# Investing in the future by learning from the past: Developing a survey tool to gather feedback from deployed Army Forward Surgical Teams

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## Abstract

The purpose of this Graduate Management Project (GMP) was to develop a validated survey instrument to gather crucial feedback from deployed Forward Surgical Teams (FST) for use by the Army Medical Department Center and School (AMEDD C&S) in the developmental evolution of the Program of Instruction (POI) for the Army Trauma Training Center (ATTC), currently operating out of Ryder Trauma Center, Miami, Florida. Three critical processes or phases were used to assure validity in the initial design of this tool. After a thorough literature review, an initial template was developed with assistance from the Executive Officer (XO) and another instructor assisted in staffing this tool through the ATTC. The second phase was to have the Survey Administrator, AMEDD C&S, automate and modify the survey to comply with Center and School training feedback objectives and the Army Surgeon General's Balanced Scorecard. Finally, the tool went through a second audit conducted by the ATTC and was piloted for content through the 801st FST at Fort Campbell. The objective of developing a solid instrument for the ATTC was completed during the course of this project. Ultimately, utilizing this tool to gather feedback will be essential to evaluate the Army's current trauma training program and enhancing the quality of care we deliver on the battlefield.

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# Investing in the future by learning from the past: Developing a survey tool to gather feedback from deployed Army Forward Surgical Teams

## Introduction

At the recent American College of Healthcare Executives Conference held in Chicago, Mr. John Austin, author and motivational speaker said, "Feedback is an essential bridge that crosses the divide between what we think and what is reality". This concept has been the driving force behind this Graduate Management Project (GMP). The purpose of this GMP has been to work in conjunction with the ATTC and the AMEDD C&S to create a valid and reliable survey instrument to collect feedback from FST team members deployed in support of Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF).

### *Conditions Which Prompted the Study*

The Army Medical Department (AMEDD) conducts trauma training for FSTs at Ryder Trauma Center in Miami, Florida. This training is designed to provide opportunities for FST members to focus on life saving skills and team work while emerged in a

healthcare system that manages over 3,000 cases of trauma annually. While many facets of this training program are the best the United States has to offer, a common framework for improvement is in post-training evaluation and subsequent program modification.

The initial conceptual design for the ATTC, then known as the Joint Trauma Training Center (JTTC), was developed with a POI and a strong set of feedback metrics. While housed at Ben Taub in Houston, Texas, the JTTC produced a number of quality benchmarks for trauma training implementation. Unfortunately, when the JTTC was dismantled in lieu of service specific training programs, many of the metrics established by the JTTC were not integrated into the new program developed by the Army.

A number of factors affected the lack of integration of historically relevant information. These included: (1) inexperienced, junior officer administrative support, (2) lack of Nursing Method's Analyst support, (3) difficulties in oversight associated with a remote site training program, and (4) licensure portability and contractual management challenges.

Ultimately, these same issues combined with a blistering operational tempo and tremendous mission requirements made it difficult if not impossible for the ATTC to substantiate cost requirements, develop and establish benchmarks for training, and in essence build a solid platform for the program.

Last year, as part of a Clinical Practicum Team from the Army-Baylor Graduate Program in Healthcare Administration asked to evaluate the ATTC, our team found that the lack of a POI and the aforementioned challenges needed to be addressed. The ATTC has been going through evolutionary changes in the last few months as the new leadership and instructor group has worked closely with MEDCOM to write a Program of Instruction (POI) that places team work at the top of a list of critical tasks. As this POI develops, so too must a method to gather feedback from the teams that attend it.

David Crabtree of the McKenzie Study Center of Gutenberg College wrote, "Our view of history shapes the way we view the present, and therefore it dictates what answers we offer for existing problems." As our nation's young men and women deploy

more than any period since World War II, the impetus of Mr. Crabtree's statement is evident. The educational preparation provided to our most forward deployed trauma surgical elements must be shaped by historically relevant feedback from those that have "been there and done that". As they risk their lives daily, our Country's Finest deserve the best training that can be offered and nothing less.

*Statement of the Problem*

With the inception of the newly designed POI, gathering post-training feedback is critical to enhance the content and quality of the ATTC program. The impetus for this development is founded in the mandate from the Surgeon General, Secretary of Defense, and Congress calling for fiscally responsible training. More importantly, this program is the sole source of exposure to realistic, battlefield trauma management for teams whose ultimate measurement of success is defined by the number of lives they save.

