the card be filled out properly with a minimum of instruction?
- o Can the form be filled out quickly?
  - under ideal conditions
  - under typical field conditions
- o Effects of field attire and environment (i.e., day/night)
- o How quickly can the form be read and understood by other treatment personnel?

EASE OF USE
- o Effect of various writing instruments
- o Effectiveness of use at treatment echelons I and II
- o Effectiveness of differing means of requesting information
  - Graphic check mark
  - Checklist
  - Forced Response
  - Narrative
  - Yes/No boxes

SUFFICIENCY
- o Appropriateness/Effectiveness of data spaces for collecting data
  - Time and date
  - Patient identity
  - Injury and treatment data
- o Effectiveness and legibility of the administrative copy

CONTROLLED ENVIRONMENT TESTING

Tests of the durability and legibility following exposure to a foreign substance were conducted by the Naval Medical Research Institute (NAMRI) in Bethesda, MD. (See Appendix B). NAMRI is another laboratory under the Navy Medical Research and Development Command which has the equipment and expertise to carry out proper testing. Tests for durability, sufficiency, ease of use, and simplicity were conducted at NHRC using combat-knowledgeable corpsmen stationed in the San Diego area, as well as research personnel. As part of the in-house testing, corpsmen from NHRC and Balboa Hospital were called upon to provide expertise by either entering information on the cards during testing exercises or making professional assessments of the quality of information provided. Following their assessments, wherever possible, inter-rater reliability was measured to determine the degree of consistency among the raters. Although they did not produce perfectly homogeneous results, the raters were for the most part consistent.

As part of the exercises, two corpsmen were requested to fill out both old and new forms for each of 30 different patient conditions. Each corpsmen was well trained in using both forms and was afforded ideal working conditions (a typical working office with no distractions). Corpsmen were requested to fill out each form as if they were in the field with a real patient. The booklet was held in the hand as opposed to laying on a hard surface, but no other restrictions were imposed. The corpsmen timed themselves to provide completion times for the front and then the back sides of each card. All cards were left undetached in the booklet so that the administrative duplicate could be matched to the original card and used in subsequent testing.

FIELD ENVIRONMENT TESTING

Arrangements for field testing the simulated combat use of the Field Medical Cards was made through the Field Medical Service School (FMSS) at Camp Pendleton. The FMSS was selected as an ideal testing location because of the structure of its training program designed to convert Navy corpsmen into field medical, combat-ready corpsmen. This is accomplished through an

intensive six week training program, the final week of which is devoted to combat field maneuvers in a simulated combat environment. Two separate classes, totaling approximately 280 students, were selected to participate in the testing procedure.

Within the training schedule at the FMSS, field maneuvers are designed to simulate medical treatment under combat conditions. Students are placed into typical combat scenarios and are required to perform simulated treatment on other students playing the role of battle casualties. The pressure of combat is simulated by instructors who continuously remind the students of time and physical constraints as well as typical battle conditions. Time becomes an important factor for the students, first because they are responsible for many potential patients, and secondly because they are part of an organization (Platoon) which in most cases is constantly on the move. Students who fail to act in a timely manner, who disregard various patient conditions, or who fail to recognize battlefield obstacles are immediately reminded of the consequences of their actions for the patient and themselves. They are constantly reminded that their entire organization could be jeopardized by what they do, or fail to do. The Field Medical Service School provides an environment which closely resembles that found during actual combat and yet provides for controlled and supervised data collection.

Part of a one-hour classroom session is devoted to training the students on the Field Medical Card. This is a standard part of training because many of the students come from shipboard medical departments where Field Medical Cards are not used.

Since classroom time was already allocated for the purpose of FMC training, an extended portion of the class was devoted to familiarizing students with the proposed new card. A corpsman familiar with the new card spent 20 minutes pointing out where various medical and patient ID elements are placed on the card as well as the importance of accuracy and complete information.

Corpsmen were given an examination at the beginning of the week-long field maneuvers training to measure their ability to completely and accurately fill out the FMC. Each of three Platoons within the training company were divided with half the students simulating battle casualties and

half filling out cards depicting the injuries sustained. Once finished, the roles were reversed so that every student had the opportunity to fill out a field medical card. The typical time required to fill out either form during these training periods ranged from ten to fifteen minutes.

The field maneuvers held during the last week of the training period basically provide three different types of combat scenarios. The following is a brief description of the conditions that the students are subjected to:

1. Typical daytime combat scenarios: During such training a platoon with four designated corpsmen advances through an area designed to provide typical hostile action resulting in various simulated combat injuries. During each encounter the designated corpsmen is required to respond to the call for corpsman, protect both the patient and themselves from further injury, and do nothing which might endanger the platoon. Simulated treatment for the patient must be provided as well as complete documentation, on the Field Medical Card, of the injury and treatment provided.

2. Typical nighttime combat scenarios: During such maneuvers vision is severely limited and inspection of wounds as well as documentation must take place under cover (i.e., a poncho) so that a flashlight can be used without giving away the platoon's position. Battle conditions are otherwise the same as daytime scenarios.

3. NBC trail: This course requires medical personnel to be outfitted in various levels of Mission Oriented Protective Posture (MOPP) equipment. Here again, various scenarios are played out. However, each of these are related to some type of Nuclear, Biological, or Chemical (NBC) warfare. The MOPP suit must be worn during the entire scenario, which includes treatment and documentation. Gloves and other protective gear thus become hindrances to the task.

Both the old cards and the new test cards were used to document injury and treatment during the three types of combat scenarios at the FMSS. In addition, both cards were used during the pre-scenario controlled examination session. Following each of these sessions, the individuals who filled out

the cards were asked to complete a questionnaire developed by the Army to assess the agreed upon criteria in a standard fashion. Versions of each of these questionnaires have been included as Appendices C, D, and E. Whenever possible, interviews were conducted with the trainees and occasional comments were noted when appropriate. Interviews were also conducted with FMSS instructors to obtain their views of the new test card. Throughout the training sessions, members of the field test team were instructed to observe closely and take notes on anything that might impact on the utility of either FMC.

Results

NAMRI assisted NHRC in examining the material on which the Field Medical Cards were printed. Their report documenting that task has been attached as Appendix F. This report concerns the durability and legibility of both cards when submitted to various conditions which might be found on the battlefield. In every test, the material used in the new form was found to be superior to the old card stock in terms of durability. Additionally, the new card material was found to "bind" fewer bacteria than the old card material. When legibility of the cards was evaluated no clear advantage was found for the new material. Exposure to mud caused data to be removed from the new material, whereas the old card was stained but readable. Alcohol and soapy water also caused problems for the new material. Out of the seven tests performed, three (oil, mouse blood, and povidone iodine) showed no effect on either card material. Saline defaced the old card as did soapy water. While soapy water, alcohol, and mud had adverse effects on the new card. Overall, it was determined that the new material was far superior in durability but with respect to legibility following typical battlefield conditions, both cards performed about the same.

In-house testing of materials at NHRC was also conducted. Both card packets were thoroughly doused in running water to simulate conditions that would be encountered during a rain storm. Then an attempt was made to document typical injuries. It was noted that efforts to write on the new card with a ballpoint pen resulted in frequent skipping, producing a virtually unreadable document. The old card was easier to write on and produced better overall results. Use of a pencil on both cards produced superior results as compared to the use of a ballpoint pen.

Problems also occurred with carbon copies of the old forms which had been soaked. On the old card, the carbon paper, the tissue insert and the carbon copy became stuck together, making it very difficult to remove the insert. Once the insert was removed, the wet carbon paper in combination with a wet copy produced a totally blank carbon copy. However, if the carbon paper was wet and the copy page was dry a partial carbon copy was produced. The carbonless copy for the new form was noticeably dimmer but not totally obscured by the presence of water. After removing the insert with some difficulty from the old card booklet, the remaining cards in the booklet became totally unusable. Carbons, inserts, and carbon copies began sticking together and the pages began to crumple up. This did not occur in the new booklets.

Both cards proved to be flammable when ignited by a match or cigarette lighter. The new card immediately began to shrivel and melt. It continued to melt as it burned, and emitted noxious fumes. The cards were placed into a freezing unit, which dropped their temperature to approximately minus 90 degrees fahrenheit. Neither card nor its respective copy appeared to be affected by the extreme cold.

Following the in-house exercises designed to test the cards under controlled and ideal conditions, corpsmen involved in filling out the forms reported that it seemed to take longer and required more effort to fill out the new card. However, the two Navy corpsmen filled out the front side of the 30 old cards in an average time of 3 minutes and 10 seconds, while the front side of the 30 new cards were filled out in an average of 2 minutes and 47 seconds -- an average of 23 seconds faster. A test of significance (t-test) on the average time differences for both corpsmen showed a significant reduction in time required to fill out the front side of the new form. Just the opposite was found for the back side. This was expected because the back side of the new card is designed especially for use at the BAS, where more detailed vital signs are expected to be taken.

In another exercise, seven Navy corpsmen were asked to quickly inspect data from both types of Field Medical Cards and then describe the injury sustained by the patient. The amount of time required to make this determination was measured by a stop watch. Each corpsmen reviewed ten old style and ten new style cards for a total of 70 observations per card type. A note was made of any errors made in determining the injury. As seen in Table 2, slightly more than one additional second was required to read and

understand the older style card. Without testing during actual combat it is not possible to know if this small but significant difference would become greatly magnified under hostile conditions. According to interviews following the exercise, the reduced time required to determine the patient's problem is believed to be related to the graphic display used for depicting patient injury.

TABLE 2

TIME REQUIRED TO READ AND DETERMINE PATIENT INJURY

	OLD STYLE CARD	NEW TEST CARD
Number of trials	70	70
Number of errors made	9	8
Mean elapsed time required (Secs)	6.1857	5.0714
Standard Deviation (Secs)	3.2226	2.3487

Mean Difference (Secs) = 1.1143
t-Test = 2.32*
*P <.05

The administrative carbon copy associated with the current DD form 1380 has been simplified for the proposed new card. It contains only the information needed for patient accountability. To test the ability of the FMC to provide for patient accountability, the old carbon copies and the new carbonless stubs which had been filled out by experienced medical personnel were presented to medical and administrative personnel. Five raters were asked to evaluate 60 copies of both cards for use in administrative processing by reading each copy and determining the time, date, and personal identification of the patient and then rating each copy for its utility in providing patient accountability. As shown in Table 3, the administrative stubs for the new forms were found to be inferior in readability and as a result are of far less value than the old copies in providing for patient accountability.

TABLE 3

UTILITY OF THE STUBS AND CARBON COPIES FOR PATIENT ACCOUNTABILITY

STATUS OF DATA ON THE COPY	OLD STYLE CARD		NEW TEST CARD		Chi-Sq
	N	PERCENT	N	PERCENT	df = 1
NUMBER OF OBSERVATIONS MADE	300	100.00	300	100.00	
DATE CAN BE READ	213	71.00	142	47.33	36.21*
TIME CAN BE READ	193	64.33	149	49.67	12.88*
POSITIVE ID CAN BE MADE	223	74.33	170	56.67	20.99*
RANK CAN BE DETERMINED	231	77.00	184	61.33	17.39*

* P<.01

Cards which were filled out by trainees during the pre-scenario training sessions were examined to determine how well the instructions were followed. The students were given a classroom session about the importance of the card along with instructions on exactly how to fill out this card. Supervisors were stationed nearby to answer any questions. It was expected that these conditions would allow the students to complete the cards nearly perfectly. However, this was not the case. Although most students took about 10 to 15 minutes completing the cards, many were filled out incorrectly or were missing important fields of information. For example, proper identification of the patient was missing on approximately 28 percent of both types of cards.

Following this exercise, a questionnaire developed questionnaire by the Army (shown in Appendix C) was administered to all trainees. A total of 122 questionnaires were received pertaining to the old form and 138 for the new form. Only five of the questionnaire items produced significant differences between the two groups. These are listed in Table 4.

TABLE 4

DIFFERENCES ON QUESTIONNAIRE 2a FOR TRAINEES
USING THE TWO DIFFERENT FMC FORMS

QUESTIONNAIRE ITEM	(N=122)[a] OLD FORM		(N=138) NEW FORM		Chi-Sq
	YES RESPONSES	PERCENT	YES RESPONSES	PERCENT	df=1
2. IS THERE ENOUGH SPACE PROVIDED FOR TYPE OF INJURY/ILLNESS?	86	70.49	117	84.78	11.58*
3. DOES THE CARD PROVIDE APPROPRIATE DESCRIPTIVE CHOICES FOR INJURY/ILLNESS CONDITIONS?	90	73.77	127	92.03	17.48*
4. IS THERE ENOUGH SPACE PROVIDED FOR TREATMENT RECEIVED?	72	59.02	117	84.78	30.94*
5. WERE THERE ABBREVIATIONS /ACRONYMS WHICH YOU DID NOT UNDERSTAND?	32	26.23	76	55.07	24.97*
6. DID YOU UNDERSTAND WHAT INFORMATION WAS REQUIRED ON THE FORM?	87	71.31	118	85.51	6.95*

*P<.01

[a] Total number of responses from the trainees, varies due to missing data.

As indicated by items 2,3,4, and 6, in Table 4, the descriptions, space provided, and understanding of what was required, were rated more favorably for the new card. Item 5 indicates that abbreviations and acronyms used on the new form may cause some confusion. The remainder of the questionnaire items showed similar response patterns for the old and new forms.

During the FMSS field maneuvers, a total of 87 cards were filled out documenting simulated combat injuries and treatment provided. Four Navy corpsmen reviewed each card and made assessments regarding the quality of the data. Overall, 348 (4 x 87) observations (card reviews) were made, and as a result, it was determined that regardless of the card used, 32.47 percent did not provide a readable date, and 34.48 percent did not present a discernible time. Patient identification was missing, or only partially recorded, in 41.38 percent of the cases on both the old and new cards while treatment information was missing from 45.11 percent of both cards.

Although both cards exhibited problems in being filled out completely, as shown in Table 5, the new card showed evidence of having the greater problem. The amount of missing data on the new cards was consistently higher in all areas examined. Missing time, date, and treatment data were found to be significantly higher on the new card. Only 15 percent of the new cards were found to have a time or date written in Box number 1. Most time and date information on the new card was found in the boxes next to question number 3 "Tourniquet" even though a response for "Tourniquet" may not have been marked.

Interviews with the four corpsmen who reviewed the cards indicated that the lack of a narrative statement by the students filling out the new card contributed to the problem of missing treatment information. The students may have felt that because of their checklist responses, a narrative response in Box 10 was not needed. The reviewers felt that injuries, and the required treatment were different for every patient. Therefore, capturing this in a standard checklist alone, results in a certain amount of lost information.

TABLE 5

COMPARISON OF MISSING DATA FROM FIELD TEST FMC'S

	OLD STYLE CARDS		NEW TEST CARDS		ALL CARDS		Chi-Sq
	N	PERCENT	N	PERCENT	N	PERCENT	df=1
NUMBER OF EVALUATIONS MADE	192	100.00	156	100.00	348	100.00	
MISSING DATE	45	23.44	68	43.59	113	32.47	15.63*
MISSING TIME	52	27.08	68	43.59	120	34.48	9.85*
PARTIAL OR MISSING ID	75	39.06	69	44.23	144	41.38	.75
MISSING IMPORTANT INJURY DATA	22	11.46	32	20.51	54	15.52	4.82
MISSING IMPORTANT TREATMENT DATA	53	27.60	104	66.67	157	45.11	60.23*

*P<.01

One of the problems frequently encountered by medical personnel relying on data collected by someone else is how to interpret a blank response. Does a non-response indicate that nothing was done? Or, does it mean that the person filling out the information sheet did not see the question or take the time to respond? This problem is solved if some type of response is given to the question, even if that is just a dash, a check mark, or "N/A". With this in mind, an examination of the old and new cards was made relating to the issue of response versus no response. The new card was examined for some type of response to items relating to the level of consciousness, pulse rate, the use of a tourniquet, morphine, atropine and 2-PAM chloride. The old card generally asks for treatment in a narrative format and does not have corresponding items for each of these. Information regarding the use of a tourniquet and morphine are specifically requested on the old card and, therefore, were used for comparison. Another direct comparison was made for the administration of Intravenous Fluids (IV's) since they were frequently referred to on the old form.

TABLE 6

COMPARISON OF RESPONSE RATES FOR THE OLD AND NEW FMC'S

	(N=47) OLD STYLE CARDS NUMBER OF RESPONSES GIVEN	PERCENT	(N=40) NEW TEST CARDS NUMBER OF RESPONSES GIVEN	PERCENT	Chi-Sq df=1
L.O.C.	—	—	26	65.00	—
PULSE	—	—	11	27.50	—
ATROPINE	—	—	13	32.50	—
2-PAM CHLORIDE	—	—	5	12.50	—
IV'S	23	48.94	13	32.50	1.85
MORPHINE	32	68.08	20	50.00	2.30
TOURNIQUET	12	25.53	25	62.50	12.26*

*P<.01

The results presented in Table 6 show that, with the exception of level of consciousness and use of a tourniquet, the response rates for the new card were no better than 50 percent and in most cases less. Pulse rate, administration of atropine, and 2-PAM chloride were found to be very low. The administration of IV's was mentioned a greater percentage of the time on the older card even though there is no specific location on the card to provide the information. The difference in response rates noted between the two cards, however, was not found to be statistically significant.

The question on the new form relating to level of consciousness is a forced choice question. Even though an answer box is provided for each possible condition, it was responded to only 65 percent of the time. Because there is no corresponding question on the old form, this item cannot be tested statistically to determine if this response rate was higher or lower

than the older card. It should be noted, however, that in many of the cases in which it was answered, there were multiple marks, making an immediate interpretation difficult.

The new card produced better results than the old card in determining whether a tourniquet had been administered. The difference is probably because the request for tourniquet information on the old card is coupled with a request for the general treatment administered, while the new card has a specific box just for tourniquet information, with nested boxes for a "Yes" or "No" response. The old card was slightly better in assessing the use of morphine, possibly because the old card devotes considerable space to morphine administration. In general, the response rates found on the new card are very low which can cause confusion and become a distraction.

The chance of obtaining specific types of injury and treatment data at night, or during NBC Operations, appears to be slightly better for the new card than the old card, even though neither card produced very good results. A positive feature of the new card may be the fact that it is printed on white paper, providing more of a contrast and making the print more readable.

Following the field maneuvers, those trainees acting as platoon corpsmen were asked to fill out data collection sheet 2d (shown in Appendix E). Only a very few were collected because of the limited number of individuals acting as corpsmen during the testing period. In all, 17 questionnaires relating to the old FMC and nine pertaining to the new form were received. Following a review of the responses, only one item (Question #5 "Were there any abbreviations which were not understood?") was found to produce a significant difference between the two rating groups. The responses showed that abbreviations were harder to understand on the new form.

Selected cards used during the training scenarios were submitted to a group of 40 Independent Duty Corpsmen (IDC's) in training at Balboa hospital. This group was divided in half so that 20 reviewed the old cards and 20 reviewed the new cards. They were told how the data were obtained and were asked to provide feedback on data collection sheet 2C (shown in Appendix D), indicating how useful they felt the cards would be to them during treatment at the next echelon. After this session, the group was asked three questions regarding the Field Medical Cards: 1) How important is it for the next echelon of treatment to receive a properly filled out card?

2) How important is a properly filled out card for documentation purposes? 3) How likely is it that a properly filled out FMC will actually be done and attached to the patient during actual combat?

There was very little difference in the way the two cards were viewed by the IDC's, according to the questionnaire results. None of the collective responses produced statistically significant differences. Their comments following the session, however, were very interesting. The raters seem to feel that both forms were of moderate importance as documents for historical purposes. There was a high degree of agreement that the next treatment echelon would benefit from having either form properly filled out but the likelihood of this occurring was rated extremely low for both cards. Only three out of 40 rated the chances of either card being filled out and attached as being better than even. Fourteen out of 40 gave this the lowest possible chance of occurring, with most indicating only a low probability of completion. Surprisingly, those corpsmen rating the new card supplied the lowest ratings for all three questions indicating that the new card would be less preferred and would be less likely to be filled out under battle conditions than the old style card.

Interviews and Observations

An informal discussion was held with eight Field Medical Service School instructors to review and comment on the proposed new Field Medical Card. The following are some of the observations that were made during that meeting:

- The vertical orientation of the card was preferred over the horizontal orientation of the older card. However, it was noted that there is a tendency to raise one's head when filling out such a card. Such a reaction might result in greater vulnerability to hostile activity.

- It was observed that if the cards were inverted in the booklet, the identification would be at the top and filled out first. Also, the booklet cover, when lifted, would provide protection from the elements as the card was being filled out.

- It was noted that the new card, printed on white paper (as opposed to the old card being on brown paper) would be more visible to the enemy at night, possibly giving away troop locations.

- Section 9 (IV's) tends to be overlooked or bypassed because of its location on the new card. Many thought that IV's should be the eighth box and 2-PAM chloride should be section 9.

- Many felt that the English titles for each section should be in bold lettering and the French titles should be much smaller.

- After pulling many cards from the booklets, the instructors noted that the stubs can easily be torn out of the booklet along with the card, thus being potentially lost or left with the original.

- All in attendance seemed to prefer the new card to the old one, but agreed that during actual combat, the new card (as was the case with the old card) will most likely not be filled out. The instructors, many of whom served in combat, insisted that the corpsmen will be stressed, distracted, and very busy performing treatment. The last thing on their mind will be injury and treatment documentation.

While the FMSS combat training scenarios were taking place, the members of the research team were allowed to observe and take notes in very close proximity to the action. The following is a list of some of their more salient observations:

- During the pre-maneuver training period, which was designed to make sure that the students knew how to fill out the Field Medical Cards, it was noted that some trainees never did finish the card or complete it properly even though trained instructors and testing personnel were nearby and available to answer questions.

- It was noted that in all three battle scenarios, form completion time was lengthy (10 to 15 minutes) for both the old and new cards, and that there was a considerable amount of missing data. Most of the cards had to be completed while the platoon was on the move.

- Gloves, bulky suits, carrying the booklets and the loss of writing instruments were all obvious problems during these maneuvers.

- Time required to fill out the form was a major concern for the instructors who candidly stated that documentation just would not get done in situations such as those. They showed a great deal of impatience since they were posing simulated time pressure on the students to get the job done and move on, while at the same time telling them to take the time to document what was done.

- In order for everyone to participate, it was necessary for our testing team to supply writing implements (ballpoint pens) to many of thestudents. This was necessary because trainees had lost their pens orhad not brought them to the maneuvers.

- Many trainees voluntarily expressed a preference for the new card over the old one, but this was not a universal feeling. Informal estimates ranged from 2:1 up to 4:1 in favor of the new form.

- Maneuver supervisors were quick to point out that documentation (filling out a FMC) was low in the priority list of skills being taught to the students. The philosophy presented was that paperwork can be finished during a break in the action or in a more protected area. It seemed to be generally accepted that there would be many circumstances under which a Field Medical Card (old or new) would not be filled out or attached to the patient.

- During the maneuvers, many of the trainees appeared to experience frustration while documenting their patient encounters apparently because they could see little or no benefit from documentation. Comments like, "You can see what's wrong with the patient and what I have done for treatment" were common.

- Although documentation was mandatory, several patients were observed to have no card at various points throughout the training area.

- Many of the administrative stubs for the new card were inadvertently pulled out of the booklets with the original and subsequently lost or kept with the original.

- Carbon copies and stubs were not uniformly processed, stored, or reviewed during the entire exercise. In general, they were totally disregarded. At least one booklet with several copies was found in the mud by our research team. It had been either discarded or lost by the corpsman using it.

- Often the protective insert for the old card was not removed before documentation began. The carbon paper then copied to the insert as opposed to the carbon copy.

- At the second echelon of treatment (the Medical Company), it was noted that the DD form 1380's were used for patient ID (admission) and triage purposes, but beyond that, cards were not always reviewed. Discussions with supervisors at echelon II indicated that training requires a complete head-to-toe patient check which could uncover additional or complicating injuries. Treatment provided at lower echelons is generally obvious. For these reasons, a review of the card is often deemed redundant or useful only as a means to double-check assessments made in the admitting and sorting area. It was feltby some that using the FMC card for assessment could possibly be injurious to the patient by delaying treatment and possibly overlooking other complicating factors.