## Literature Review

There are numerous literary sources on the subject of data collection and research. However, there is very little theoretical framework on developing post-training evaluation tools for trauma educational offerings. To focus the review of the topical written information, the following ordinal system was used: (1) selecting an appropriate data collection option, (2) important focal areas for evaluating trauma training, (3) developing questions and scales, (4) validating a data collection tool, and finally, (5) data collection delivery options.

### *Selecting an Appropriate Data Collection Option*

A fundamental key to successfully collecting information is determining how to collect it. Numerous methods are available, all with certain benefits and limitations. Non-scientific methods for figuring out solutions to problems include: the use of trial and error combined with a "common sense" evaluation of what happens; going by the book, or following the rules of those in authority or based on tradition without questioning the

validity of those rules; "inspiration and intuition" or going with your "gut feelings"; and finally, "logical reasoning" (Wilson, 1993, p. 6). While all these options may provide answers to critical questions, none provide a valid and reliable alternative for use as the primary model for a quantitative data collection project.

The scientific method of approach provides the most scholarly alternative for research as it enhances objectivity and produces empirical data that can be studied (Wilson, 1993). A three phase approach to the scientific method that works well with large organizational structures breaks out into: pre-work, experts meetings, and test and use model processes (Olsson, Overtveit, & Kammerlind, 2003). These three phases split into a number of sub-tasks. For the pre-work phase, the researcher needs to: (1) choose phenomenon, (2) study literature, (3) identify experts, (4) interview experts and explore model outcome objectives, factors, and indicators, and (5) build a straw model (Olsson et al., 2003). During the expert meetings period it is important to model outcome objectives, consider

factors and indicators to include in the process, collect subjective probabilities, and monitor for expert bias that could slant the results or design (Olsson et al., 2003). When finally wrapping up the project it's important to test the data collection model and conduct retrospective and prospective evaluations of its effectiveness to assist in refining the quality of the output (Olsson et al., 2003).

Tulane University, the University of Alabama at Birmingham, and the state health departments in Alabama, Arkansas, Louisiana and Mississippi collaborated on the development of a four level framework for evaluating the effectiveness of public health preparedness training (Sarpy, Chauvin, & Anderson, 2003). This framework provides an excellent tiered system to determine how to study an educational program for its value to those in attendance and the parent organization. The four levels of evaluations utilized by this collaborative team (Sarpy et al., 2003) are: (1) reaction, (2) learning, (3) behaviors and (4) results. After reviewing all four types, it was determined that the instrument selected to gather information from the FSTs

needed to be a blend of both reactions and results. By consolidating these two approaches, gathering feelings and perceptions of the attendees about the ATTC program with their opinions on its impact on their ability to perform their mission essential tasks list (METL), a more robust data set can be obtained.

Reactive, or level one, evaluations are designed to measure perceived effectiveness in terms of instructor skills and training content, format, and delivery (Sarpy et al., 2003). Results studies are evaluations that assess the value of a training program in relationship to its "contributions to the objectives of the organization" (Sarpy et al., 2003, p. 570). When consolidated, these two methods provide qualitative and quantitative data that can help to both enhance the POI and assist the ATTC staff to modify instructor styles and focus training to optimize efficiency.

The next focal concern was to identify what form of instrument best suited the project's approach and objectives. There are a number of widely accepted methods for collecting

data. From using individual interviews to conducting broad scale surveys, each method was reviewed for its relevance for the purpose intended. Using what Holly Wilson defines as, "comparative reading", the ideas and concepts of numerous literature sources were reviewed and combined to help structure my plan (Wilson, 1993, p. 26).

Historical research that looks at previously conducted studies does not fit the project objectives due to a lack of available valid and reliable data that had been archived on the subject evaluating the effectiveness of trauma training in the military (Sarpy et al., 2003). Similarly, case study methodology would not provide adequate and timely feedback due to the recent changes to the curriculum and focus of the program. Variable manipulation through experimental study also fails to capture the information needed for the project. Quasi-experimental options such as time series or non-equivalent pre/post-test control group could potentially provide an effective alternative for evaluating the training conducted at the ATTC (Olsson et al., 2003). However, due to time

constraints and solely-committed resources, this method also was not an option. Questionnaires and focus groups that use open-ended questions tentatively would also provide feedback that could be valuable. Once again, time and resource constraints made this method an unacceptable option.

Another potential solution that the literature supported was developing a survey that uses scaled responses. The Mayo Clinic looked at getting feedback on patient satisfaction in a crucial study where time and resources were limited. They used surveys to help quickly gather the numbers and statistics (Seltman, Nayar, Corconran, & Gomez, 2002). When combined with the opportunity for respondents to document rationale for their responses on either end of the extremes of the scale, this method stood out as being the optimum choice. In a study focused on Advance Trauma Life Support (ATLS), a survey tool was also chosen as the instrument best suited to gather data that could be quantitatively evaluated (Esposito, Kuby, Unfred, & Gamelli, 1995). Southern Ohio Medical Center (SOMC) uses scaled surveys to gather statistically relevant information that ranges

from patient satisfaction to staff evaluations of educational offerings (Gilliland, 2002). SOMC found that they can create living documents through surveys that can be modified to meet the changes associated with ever-evolving medical education (Gilliland, 2002). Bi-variate analysis and predicting future outcomes is also potentially possible with quantifiable surveys (Laerum, Stein, Morten, & Finset, 2002). In essence, the strength of a survey is found in its ability to be a flexible tool in terms of content and purpose while at the same time providing opportunities for "precision and control" (Wilson, 1993, p. 122). Once this precedent had been established, utilizing a survey became the clear choice for this project.

*Important Focal Areas for Evaluating Trauma Training*

After determining the best method for collecting the data, the next step was to research what focal areas of trauma training needed to be addressed in the questions. Fourteen articles provided a solid basis for this process. The findings in these articles were then compared to the actual mission

essential task list (METL) areas for the ATTC to assure relevancy in the design of the survey instrument.

For the new commander and team at the ATTC, the primary theme is team-focused training. The literature is replete with references to the significance of this approach. In the 28 day rotations of the JTTC, a team centered focus was the cornerstone of all activities (Bruce et al., 2003). A study centered on use of simulators in trauma training evaluations also found that even though their objective was to test individual skill sets, it was the team's success that led to the most positive outcomes for patients (Lee et al., 2003). Because of both the literary support and focal importance in the new POI, questions focused on team performance, and team growth is the centerpiece of the survey questions.

In choosing the site for the ATTC, both trauma volume and types of trauma exposure were considered. One of the charter staff members of the JTTC, wrote that a "real trauma treatment experience can only be achieved at an inner city, level one trauma center" that must see "at least 650 cases per year with

an injury severity score (ISS) of more than 15 to achieve the best outcomes" for the students (Bruce, Bridges, & Holcomb, 2003).

Another relevant factor to evaluate in the post-deployment survey tool is how valuable the participants felt the collaborative environment of the civilian facilities were at Ryder. Two separate articles provided insight into the significance of conducting military trauma training in conjunction with civilian facilities. The Navy conducted a pilot study in 2001 to establish collaborative trauma training for nursing personnel. This study found that six (12) hour shifts of working in a level one civilian trauma center led to the nurse moving from having a limited knowledge of trauma management to having nearly "proficient" skills as assessed by the civilian facility standards (McNamara, Schulman, Jepsen, & Cuffley, 2001). Further, the nurse was exposed to more trauma in those six (12) hour shifts than in an entire year at her assigned Navy facility (McNamara et al., 2001). In fact, a study authored after a deployment to Camp Rhino in Afghanistan

further confirms that "trauma specific training is paramount" to the FST, and that the use of civilian facilities and joint service training is an absolute requirement (Bilski et al., 2003).

The importance of understanding trauma severity scoring was discussed in numerous articles that were reviewed. Doctor Patrick Offner, a staff consultant for Trauma Surgical Services at Saint Anthony Central Hospital, stated that "an accurate method for quantitatively summarizing injury severity has many potential applications" (Offner, 2002). Further, Doctor Offner goes on to say that regardless of the trauma severity scale used "outcome prediction will never be perfect", but it is "essential" (Offner, 2002, p. 3). An article by Doctor Bilski and a team of medical experts deployed to Afghanistan collaborates this theme by stating that triage skills and "mature surgical judgment" are essential to forward surgical success (Bilski et al., 2003, p. 823).