Conclusions

Interviews conducted with students and training personnel indicate that the new form is well-liked and is seen as an improvement over the old form. When put to a more objective test, however, the desirability of the new test form fades. Although the new card has many positive features, several new flaws have been introduced, while many of the long-standing problems still persist.

IMPROVEMENTS:

- The new card can be filled out faster and can be read and understood more quickly than the older version. This may be related to the human figure graphic.
- The vertical orientation of the new card seems to be preferred over the horizontal design of the older card.
- The new card material is far more durable than the older card stock.
- Space for entering injury and treatment information is perceived as being better on the new form.
- The new card is better at documenting the use or non-use of a tourniquet.
- The appearance of the new card is generally preferred over the older card.

DISADVANTAGES:

- Evidence suggests that time and date are less likely to be recorded on the new form.
- It was more difficult to retrieve complete injury and treatment data from the new card.

- o The new card generally has low response rates for patient condition and treatment action.

- o Printing the new card on white paper may cause problems during night operations and by giving away troop locations.

- o If water-soaked, the new card cannot be written on with a ballpoint pen.

- o The new card has abbreviations and acronyms which are not familiar or understood by corpsmen in training.

- o The administrative stub associated with the new card has reduced clarity compared to the old card's carbon copy.

- o The administrative copy for the new card is easily lost or torn off with the original.

LACK OF IMPROVEMENT:

- o The new card still takes longer to fill out than it does to provide initial treatment to the patient.

- o A pen or other writing instrument is still required. If lost in battle, the absence of a pen or pencil would probably result in the card not being filled out.

- o Legibility of the new card following exposure to typical battlefield conditions is not improved over the old card.

- o The likelihood of the new card being filled out properly and attached to the patient during combat is still rated as highly unlikely.

- o After in-depth training and close supervision, trainees still left important data fields blank or partially completed when filling out the new card in a simulated combat environment.

- o Trying to use the administrative stub of the new FMC for patient accountability continues to be unrealistic.

Relating these findings to the originally agreed upon criteria, it was found that none of the general areas could be totally accepted as an improvement over the current FMC version.

DURABILITY:

It was found that even though the new material was extremely rugged and tear-resistant, there was no significant improvement in legibility over the old card when both cards were cleaned of foreign substances. In addition, the new card failed when used under simulated adverse weather conditions.

SUFFICIENCY:

Although appropriate spaces were provided on the new card to obtain patient identification along with injury and treatment data, it was found that the new card was less effective for obtaining that information. The new administrative stub was also less effective than the current form for documenting information. Also, there were additional problems with poor legibility and potential loss of the administrative stub from the new form booklet.

EASE OF USE:

The new card was rated as easier to use because the checklists and graphic displays were easier to mark and the vertical orientation was more appropriate. However, many items on the card such as time and date were overlooked or left blank. In general, response rates for the new card were extremely low and some type of writing instrument is still required.

SIMPLICITY:

The time required to fill out the form under ideal conditions has apparently been reduced, but the time required to fill out the card under

simulated battle conditions was still unacceptable. The new card can be read more quickly but some of the abbreviations and acronyms on the new card have created interpretation problems. Even with extensive training and close supervision, many trainees could not fill out the cards correctly. In addition, the problems relating to filling out the card while attired in Arctic and MOPP suits still exist.

ADDITIONAL CONSIDERATIONS:

The color of the paper on which the new card is printed can be viewed as both a detriment and an improvement. While it's true that a white card would show up at night, possibly giving away troop locations, it also provides better contrast, which may result in improved data collection at night. Receiving a properly filled out card for each patient appears just as unlikely with the new card as with the older version. This may not be related to the design of the card but to the manual fashion in which data are currently collected in a battlefield environment. Finally, the use of the administrative copy for patient accountability appears to be untenable unless the following criteria are met; a card with a copy is made out for all patients, the patient is properly identified on the card, the copy is readable, the stub is not accidently torn out with the original, the entire booklet of copies is not lost in combat, and finally, booklets with copies still intact are collected and held for review by someone. As noted in this report, even during controlled training exercises there occurred many instances in which each of these assumptions was violated. Should all of the above conditions be met, supplying the manpower required to read, organize, and create lists of injured personnel and then transmitting and utilizing the lists would pose a major problem.

Based upon the results presented, the new test card is not an improvement over the old card. Moreover, it would appear that the new card may be no more likely to be filled out than the old card. The trainees, after in-depth training and under close supervision, still left some patients without documentation because of simulated time and battlefield pressures.

Instructors at the FMSS, along with IDCs undergoing training at Balboa Hospital, expressed concern about the likelihood of corpsmen in combat having enough time to complete the new card.

It appears that continued work is required to create a Field Medical Card that is a clear improvement over the current DD form 1380. Some positive elements of the new test card have been identified and present a nucleus for further revisions. Some of the negative elements of the new test card can be easily overcome or avoided. Clearly, these results show that when a new version of the Field Medical Card is developed, it must be evaluated again in the field to determine whether it is, in fact, an improvement over the current card.

References

1. E.K.E. Gunderson, M.W. Congleton, D.M. Ramsey-Klee, Proceedings of the Conference on Fleet Marine Force Combat Casualty Information System, Naval Health Research Center, Report No. 84-15, San Diego, CA 1984.

2. Congleton, M.W., The Fleet Marine Force Combat Casualty medical Information System: An Overview. Naval Health Research Center, Report No. 84-41, San Diego, CA 1984.

3. C.W. Bollinger, W.M. Pugh, Automation of Marine Corps Casualty Medical Data Management, Naval Health Research Center, Report No. 83-35, San Diego, CA 1983.

4. M.W. Congleton, W.W. Wilcox, W.M. Pugh, A. Bartok, Information Flows at the Forward Echelons of Casualty Care, Naval Health Research Center, Report No. 86-23, San Diego, CA 1986.

5. W. W. Wilcox, W.M. Pugh, The Combat Casualty Care Medical Information System (CCC/MIS) Prototype, Naval Health Research Center, Report No. 86-32, San Diego, CA 1986.

APPENDIX A

QUAD-SERVICE WORK GROUP AGREED UPON FIELD TESTING CRITERIA

DURABILITY

ISSUE	CRITERIA
Can the FMC withstand physical impacts in a field environment?	The FMC must withstand physical impacts in a field environment of: a. Rough handling b. Contact with ground c. Vehicles d. Equipment e. Obstacles
Can the FMC be cleaned of foreign materials such as blood and betadyne solution and still be legible?	The FMC must be capable of being used in adverse weather such as rain, snow, smoke, cold, hot (AR 70-38). The FMC must be able to be wiped clen of foreign materials, such as blood and betadyne solution and still be legible.

EASE OF USE

Will information on the FMC remain legible regardless of writing instruments?	Regardless of writing instruments use, the FMC must remain legible.
Is there sufficient space on the FMC to document treatment rendered to the patient?	There must be sufficient space on the FMC to document Level I and Level II patient treatment rendered.

SUFFICIENCY

ISSUE	CRITERIA
Are the data spaces on the FMC appropriate to document patient identity, type of injury, and treatment received?	Space must be provided on the FMC to document patient identity, type of injury, and treatment received.
Is the information on the detachable administrative data slip legible without the aid of carbon paper?	Information retained on the detachable administrative data slip must be legible.
Will the wire for securing the FMC to the patient, cause any injury when attached to the patient?	The wire for securing the FMC to the patient must not cause injury to the patient.

SIMPLICITY

Can the Medic or Combat Lifesaver understand the FMC and fill it out?	The FMC will be written at a 6th grade plus or minus 1 year reading level.
Is the lettering on the FMC large enough for the Medic or Combat Lifesaver to read in different light conditions?	Lettering on the FMC must be large enough to enable the Medic or Combat Lifesaver to read in reduced light or adverse weather conditions. The FMC must be able to be filled out while in MOPP IV or Arctic attire.

APPENDIX B

RESULTS AND CONCLUSIONS OF FIELD MEDICAL CARDS EVALUATIONS

A new Field Medical Card has been developed for use in the battle field. The data card is attached to an injured person in a combat environment and then remains attached until the casualty reaches a Medical Treatment Facility. Eventually the card is detached and filed. After detachment the card may be occasionally handled by personnel needing access to its information and by filing personnel.

During the month of September of 1989, the Casualty Care Research Department, Naval Medical Research Institute conducted comparison tests on the old and new Field Medical Cards. As part of the evaluations, we examined the changes in the legibility of the writing and the stability of the cards over a three day period. This study was conducted with repeated exposures for various lengths of time with one of the following: blood, betadine, mud, alcohol, oil, soapy water, saline.

In addition to evaluating the physical durability of the cards, the ability of bacteria (E. coli.) to adhere to both the old and new cards was examined. Bacteria are known to be "sticky" and are present throughout the environment even under normal conditions. Also, casualties will likely become infected in the field. Cards will certainly come into contact with bacteria while attached to the injured person, whether from the patient or the surroundings. The concern is that potential microbial contamination could be transmitted to those who handle the cards away from the combat arena. It is therefore desirable to have cards that resist bacterial adhesion. Therefore, a bacterial adherence comparison of the new and old Field Medical Cards was conducted.

Durability testing with respect to exposure and abrasion

The Field Medical Card (FMC) will seldomly be used in a mint condition in the field; therefore, both the new and old booklets were subjected to humidity at 37°C incubator for 16 hours before use.

Sheets from both booklets were completed individually with a skilcraft bonded No. 2 medium pencil. After exposure to the various agents, each sheet was carefully inspected for smearing, smudging, and fading of the printed matter.

EXPOSURE TO NACL

DAY 1 - The cards were exposed to 0.9% saline solution for 1 minute. After 10 minutes of drying time the cards were still wet. Each of the cards was tested for resistance to tears. The old card tore easily and the new card was very difficult to tear even after many attempts. Both cards were then checked for legibility and effects of wear on altering legibility. Very little, if any, obliteration occurred on either card without rubbing.

DAY 2 - Cards were given their second exposure to saline and retested for legibility and strength. Again, the old card was very easily torn and the new card could not be torn. Legibility and smudging levels remained the same. Both cards were exposed again for 1 minute. This second exposure did not alter the results on either card; i.e., the new card performed better in durability. Both cards were then left to soak for 6 hours in saline solution. After 6 hours of soaking, both cards were retested for clarity and strength. The old card became totally obscured, unreadable, and very easy to tear. The new card was slightly obscured and smudged only after rubbing and remained difficult to tear.

DAY 3 - Both cards were left to dry until the third day and then retested. Virtually the same results as the previous day was obtained.

Conclusions: Both cards were exposed to an element that would normally be found in the field battle. However, the old Field Medical Card was clearly inferior in all aspects of this experiment.

EXPOSURE TO OIL

DAY 1 - Both cards were exposed to dirty motor oil for 1 minute. After 10 minutes, both cards were tested for resistance to tears. The old card was easily torn while the new card resisted tearing. Immediately proceeding exposure, both cards exhibited very little change in legibility. After rubbing both specimens for 3 to 5 seconds, no effacing occurred. Both cards remained legible. Unlike the other saline experiments where the old card seemed to debride from the friction, there was no clear contrast between the two cards. The oily surface of the two prevented any surface removal of either card.

DAY 2 - On the second day following exposure, both cards were retested and examined for legibility and strength. Again, the old card was very easily torn and the new card remained resistant to tearing. Legibility remained unchanged. As both cards were still covered with oil, it was not necessary to re-expose. The concluding results of the second day's experiment were a reflection of the first day, little or no change.

DAY 3 - Both cards were left until the third day after initial exposure. Both cards were again tested with virtually the same results as the previous day.

Conclusion: Both cards were exposed to an element that would normally be found in the field of battle. The old card was clearly inferior in strength and both cards remained unchanged in legibility.

EXPOSURE TO SOAPY WATER

DAY 1 - Both cards were exposed to a soapy water for 1 minute. After 10 minutes, both cards were tested for resistance to tears. The old card was easily torn and the new card difficult to tear. Immediately proceeding exposure, both cards were checked for smudges and legibility. Very little, if any, obliteration occurred. However, after rubbing both specimens on both sides for 3 to 5 seconds some effacing did result. Both cards remained legible. The most physical and substantial contrast occurred when the old card seemed to debride as it was

rubbed. The new card exhibited some smudging when rubbed both the surface remained intact.