Another key focal area in trauma management identified by Colonel (COL) Holcomb (2003) as crucial for military trauma

management teams is controlled resuscitation. When the availability of intravenous fluids (IV) is limited, as it is on the battlefield, strictly managed fluid resuscitation is essential to optimize survival rates. The importance of both understanding scoring and controlled resuscitation will be of focal significance in the survey instrument.

Doctor Esposito introduces the concept that trauma experience and length of exposure is of fundamental importance to the trauma surgeon and team (Gabram, Esposito, Morris, Mendola, & Gamelli, 1998). This premise resurfaces in a 2003 article in which the author discusses the relevance of trauma exposure and experience as a key factor in outcomes (Reilly et al., 2003). A third article focused on medical student education also addresses the relevance and importance of volume and time in relationship to trauma skills (Boulet et al. 2003). The instructor team at the ATTC expressed strong concerns in regards to identifying the appropriate length of time for the program in terms of what the FST team members perceive.

Therefore, length of program and its impact on training is addressed in the survey instrument.

Although it is no longer the center of focus at the ATTC, competencies remain a top concern of the director and instructors, as well as, the AMEDD C&S. Doctor Russell, the Executive Director of the American College of Surgeons, said it best; "Medical knowledge is best promoted not only through our didactic courses" but by "hands-on" validated training (Trunkey, Russelll, & Dunnington, 2003, p. 680). The use of simulators to benchmark this performance of multidisciplinary team competencies in trauma management was also discussed in the literature (Holcomb et al., 2002). Competencies were grouped by management category and skill group within the survey tool to evaluate this topic. Again, the focus is on the team's competencies versus individual ones.

Across all the discussed areas of focus for the survey, the common theme is teamwork and team skills. Throughout the survey the emphasis will be placed on team performance and skill sets important for the team. There is an opportunity for individual

feedback in the by specialty segment breakout; but again the focus is on how the management of balanced strengths and weaknesses of the group leads to success or failure.

*Developing Questions and Scales*

After identifying the key and essential topic areas for the survey, the next logical step was question development and scale design. Literary sources in this area were available but the content and opinions varied greatly in terms of what was an appropriate question and how a measurement scale should be determined. A basic premise shared by the leadership of the ATTC program is that all participants will enter the program technically competent in their fundamental skills by area of concentration (AOC) and military occupational specialty (MOS) (Gabram et al., 1998).

The challenge is that many teams, especially those in the Reserve component, have never worked together and may not have practiced their clinical skills for a significant amount of time depending upon their specialty. Even in the Active component there are numerous challenges in getting the team together for

sustainment training. For example, at Fort Campbell the FST belongs to the 801st Main Support Battalion (MSB). Because the FST medics are part of the MSB, they are frequently tasked to carry out non-medical taskings to meet garrison and battalion-level demands.

According to the current FST Chief Nurse, trying to get these soldiers released to the hospital on a regular basis is a significant challenge. Further, a number of the Officer team members are Professional Fillers (PROFIS), or staffing augmentees for the forward FST mission, and belong to a primary organization that may or may not be assigned to Fort Campbell. This creates additional challenges for the FST Commander and Chief Nurse in terms of getting all their team members together. All these factors must be considered in the development of questions for the team members. For example, if a medic has not performed an IV attempt in the last year, chances are a large portion of their training time will be spent trying to develop those basic skills.

One source reviewed discusses variances in thought processes and how they may impact question perception (Bruce et al., 2003). The groupings identified were contextual, perceptive, creative, intuitive, and reflective (Bruce et al., 2003). Tailoring the questions to be broad enough to cover all the variance is challenging but can be done with the proper approach.

The primary purpose of the scaled survey should be to give the study participants questions to "describe characteristics, opinions, attitudes, or behaviors" by a simple, measurable and logical response (Wilson, 1993, p. 123). Therefore, the questions have to be simple enough to interpret without loosing focal content. For example, the question "was the time allocated for training adequate" is simple, pointed and should be easy to evaluate. Whereas, the statement "The time allocated for didactic, hands-on, and laboratory skills was adequate and appropriate" may draw responses that can not be directly linked to one specific area and therefore become rhetorical and valueless.

A dissenting opinion is found in one article in which a clinical psychologist argues that while a researcher must be specific, they must also consolidate their questions where appropriate (Trunkey et al., 2003). From this researcher's perspective, a balance between the two methodologies is the key to success. The questions were written and staffed through the ATTC and an AMEDD C&S survey development specialist to assure this balance was achieved.