DAY 2 - On the second day following exposure, both cards were retested and examined for legibility and strength. Again, the old card was easily torn and the new card resistant. Legibility and smudging levels remained the same. Both cards were exposed again to the soapy water with no change in the results. After this test was completed, both cards were left to soak for 6 hours in saline solution. After 6 hours of soaking, both cards were retested for clarity and strength. The old card had become totally obscured and unreadable, and very easy to tear. The new card was only slightly obscured and smudged after rubbing and very difficult to tear.

DAY 3 - Both cards were left to dry until the third day after initial exposure. Both cards were again tested with virtually the same results as the previous day.

Conclusion: Both cards were exposed to an element that would normally be found in the field of battle. However, the old Field Medical Card was clearly inferior in all aspects of this experiment.

ALCOHOL

Wetting a sheet from the new booklet with 70% alcohol did not produce an obvious physical effect on the new cards. The treated sheet from the old booklet was translucent while wet and returned to normal on drying. The printed and handwritten matters on both the old and the new cards appeared faded after abrasion was applied to the cards while still wet. After the new card had dried, rubbing failed to produce an effect. On the other hand, the printed matters on the old sheet were preserved while the handwritten matters faded upon abrasion.

MUD

The new sheet showed some fading of both printed and handwritten matters under abrasion while the old sheet exhibited fading of only the handwritten matters after abrasion. The new sheet stayed ridge and unstained while the old sheet retained stains and became limp and could be easily torn.

MOUSE BLOOD

Except a little staining, this foreign material has little or no immediate effect on both sheets.

POVIDONE IODINE

Although both sheets were stained but matters were still legible.

Bacterial Adhesion

Procedure: Cards were cut into 15 mm diameter circles. Eight circles were cut, four of the cards and four of the new. The circles were placed in circular containers filled with a solution containing radioactively labeled bacteria. E. coli (strain 2699, originally a urinary tract isolate was used.)

Card circles were incubated for 45 minutes at 37 degrees C in 1 ml of the radioactive bacteria solution. The solution contained 262,925 cpm/ml (counts per min. per ml) and 14,700,000,000 cfu/ml (bacterial colony forming units per ml). After incubation cards were removed and washed three times. Washing consisted of immersion in 1 ml buffer with 10 seconds agitation and another 0.5 Minutes of immersion. Cards were then removed from the was buffer and let to dry. The cards were put in a vial with 10 mls of soluscint-o and counted with a beta counter.

Results:

raw data

old	4501 cpm	new	1341
card	2689	card	1544
	3786		1454
	3559		1473

	mean	std. dev.
old cards	3634 cpm	747
new cards	1453 cpm	84

262,925 cpm/ml (radioactivity applied).
14,700,000,000 Cfu/ml (bacteria applied).

Total Adherent Bacteria x 1,000,000

old card	203.18	41.76
new card	81.24	4.70

Conclusion: In spite of the washings, both new and old cards retained some bacteria, but the new cards retained 60% less bacteria than the old cards. The new cards are a definite improvement do not totally prevent bacterial adherence. Possible exposure of handlers of either data card could occur.

Comments and Recommendations:

1. An interview was conducted with staff familiar with these cards and the settings in which they are used. The conclusion was that in the combat arena corpsmen have difficulty in keeping track of writing instruments needed to fill out the cards and usually use a human writing pencil to tag patients. Pointed objects like ammunition or sticks are more readily available and could be used to fill out the forms if some type of carbonless paper could be incorporated as part of the package.

2. These cards could be easily evaluated in a field medical school as part of a training exercise. Such training sessions occur frequently and are conducted under simulated combat conditions.

SUMMARY CHART
FIELD MEDICAL CARD

EXPOSURE CONDITIONS	LEGIBILITY NEW	LEGIBILITY OLD	DURABILITY NEW	DURABILITY OLD
SALINE	CLEAR	DEBRIDED	NOT TORN	TORE EASILY
OIL	CLEAR	CLEAR	NOT TORN	TORE EASILY
SOAPY WATER	SMUDGED	DEBRIDED	NOT TORN	TORE EASILY
ALCOHOL	INK FADED	CLEAR	NOT TORN	TORE EASILY
MUD	INK REMOVED	STAINED BUT CLEAR	NOT TORN	TORE EASILY
MOUSE BLOOD	CLEAR	CLEAR	NOT TORN	TORE EASILY
POVIDONE IODINE	CLEAR	CLEAR	NOT TORN	TORE EASILY

Cards were treated and tested while wet. Legibility and durablility are cumulative responses of treatment and abrasion followed by stress.

OTHER TEST	RESULT
BACTERIAL ADHESION	New card binds fewer bacteria.

APPENDIX C
DATA COLLECTION SHEET 2a
FUNCTIONAL USE : PHASE I (MEDICS)

INSTRUCTIONS: After completing item Numbers 1 through 29 of the FMC, please complete the following questionnaire.

MEDIC: _____

DATE: _____ **CARD ID #:** _____

FIELD ATTIRE (*Circle one*): MOPP Level IV Field Gear

AMBIENT CONDITION (*Circle one*): Daylight Reduced Visibility

WRITING IMPLEMENT (*Circle one*): Ballpoint Pen No. 2 Pencil

No. 3 Pencil Other (*Specify*) _____

---

1. Is there enough space provided on the FMC for patient identity? Yes ____ No ____. If no, place an "X" in the blocks which require more space.

1. NAME (Last-First-Middle initial) / NOM, PRENOMS			2. SERVICE NUMBER / NUMERO MATRICULE	3. GRADE / GRADE	4. NATION / NATION
5. FORCE / ARMEE	6. BRANCH AND TRADE / ARME		7. UNIT / UNITE		8. SERVICE (Yrs) / DUREE DES SERVICES
9. AGE / AGE	10. RACE / RACE	11. RELIGION / RELIGION	12. FACILITY WHERE TAGGED / LIEU D'ETABLISSEMENT DE LA FICHE		13. DATE AND HOUR TAGGED / DATE ET HEURE D'ETABLISSEMENT DE LA FICHE

DD FORM 1380, 1 JUN 68 U. S. FIELD MEDICAL CARD/FICHE MEDICALE DE L'AVANT ETATS-UNIS

2. Is there enough space provided on the FMC for type of injury/illness? Yes ____ No ____. If no, place an "X" in the blocks which require more space.

14. DIAGNOSIS / DIAGNOSTIC	NATURE OF CASUALTY OR ILLNESS / NATURE DE LA BLESSURE OU MALADIE	15. DATE & HOUR INJURY / SICK / DATE ET HEURE DE LA BLESSURE
	DISABILITY / INCAPACITE ENEMY ACTION / FAIT DE L'ENNEMI	
	16. INJURY / BLESSURE ☐ YES / OUI ☐ NO / NON	
	17. SICK / MALADIE ☐ YES / OUI ☐ NO / NON	
18. LINE OF DUTY / EN RELATION AVEC LE SERVICE	19. WHAT WAS HE DOING WHEN INJURED / QUE FAISAIT-IL LORSQU'IL FUT BLESSE	

3. a. Does the FMC provide appropriate descriptive choices for the injury/illness conditions? Yes _____. No _____. If no, complete b and c.

b. Identify other classes of injuries/illnesses which should be included on the FMC:

_____

_____

_____

_____

c. Identify classes of injuries/illnesses which should be deleted from the FMC:

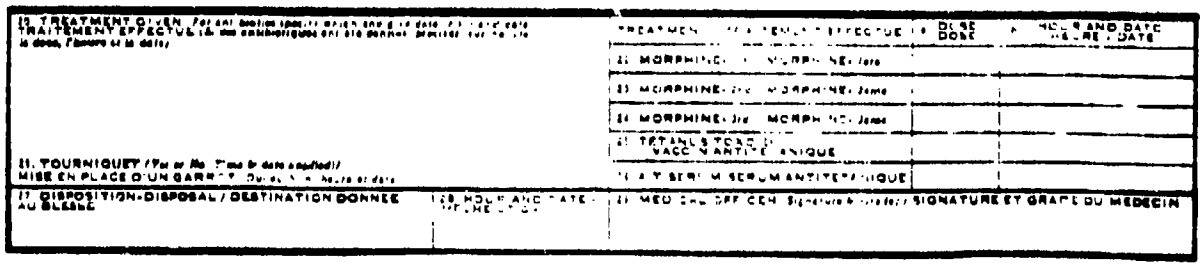
_____

_____

_____

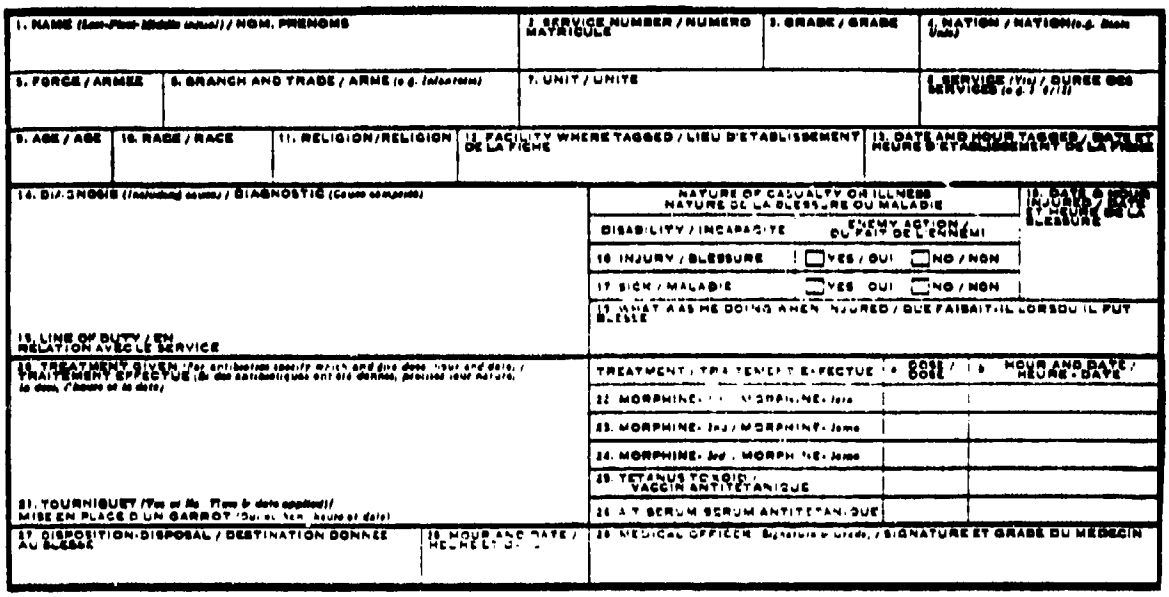
_____.

4. Is there enough space provided on the FMC for treatment received? Yes ____ No ____. If no, place an "X" in the blocks which require more space.



5. Were there any abbreviations/acronyms used on the FMC which you did not understand?

No ____.
Yes ____. (If yes, please circle the abbreviations/acronyms.)



1. NAME (Last-First-Middle initial) / NOM, PRENOMS		2. SERVICE NUMBER / NUMERO MATRICULE	3. GRADE / GRADE	4. NATION / NATION (e.g. United States)
5. FORCE / ARMEE	6. BRANCH AND TRADE / ARME (e.g. Infantry)	7. UNIT / UNITE		8. SERVICE (Yrs) / DUREE DES SERVICES (e.g. 1 yr, 11 mo)
9. AGE / AGE	10. RACE / RACE	11. RELIGION/RELIGION	12. FACILITY WHERE TAGGED / LIEU D'ETABLISSEMENT DE LA FICHE	13. DATE AND HOUR TAGGED / DATE ET HEURE D'ETABLISSEMENT DE LA FICHE

14. DIAGNOSIS (Including wounds) / DIAGNOSTIC (Comme ci-dessus)	NATURE OF CASUALTY OR ILLNESS / NATURE DE LA BLESSURE OU MALADIE	16. DATE & HOUR INJURED / DATE ET HEURE DE LA BLESSURE
	DISABILITY / INCAPACITE — ENEMY ACTION / DU FAIT DE L'ENNEMI	
	16 INJURY / BLESSURE ☐ YES / OUI ☐ NO / NON	
	17 SICK / MALADIE ☐ YES / OUI ☐ NO / NON	
15. LINE OF DUTY / EN RELATION AVEC LE SERVICE	18. WHAT WAS HE DOING WHEN INJURED / QUE FAISAIT-IL LORSQU'IL FUT BLESSE	

20. TREATMENT GIVEN (For antibiotics specify which and give dose, hour and date.) / TRAITEMENT EFFECTUE (Si des antibiotiques ont été donnés, précisez leur nature, la dose, l'heure et la date)	TREATMENT / TRAITEMENT EFFECTUE	a. DOSE / DOSE	b. HOUR AND DATE / HEURE - DATE
	22. MORPHINE / MORPHINE - Inj		
	23. MORPHINE - Inj / MORPHINE - Inj		
	24. MORPHINE - Inj / MORPHINE - Inj		
	25. TETANUS TOXOID / VACCIN ANTITETANIQUE		
21. TOURNIQUET (Yes or No. If yes, specify hour or date) / MISE EN PLACE D UN GARROT (Oui ou Non. Heure et date)	26. A T SERUM SERUM ANTITETANIQUE		
27. DISPOSITION-DISPOSAL / DESTINATION DONNEE AU BLESSE	28. HOUR AND DATE / HEURE ET DATE	29. MEDICAL OFFICER Signature & Grade / SIGNATURE ET GRADE DU MEDECIN	

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6. Did you understand what information was required for items 1 through 29?