Another concern during question development is whether or not the tool consumes too much time to complete (Laerum et al., 2002). One source noted that any questionnaire that takes over 10 minutes to complete will have about a 30% decrease in reliability in most samples (MacDermid, Turgeon, Richards, Beadle, & Roth, 1998). A question matrix of no more than five to six group and five to six individual queries was used to hopefully maintain higher levels of responsiveness to the survey. The post-project plan is to administer the tool to one FST via a web-based program and gather time to completion metrics to evaluate the effectiveness of this model.

In terms of scale development, the majority of the recent literature reviewed supported a four point scale. The four point scale does not provide a neutral response option and therefore forces the participant to answer categorically or select not-applicable. Wilson believes that this scale "provides the most usable data possible" and adjusts for skews by its design (Wilson, 1993, pg. 181). The Mayo Clinic also tends to use this scale combined with an area for participants to write in specific issues if they rank answers strongly in either a positive or negative direction (Seltman et al., 2002). The dissenting opinion in this case comes from Stanford Hospital and Clinics. For their patient satisfaction survey, they use a model designed by National Research Corporation (NRC)/Picker (Unknown, 2003). The Picker model uses very specifically worded questions that are focused on individual behaviors or events. Many of the answers are coded as dichotomous variables (yes or no) (Stanford Web Editor, 2003). Some of this approach was incorporated into the demographics segment of the survey but for

the bulk of the questions, a four point scale was used as the predominant matrix.

*Validating a Data Collection Tool*

Once the question design, content, and scaling had been determined, the next factor of concern was to develop a method for validation of the survey. Goldstein and Ford (2002) discuss methods for evaluating the validity of a survey instrument by using a tiered approach. For example, the first order of review would be through the local organization that manages the program; in this case, the ATTC. The second tier should be through a tool development expert. This process of tiers continues through the final approving authority. Goldstein and Ford believe that this process creates efficiency by assuring quality control that leads to less time at each subsequent echelon of review.

The final phase of review is pilot testing to validate the tool. This provides for a measure of inner reliability and consistency (Olsson et al., 2003). If the pilot study results

validate the design and content of the survey, a measure of predictability can be established. Of course, variance in team composition, experience, and time together can cause errors in this predictability, therefore, it should only be used as a guide, not as actual statistically significant findings (Gabram et al., 1998).

*Data Collection Delivery Options*

While it may seem like the final phase of this literature review should be a relatively simple process, it is actually quite challenging. When looking at data collection options 10 years ago, the process was limited to either oral or written collection and then manual data entry and evaluation. With the age of computers and the internet upon us, the choices of methodology for participant delivery have expanded significantly.

There are numerous advantages to using web-based resources to gather data and feedback from study participants (Rhodes, Bowie, & Hergenrather, 2003). From capturing feedback from respondents throughout the world to auto-populating a database,

web-based internet tools provide incredible opportunities for the researcher. One example provided by Rhodes et al. discusses the use of a web-based survey to gather post-hospitalization feedback. In the study discussed, the researchers were able to get responses from over 100 participants in less than two days versus an average turn around of one month for an equal number of participants in the past (Rhodes et al.).

Rhodes et al. (2003) go on to describe the advantages of electronic dexterity, better data through reduced error, better response to sensitive topics and reduction of bias, higher participation, and decreased fiscal obligations. In terms of electronic dexterity, researchers are given the ability to make immediate changes to the survey tool as issues develop versus having to send out a completely new survey and wait for the mail time delay. Reduced error is achieved through direct throughput to the raw database in real time. An increase in responses to sensitive questions has been shown to be statistically valid due to the respondent not having to hand in the survey directly or mail it with a return address (Reilly et al., 2003).

Ease of access and decreased post-completion requirements also increases responses to the survey. The Army has developed a web-based survey site that has resulted in a 40% increase in survey responsiveness over mail based options (CIO Web Editor, 2003). Further, the Pentagon expects to be able to reduce non-essential staff previously associated with survey management by over 20% in the next two fiscal years (CIO Web Editor, 2003).