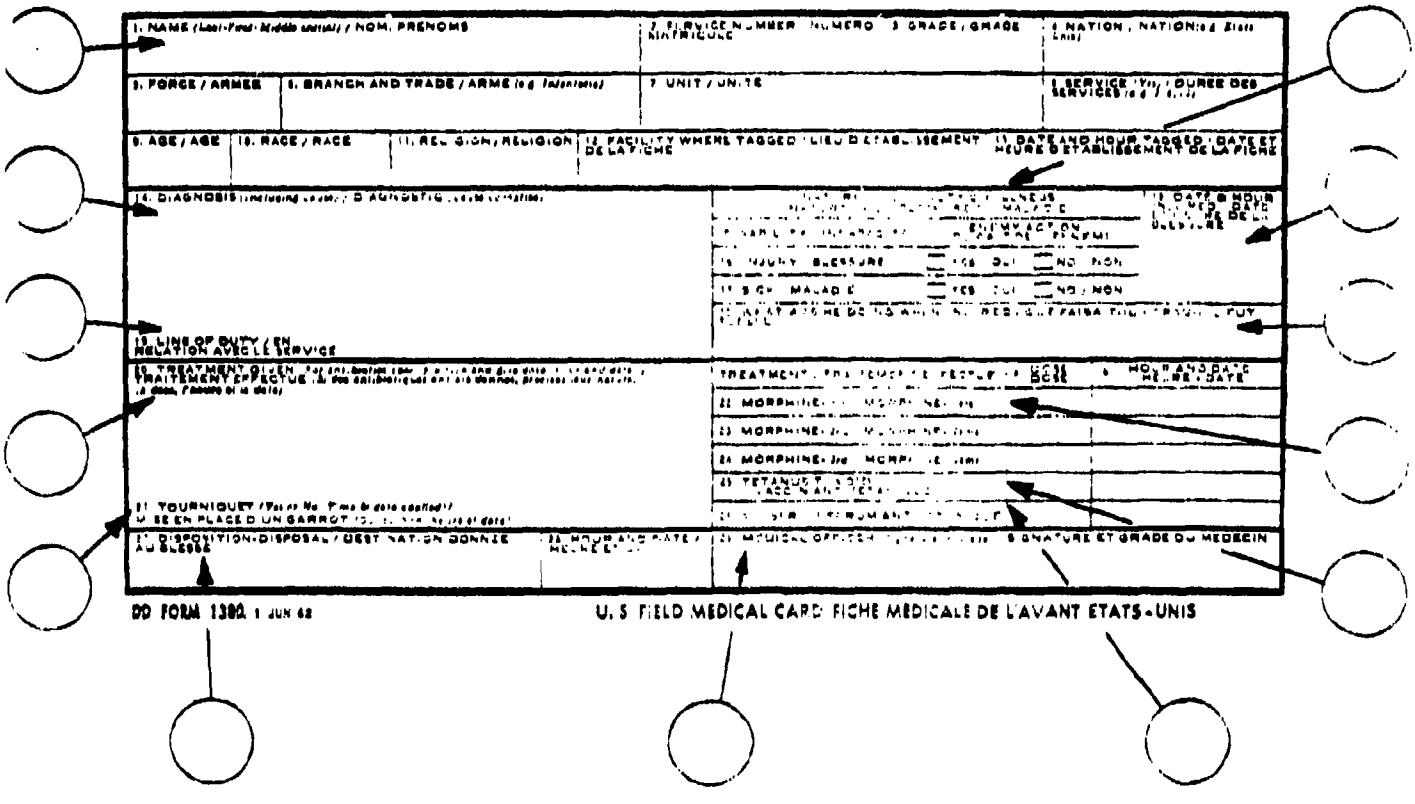
Yes ____.
No ____. (If no, indicate the item number(s).)

7. Did you have to make corrections on an item because you misinterpreted what information was required?

No ____.
Yes ____. (If yes, indicate the item number and what information you originally thought should be included.)

8. In your opinion, are items presented in the most useful order?

Yes ____.
No ____. (If no, please indicate the preferred order in the circles provided on the FMC below.)



9. a. Did you have any difficulty preparing the FMC with the writing instrument provided?

No ____.
Yes ____. (If yes, please explain.)

_____

_____

_____

b. In your opinion, can the FMC be read after being prepared using the writing instrument provided?

Yes ____.
No ____. (If no, please describe problem.)

_____

_____

_____

c. In your opinion, is the information you wrote on the original clearly readable on the carbon copy.

Yes ____.
No ____. If no, was the problem due to (*Check appropriate description*):

Faint lettering (*Needed to press hard*) _____

Misalignment (*Blocks checked/completed were not transferred to correct block on the stub*) _____

Other (*Specify below*): _____

_____

_____

_____

_____

10. In your opinion, will the information provided on the carbon copy (administrative data slip) allow for patient accountability?

Yes ____.
No ____. (If no, please explain what additional information is required.)

_____

_____

_____

_____

_____

_____

_____

_____

11. **IF YOU FILLED OUT ANY PART OF THE FMC UNDER REDUCED LIGHTING CONDITIONS**, did you have any difficulty?

No ____.
Yes ____. If yes, was it due to (*Check appropriate description*):

Size of lettering _____

Style of lettering _____

Other (*Specify below*): _____

_____

_____

_____

_____

_____

12. **IF YOU FILLED OUT ANY PART OF THE FMC WHILE AT MOPP LEVEL IV,** did you have any difficulty with the form?

No ____.
Yes ____. If yes, was the problem due to (*Check appropriate description*):

Size of blocks inadequate to complete: _____

Problems using the writing instrument with the MOPP gloves _____

Problems reading the lettering through the protective mask _____

Other (*Specify below*): _____

_____

_____

13. Please provide any general comments/observations on the FMC below.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

APPENDIX D
DATA COLLECTION SHEET 2c
FUNCTIONAL USE : PHASE II AND PHASE IV (PHYSICIANS AND DENTISTS)

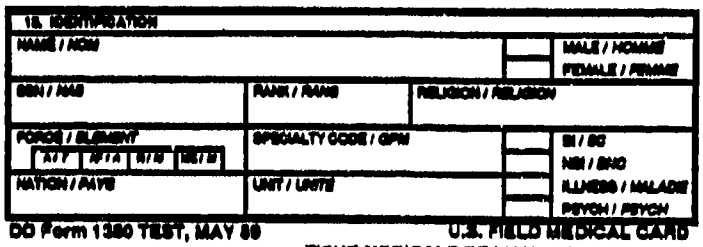
NAME: _____

DATE: _____

PHASE (*Circle one*): II IV

---

1. Is the space provided on the FMC for patient identity adequate? Yes ____ No ____. If no, mark the areas below which require more space and explain why below.



_____

_____

_____

_____

_____

_____

_____

_____

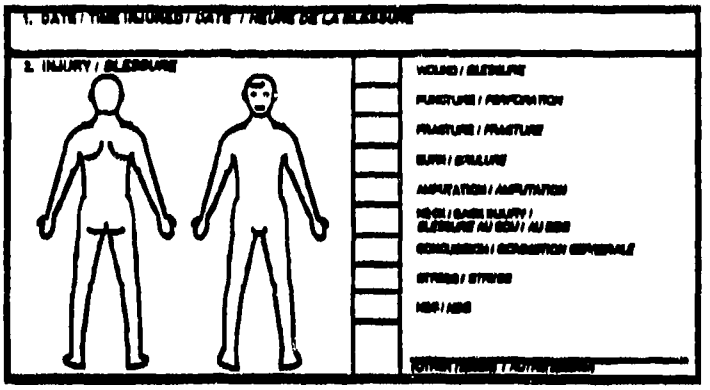
_____

_____

_____

_____

2. Is the space provided on the FMC for type of injury/illness adequate? Yes ____ No ____. If no, mark the areas below which require more space and explain why below.



_____

_____

_____

_____

3. a. Does the FMC provide appropriate descriptive choices for the injury/illness conditions? Yes _____. No _____. If no, complete b and c.

b. Identify other classes of injuries/illnesses which should be included on the FMC:

_____

_____

_____

_____

c. Identify classes of injuries/illnesses which should be deleted from the FMC:

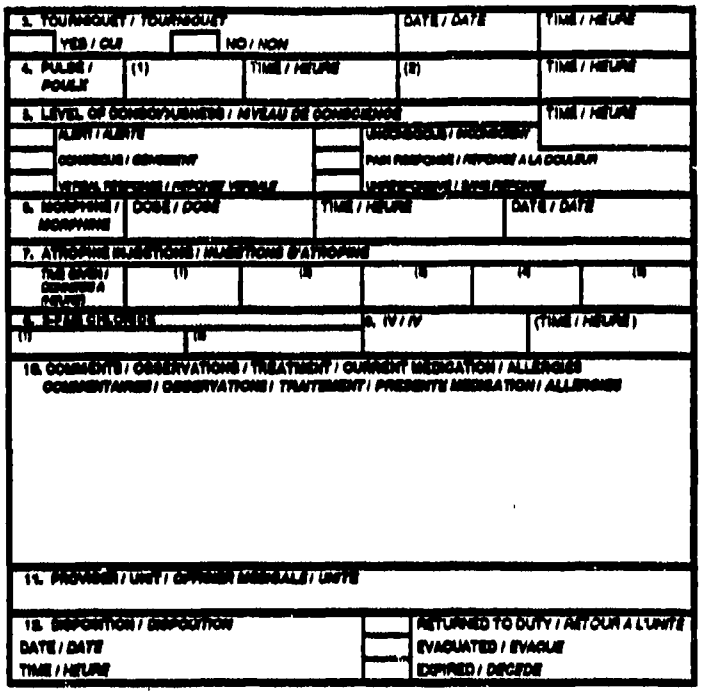
_____

_____

_____

_____

4. In your opinion, is the space provided on the FMC for treatment received at Echelon I adequate? Yes ____ No ____. If no, mark the areas below which require more space and explain why below.

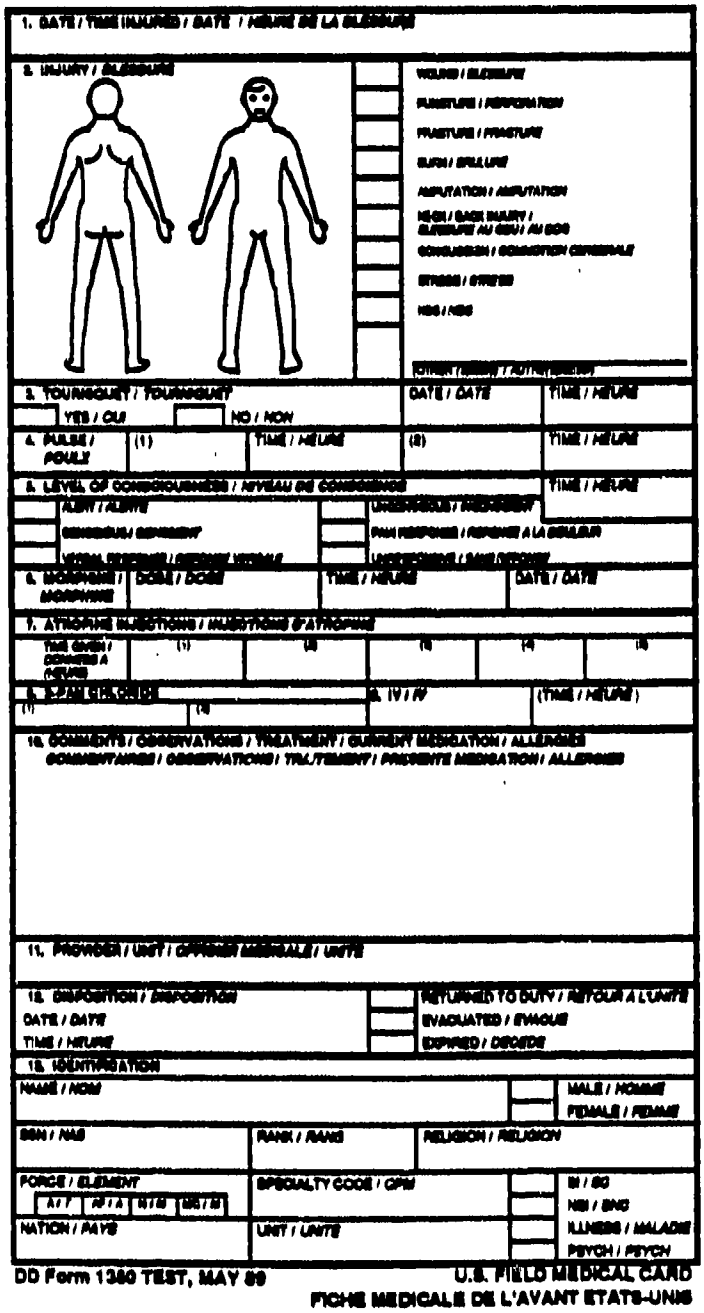


5. The new medical card should be able to be completed using either pencil or ballpoint pen. In reviewing the FMC and the detachable adminstrative data slips prepared in the field, did you have any difficulty reading the information supplied? **DO NOT CONSIDER INDIVIDUAL HANDWRITING.**

FMC:

No _____.

Yes _____. (If yes, circle the appropriate area below where problems were encountered, include the ID number on the FMC, and describe the problem(s).)


1. DATE / TIME INJURED / DATE / HEURE DE LA BLESSURE

2. INJURY / BLESSURE

WOUND / BLESSURE
PUNCTURE / PERFORATION
FRACTURE / FRACTURE
BURN / BRULURE
AMPUTATION / AMPUTATION
HEAD / BACK INJURY / BLESSURE AU CRÂNE / AU DOS
CONCUSSION / COMMOTION CÉRÉBRALE
STRESS / STRESS
NBC / NBC
OTHER (Specify) / AUTRE (Spécifier)

3. TOURNIQUET / TOURNIQUET
YES / OUI
NO / NON
DATE / DATE
TIME / HEURE

4. PULSE / POULS
(1)
TIME / HEURE
(2)
TIME / HEURE

5. LEVEL OF CONSCIOUSNESS / NIVEAU DE CONSCIENCE
TIME / HEURE
ALERT / ALERTE
VERBAL RESPONSE / RÉPONSE VERBALE
PAIN RESPONSE / RÉPONSE À LA DOULEUR
UNRESPONSIVE / INCONSCIENT

6. MORPHINE / MORPHINE
DOSE / DOSE
TIME / HEURE
DATE / DATE

7. ATROPINE INJECTIONS / INJECTIONS D'ATROPINE
TIME GIVEN / DONNÉES À (HEURE)
(1)
(2)
(3)
(4)
(5)

8. EAR NO. ORIGIN
(1)
(2)

9. IV / IV
(TIME / HEURE)

10. COMMENTS / OBSERVATIONS / TREATMENT / CURRENT MEDICATION / ALLERGIES
COMMENTAIRES / OBSERVATIONS / TRAITEMENT / PRÉSENTE MÉDICATION / ALLERGIES

11. PROVIDER / UNIT / CHARGE MÉDICALE / UNITÉ

12. DISPOSITION / DISPOSITION
DATE / DATE
TIME / HEURE
RETURNED TO DUTY / RETOUR À L'UNITÉ
EVACUATED / ÉVACUÉ
EXPIRED / DÉCÉDÉ

13. IDENTIFICATION
NAME / NOM
MALE / HOMME
FEMALE / FEMME
SSN / NAS
RANK / RANG
RELIGION / RELIGION
FORCE / ÉLÉMENT
ATT
RF / A
NTG
USTM
SPECIALTY CODE / CPM
DI / BD
NBI / BNC
ILLNESS / MALADIE
PSYCH / PSYCH
NATION / PAYS
UNIT / UNITÉ

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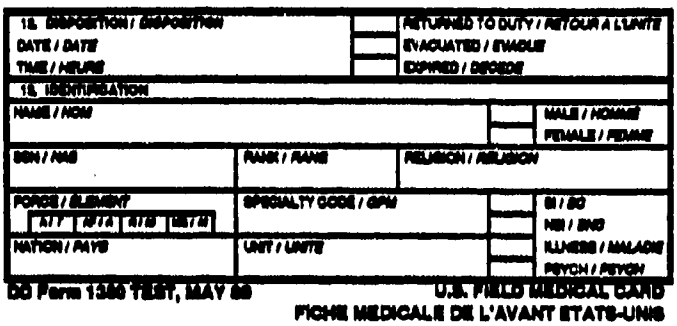
DETACHABLE ADMINISTRATIVE DATA SLIP:

No _____.
Yes _____. (If yes, circle the appropriate area below where problems were encountered, include the ID number on the FMC, and describe the problem(s).)



6. Is there superfluous data required for Echelon I or Echelon II?

No _____.
Yes _____. (If yes, identify the item number and explain why.)

7. In your opinion, will the wire that is used to attach the FMC to the patient contribute to an injury to the patient or evacuation/treatment personnel?

No ____.
Yes ____. (If yes, please explain why.)

_____

_____

_____

_____

_____

8. In reviewing the FMC, is there any evidence that the medic or combat lifesaver did not understand an abbreviation.

No ____.
Yes ____. (If yes, please identify ID number on the FMC and provide evidence that the abbreviation was not understood.)

_____

_____

_____

_____

9. In your opinion, did the medic or combat lifesaver provide appropriate information in items 1 through 13.

Yes ____.
No ____. (If no, please identify ID number on the FMC and evidence that the medic or combat lifesaver did not respond appropriately.)

_____

_____

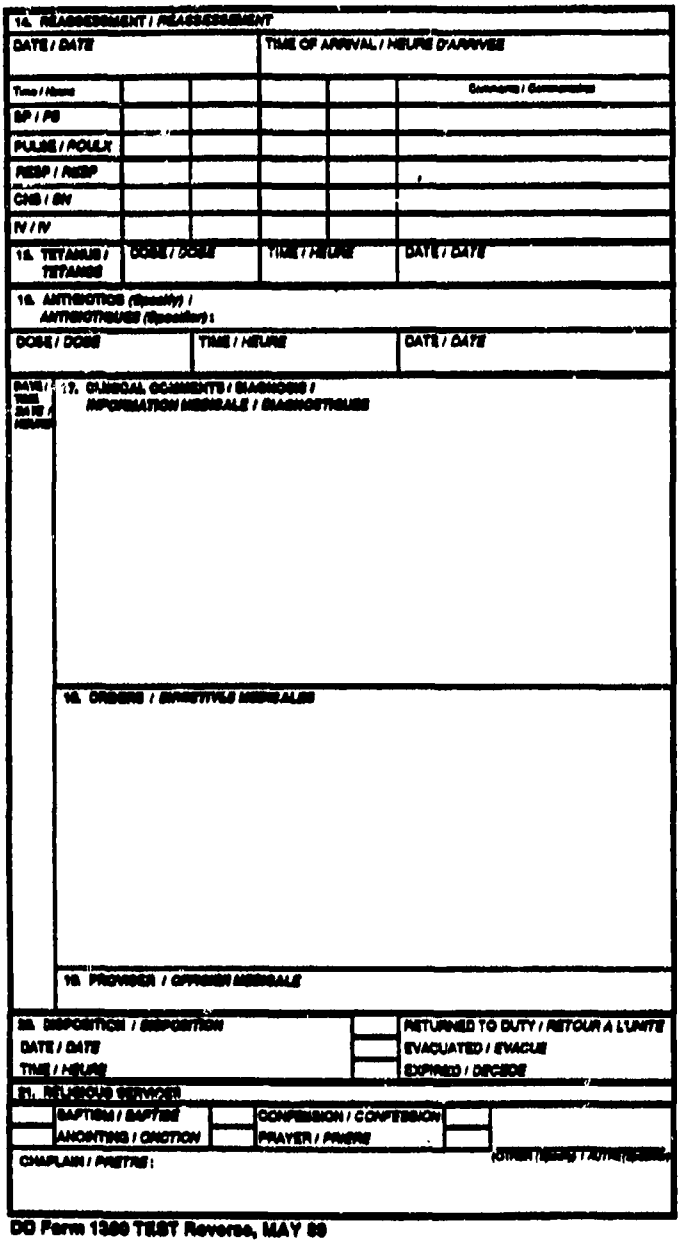
_____

_____

10. Was there any evidence of tearing, smudging or other damage to any of the FMCs that you evaluated?

No _____.
Yes _____. (If yes, please identify ID number on the FMC and explain damage.)

11. After completing the back of the FMC (Items 15 through 20), indicate whether the space provided on the FMC for treatment rendered at Echelon II is adequate. Adequate _____. Inadequate_____. If not adequate, mark the areas below which require more space and explain why.



14. REASSESSMENT / *REASSESSMENT*

DATE / *DATE*			TIME OF ARRIVAL / *HEURE D'ARRIVEE*		
Time / *Heure*					Comments / *Commentaires*
BP / *PS*					
PULSE / *POULX*					
RESP / *RESP*					
CNS / *SN*					
IV / *IV*					

15. TETANUS / *TETANOS* — DOSE / *DOSE* — TIME / *HEURE* — DATE / *DATE*

16. ANTIBIOTICS (*Specify*) / *ANTIBIOTIQUES (Spécifier)* :

DOSE / *DOSE* — TIME / *HEURE* — DATE / *DATE*

DATE / TIME / *DATE / HEURE*

17. CLINICAL COMMENTS / DIAGNOSIS / *INFORMATION MEDICALE / DIAGNOSTIQUES*

18. ORDERS / *DIRECTIVES MEDICALES*

19. PROVIDER / *OFFICIER MEDICALE*

20. DISPOSITION / *DISPOSITION*
DATE / *DATE*
TIME / *HEURE*

- RETURNED TO DUTY / *RETOUR A L'UNITE*
- EVACUATED / *EVACUE*
- EXPIRED / *DECEDE*

21. RELIGIOUS SERVICES

- BAPTISM / *BAPTEME*
- ANOINTING / *ONCTION*
- CONFESSION / *CONFESSION*
- PRAYER / *PRIERE*

(OTHER (Specify) / *AUTRE(Spécifier)*)

CHAPLAIN / *PRETRE* :