Of course with every positive, there is a potential negative. Web-based survey implementations are no exception to this rule. The "digital divide" creates a potential group of "have and have nots" in terms of those that can and can not participate due to access constraints (Rhodes, Bowie, & Hergenrather, 2003). More important to the web researcher are issues associated with privacy and informed consent (Rhodes et al.). Assuring compliance with privacy act standards and security protocols can be a significant challenge. The web-based tool must have an opening privacy and informed consent page and must provide secured access (encrypted, preferably 128 bit) to the survey tool (CIO Web Editor, 2003).

Paper-based survey's can also provide a good option for data collection but generally take longer to get results from and do not have as good of a completion rate (Rhodes et al., 2003). Interviews can provide good direct feedback but tend to limit the degree of honesty the researcher can expect if the topic is sensitive in nature (Rhodes et al.). Ultimately, neither option provides the opportunities that web-based survey methods do.

Based on these facts, the decision was to utilize a web-based survey tool to be automated by MEDCOM/AMEDD C&S to assure compliance with all security and privacy regulatory guidance. The Survey Development Manager with the AMEDD C&S was asked to participate once approved by the Dean of the Center and School. She has thus far been an integral part of the process of development and will do the initial conversion to a web-based product.

## Purpose

The purpose of my GMP is to work in conjunction with the ATTC and the AMEDD C&S to create a valid and reliable survey instrument to help collect important feedback from FST team

members deployed in support of Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF). This feedback can be used to assist the ATTC in modifying their POI where necessary to optimize training value and enhance outcomes.

## Methods and Procedures

### *Sampling Design*

The core pilot group inclusion factors were based on the guidance derived from the literature review. Group membership was defined as being an assigned member of an FST and deploying as a support asset during Operation Iraqi Freedom. While it would be preferred to have a pilot group that was completely composed of FST members that had attended the ATTC prior to deployment, the feedback of those that had not attended could still be valuable during the development phase and therefore was not used as a disqualifying criteria.

Time constraints and accessibility to team members also served as a determining factor in defining the pilot group. Ultimately, the decision to administer the pilot survey to the 801$^{st}$ FST was the most logical choice. The team is stationed at

Fort Campbell, has been deployed in support of Operation Iraqi Freedom, and most of the team members had attended training at the ATTC prior to deployment.

*Research Design: Developing Communication Channels*

Communicating and the development of communication channels served as the start point for this project. The initial dialogue was conducted with the topic approving authority at Baylor. This meeting led to follow-on meetings with the Assistant Program Director for the Baylor Program, the Chief of Medical Care Services Training for the AMEDD C&S, the Director and Nurse Methods Analyst for the ATTC, and finally the Dean of the AMEDD C&S. The focal approach of the meetings was to gain support for the project through discussion of its objectives. It became increasingly evident with each additional meeting that the idea of gathering post-deployment and training feedback from the FSTs was of significant interest to the AMEDD Leadership.

Upon arrival at Fort Campbell, meetings were coordinated and conducted with my preceptor, the Deputy Commander for Administration, and the Hospital Commander to discuss the

project's objectives. Both of these leaders and mentors helped to refine the scope of the project and made suggestions for alternatives if there were any challenges.

Other direct contacts were made to augment the depth of the survey instrument and its applicability to the focus of the project. Once the project was underway, the Dean of the AMEDD C&S identified the Survey Development and Automation officer as a contact at the Center and School for the automation and review of the electronic survey. The nursing methods analyst was identified as the lead contact for the ATTC. Phone conferences were conducted with both individuals and scope of work and time constraints were discussed at length.

*Research Design: Establishing a Project Timeline*

After solid communication channels had been established the next logical step was to develop a project timeline. Due to time constraints associated with the GMP, an approach that incorporated and consolidated objectives was crucial. The chart below displays the key dates and events that were used to define the timeline.