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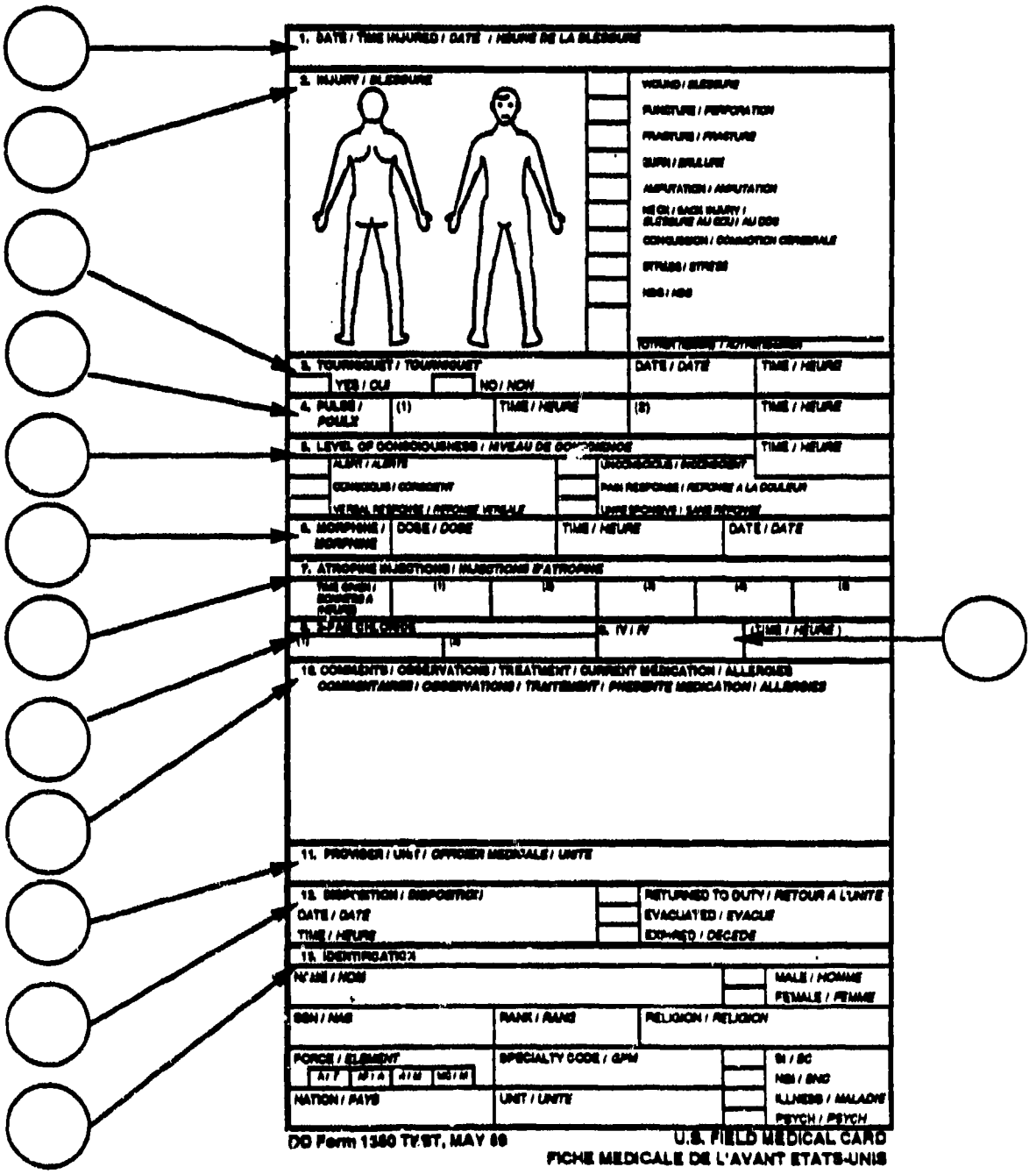
12. Did you have any difficulty completing Items 15 through 20 because of inadequate information on treatment rendered at Echelon I?

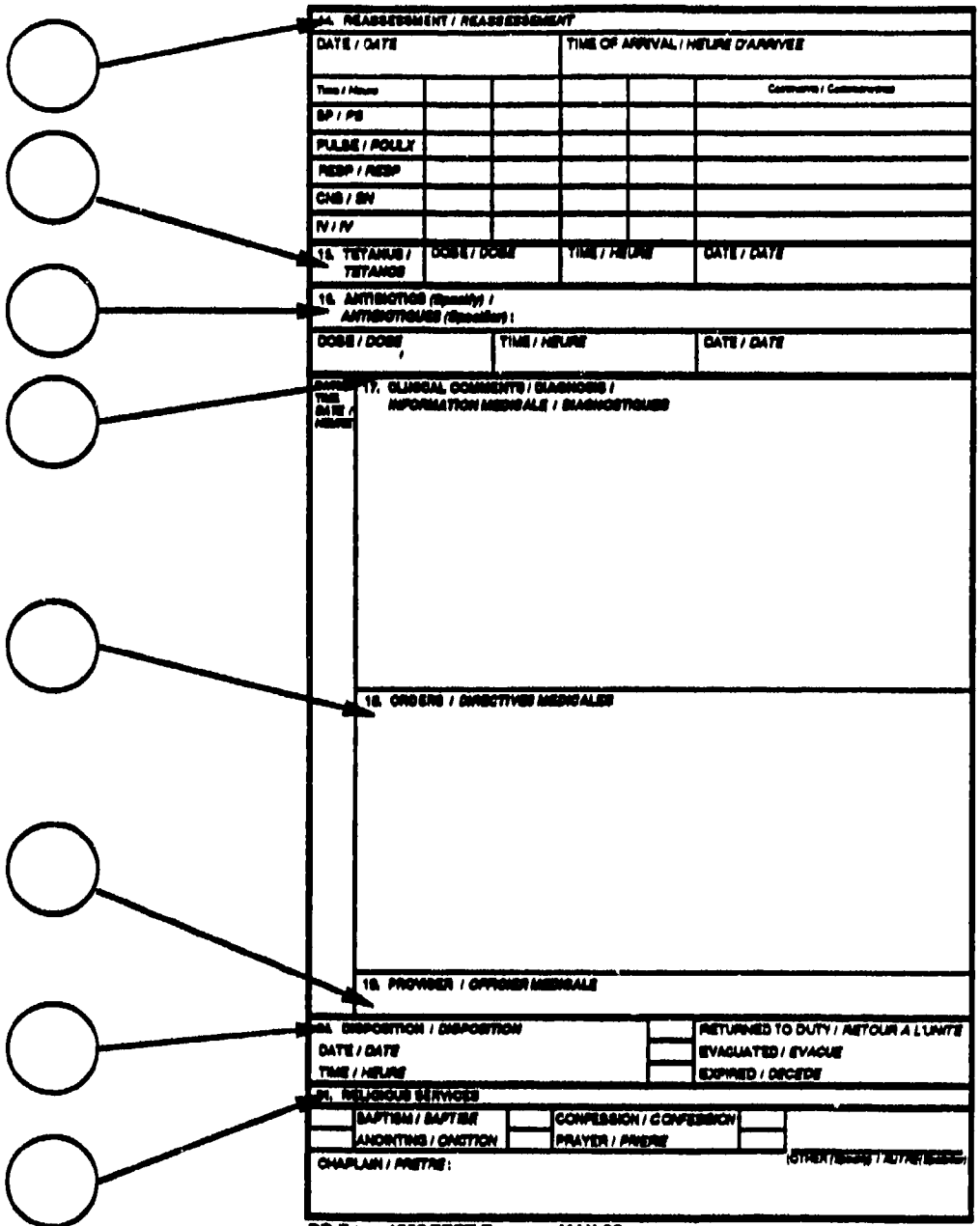
No ____.
Yes ____. (If yes, please identify ID number on the FMC and describe the problem.)

13. Is the sequence order of the data elements acceptable.

Yes ____.

No ____. (If no, please indicate the preferred order on the FMC below and provide reason for change.)





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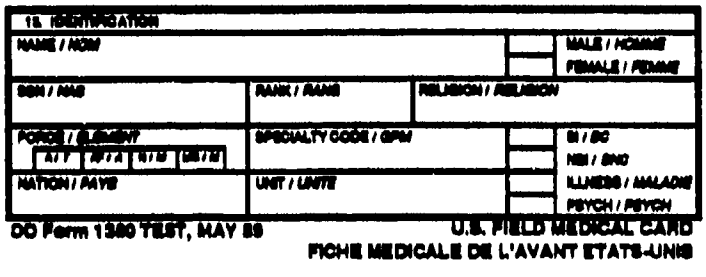
APPENDIX E
DATA COLLECTION SHEET 2d
FUNCTIONAL USE : PHASE III MARKET SQUARE EXERCISE

INSTRUCTIONS: After completing Item Numbers 1 through 13 of the FMC, please complete the following questionnaire.

NAME: _____

MOS: _____ **DATE:** _____

1. Is there enough space provided on the FMC for patient identity? Yes ____ No ____. If no, place an "X" in the blocks which require more space and explain why under the section which best describes your field conditions.



Field Gear: _____

_____

_____

MOPP Level (*Circle One*) I II III IV : _____

_____

_____

Field Gear, Reduced Visibility: _____

_____

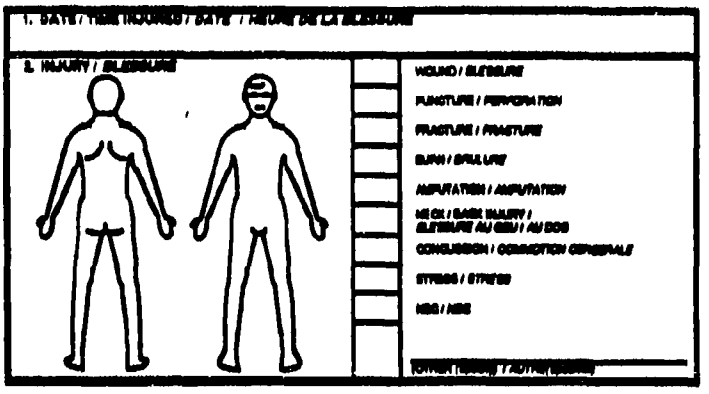
_____

MOPP Level (*Circle One*) I II III IV, Reduced Visibility: _____

_____

_____

2. Is there enough space provided on the FMC for type of injury/illness? Yes ____ No ____. If no, place an "X" in the blocks which require more space and explain why under the section which best describes your field conditions.



Field Gear: _____

_____

_____

MOPP Level (*Circle One*) I II III IV: _____

_____

_____

Field Gear, Reduced Visibility: _____

_____

_____

MOPP Level (*Circle One*) I II III IV, Reduced Visibility: _____

_____

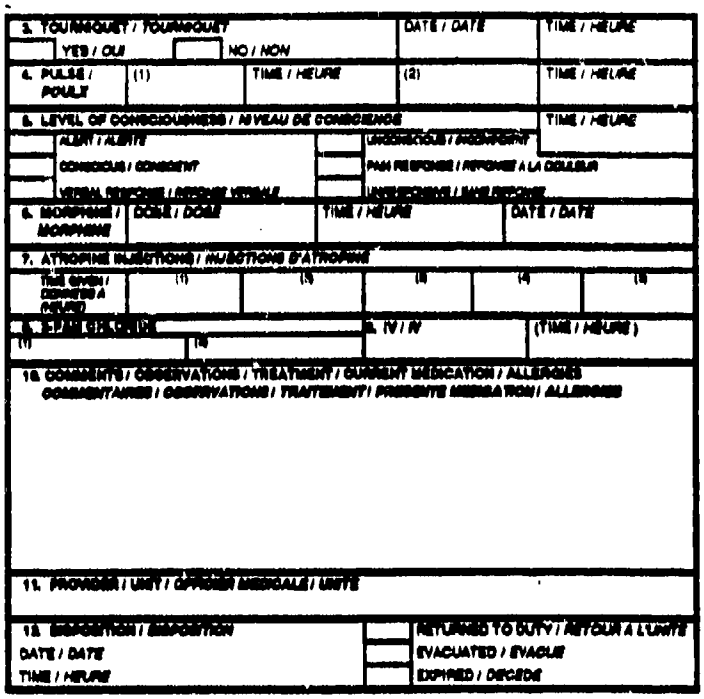
_____

3. a. Does the FMC provide appropriate descriptive choices for the injury/illness conditions? Yes _____. No _____. If no, complete b and c.

b. Identify other classes of injuries/illnesses which should be included on the FMC:

c. Identify classes of injuries/illnesses which should be deleted from the FMC:

4. Is there enough space provided on the FMC for treatment received? Yes ____ No ____. If no, place an "X" in the blocks which require more space and explain why under the section which best describes your field conditions.



Field Gear: _____

_____

_____

MOPP Level (*Circle One*) I II III IV : _____

_____

_____

Field Gear, Reduced Visibility: _____

_____

_____

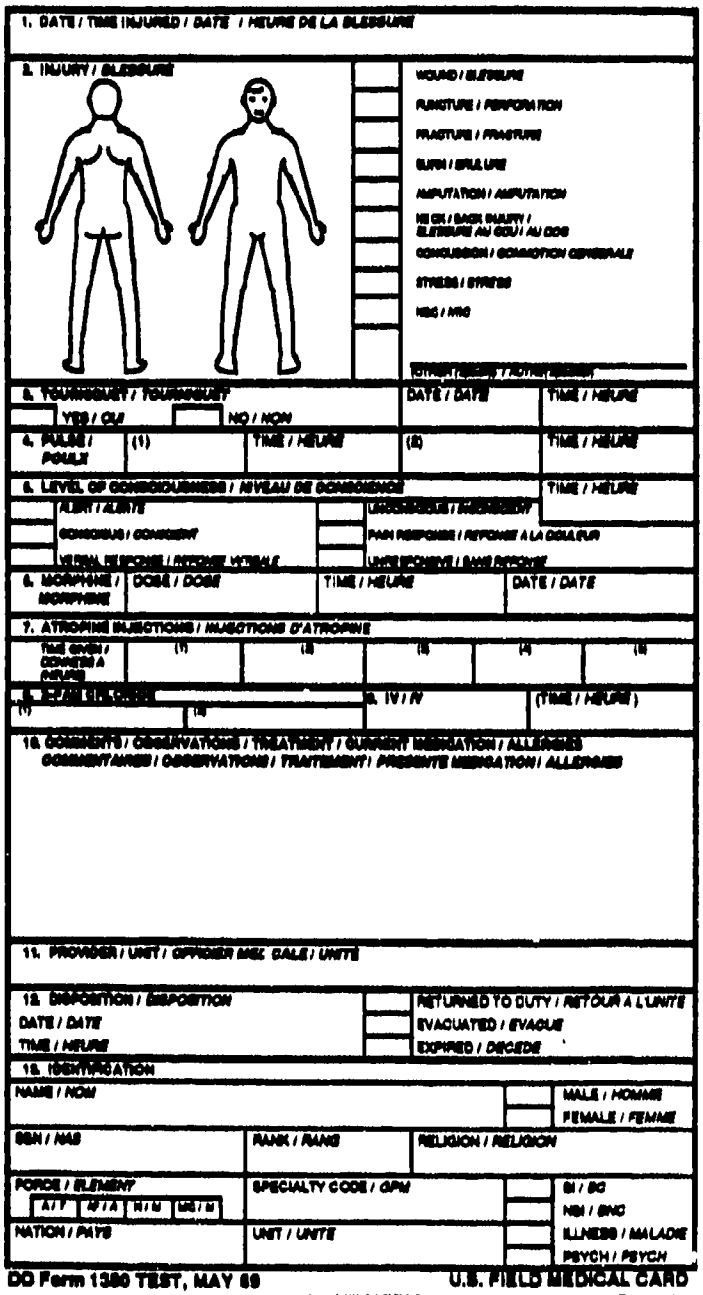
MOPP Level (*Circle One*) I II III IV, Reduced Visibility: _____

_____

_____

5. Were there any abbreviations/acronyms used on the FMC which you did not understand?

No _____.
Yes _____. (If yes, please circle the abbreviations/acronyms.)



1. DATE / TIME INJURED / DATE / HEURE DE LA BLESSURE

2. INJURY / BLESSURE

WOUND / BLESSURE
PUNCTURE / PERFORATION
FRACTURE / FRACTURE
BURN / BRULURE
AMPUTATION / AMPUTATION
NBI OR BACK INJURY / BLESSURE AU SNC / AU DOS
CONCUSSION / COMMOTION CEREBRALE
STRESS / STRESS
NBC / NRC
OTHER (SPECIFY) / AUTRE (PRECISER)

3. TOURNIQUET / TOURNIQUET — DATE / DATE — TIME / HEURE
YES / OUI NO / NON

4. PULSE / POULS (1) TIME / HEURE (2) TIME / HEURE

5. LEVEL OF CONSCIOUSNESS / NIVEAU DE CONSCIENCE — TIME / HEURE
ALERT / ALERTE
CONSCIOUS / CONSCIENT
VERBAL RESPONSE / RÉPONSE VERBALE
UNCONSCIOUS / INCONSCIENT
PAIN RESPONSE / RÉPONSE À LA DOULEUR
UNRESPONSIVE / SANS RÉPONSE

6. MORPHINE / MORPHINE — DOSE / DOSE — TIME / HEURE — DATE / DATE

7. ATROPINE INJECTIONS / INJECTIONS D'ATROPINE
TIME GIVEN / DONNÉE À (HEURE) (1) (2) (3) (4) (5)

8. IV / IV (TIME / HEURE)
(1) (2)

10. COMMENTS / OBSERVATIONS / TREATMENT / CURRENT MEDICATION / ALLERGIES
COMMENTAIRES / OBSERVATIONS / TRAITEMENT / PRÉSENTE MÉDICATION / ALLERGIES

11. PROVIDER / UNIT / OFFICIER MÉD. DALE / UNITÉ

12. DISPOSITION / DISPOSITION
DATE / DATE
TIME / HEURE
RETURNED TO DUTY / RETOUR À L'UNITÉ
EVACUATED / ÉVACUÉ
EXPIRED / DÉCÉDÉ

13. IDENTIFICATION
NAME / NOM
MALE / HOMME
FEMALE / FEMME
SSN / NAS
RANK / RANG
RELIGION / RELIGION
FORCE / ELEMENT
ATF AFTA NAVY USMC
SPECIALTY CODE / CSP
SI / SC
NBI / SNC
ILLNESS / MALADIE
PSYCH / PSYCH
NATION / PAYS
UNIT / UNITÉ

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FICHE MEDICALE DE L'AVANT ETATS-UNIS

6. Were there any items that you could not understand or complete?

Yes ____.
No ____. (If no,indicate the item number(s).)

7. Did you have to make corrections on an item because you misinterpreted what information was required?

No ____.
Yes ____. (If yes, indicate the item number and what information you originally thought should be included.)

8. Did you have any difficulty preparing the FMC with any of the following writing instruments?

No. 2 pencil (describe problem):

_____

_____

_____

_____.

No. 3 pencil (describe problem):

_____

_____

_____

_____.

Ballpoint pen (describe problem):

_____

_____

_____

_____.

Other (identify and describe problem):

_____

_____

_____

_____

_____.

9. Did the information from Items 12 and 13 transfer to the stub (detachable administrative data slip) when you used a:

No. 2 Pencil? Yes _____. No _____.

No. 3 Pencil? Yes _____. No _____.

Ballpoint Pen? Yes _____. No _____.

Other Type of Writing Instrument (*please identify*):

_____

Yes _____. No _____.

10. In your opinion, does the FMC provide enough information for patient accountability?

Yes ____.
No ____. (If no, describe the additional information needed.)

_____

_____

_____

_____

_____

_____

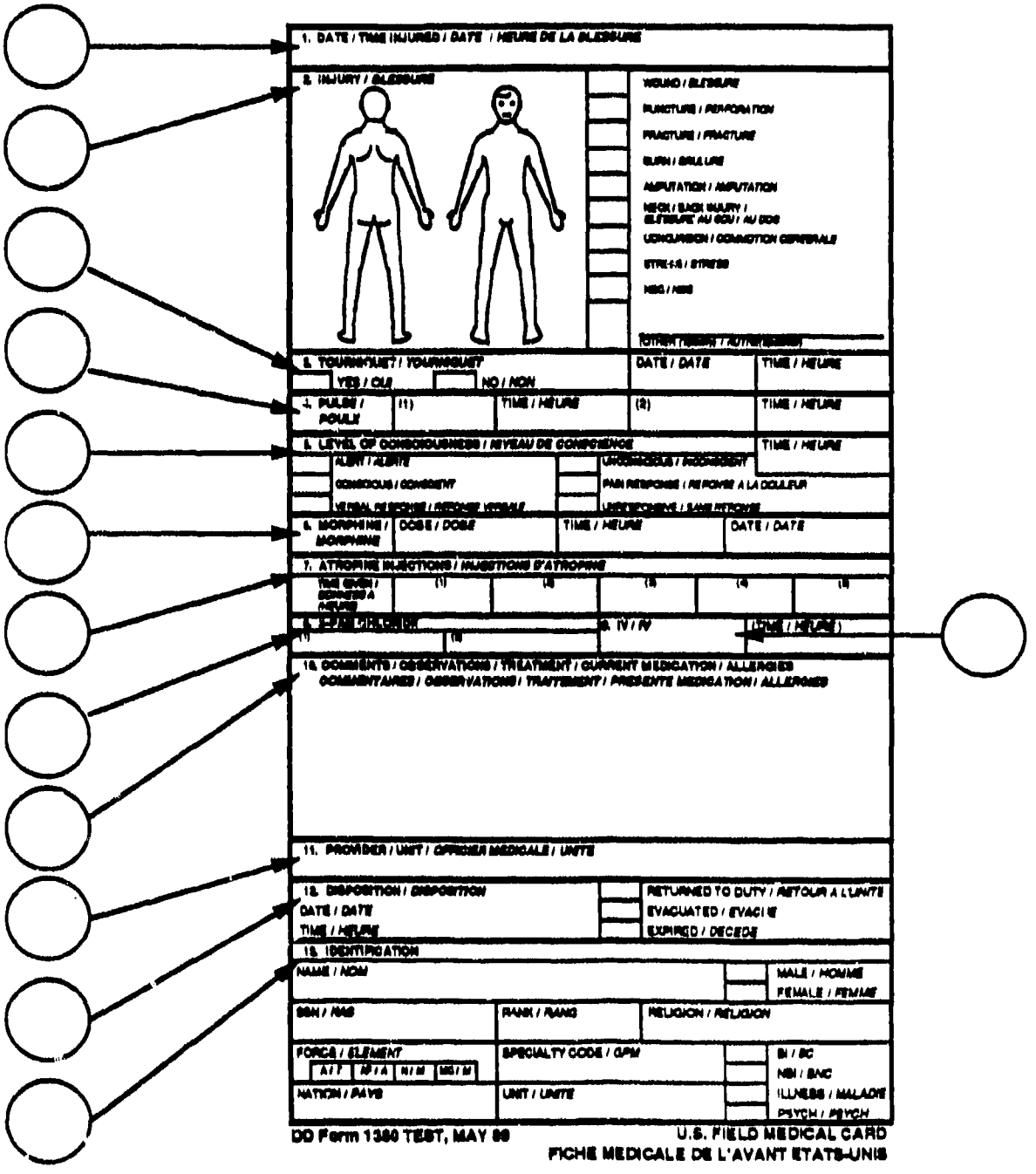
_____

_____

_____

11. In your opinion, are items 1 through 13 in the most useful order?

Yes ____.
No ____. (If no, please indicate the preferred order in the circles provided on the FMC below.)



12. Currently, the FMCs are arranged in a booklet format with 10 FMCs in a booklet. In your opinion, is the number of FMCs within the booklet appropriate.

Yes ____.
No ____. (If no, please explain your reasoning.)

13. **IF YOU FILLED OUT ANY PART OF THE FMC UNDER REDUCED LIGHTING CONDITIONS**, did you have any difficulty?

No ____.
Yes ____. If yes, was it due to (*Check appropriate description*):

Size of lettering ____

Style of lettering ____

Other (*Specify below*): ____

14. **IF YOU FILLED OUT ANY PART OF THE FMC WHILE AT MOPP LEVEL IV,** did you have any difficulty with the form?

No ____.
Yes ____. If yes, was the problem due to (*Check appropriate description*):

Size of blocks inadequate to complete: _____

Problems using the writing instrument with the MOPP gloves _____

Problems reading the lettering through the protective mask _____

Other (*Specify below*): _____

_____

_____

15. Did you note any durability problems with the FMC such as:

Ripping/tearing (describe situation): _____

_____

_____

_____.

Fading, smearing or smudging of print (describe situation):_____

_____

_____

_____.

Fading, smearing or smudging of handwritten information (describe situation):

_____

_____

_____.

16. a. Did the wire that is used to attach the FMC to the patient cause any injury to the patient or medical treatment/evacuation personnel?

No ____.
Yes ____. (If yes, please describe injury.)

b. Did the wire puncture the MOPP gloves?

No ____.
Yes ____. (If yes, please describe situation.)

17. Please provide any general comments/observations on the FMC below.

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The Naval Health Research Center evaluated a revised Field Medical Card, developed by a quad-service working group. Field testing as well as testing under controlled conditions was conducted to determine whether or not the proposed card was an improvement over the current card. With respect to the criteria of Sufficiency, Ease of Use, and Simplicity, it was found that the new card was generally an improvement over the old card. However, some deficiencies of the old card persisted and some new problems were introduced. Therefore, it was concluded that some further revisions should be made to the Field Medical Card.

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