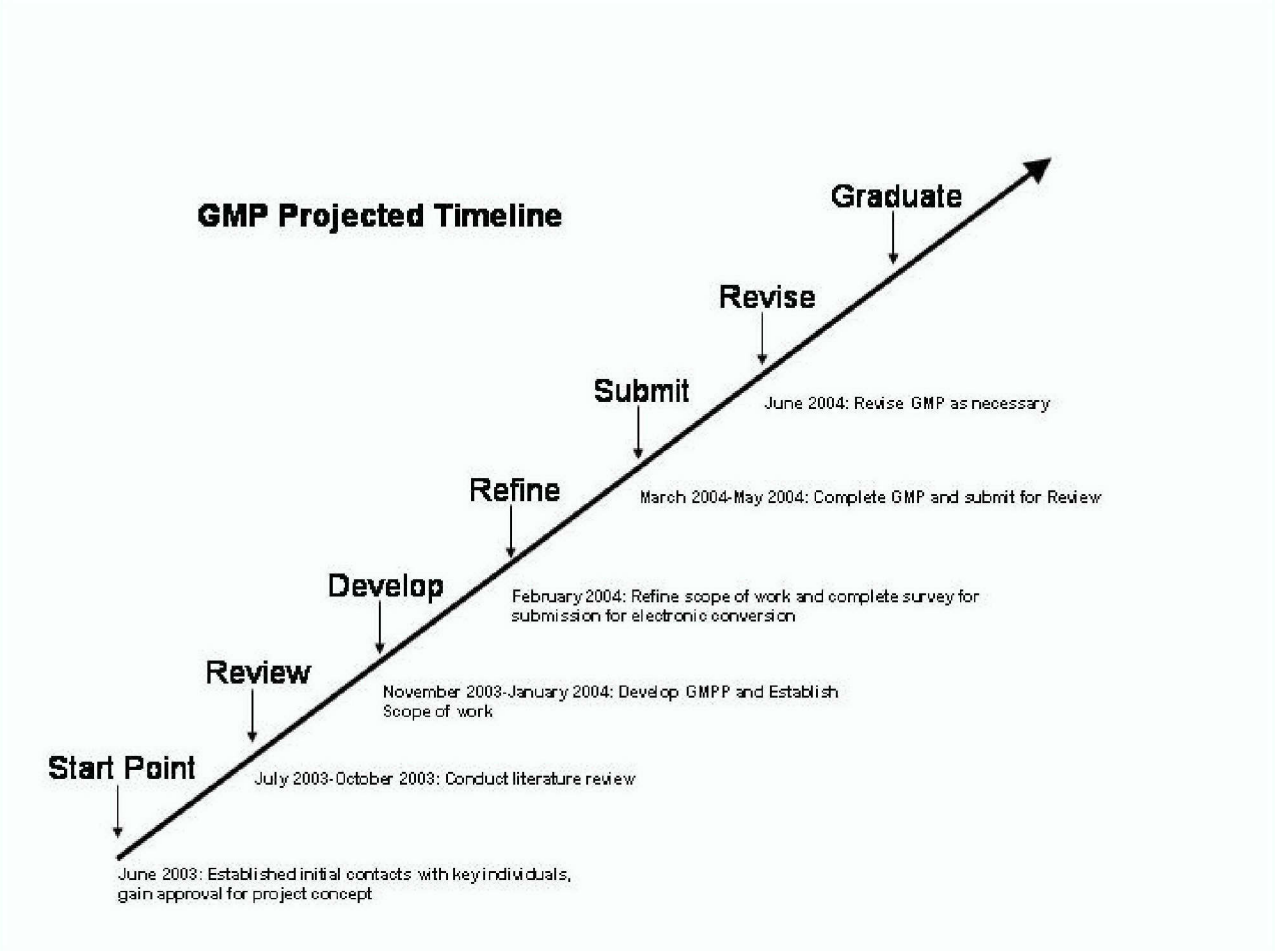



Chart 1.GMP Projected Timeline.

To give focal guidance, key junctures were determined and each point was labeled according to the primary theme for that period of time. For example, in the review phase the focus was to conduct a thorough literature review. Each of the periods had multiple sub-tasks associated with them.

During the review phase, the literature was segregated by focal areas and the time was distributed equally to assure adequate review of each topic of concern. During development, each sub-task was organized to serve as a step to the next sub-task. Further, critical issues were identified and constrained to specific times and dates. This assisted in creating a sense of forward progress for all activities.

Once the project had been approved, the focus shifted to refining the objectives and identifying potential bottlenecks. The defined end point for submission for preceptor and faculty review was designed to assure project completion within the time frame designated by the Baylor Residency Manual. Finally, the remaining time was allocated for revisions to meet preceptor and faculty guidance.

*Research Design: Building Support Tools*

In a large-scale project with potentially significant ramifications for a key program for MEDCOM, managing and monitoring progress and having expedient access to issue-specific contacts was vital. Once the timeline was established,

it was essential to develop a progress tracking document. The purpose of the progress tracking document was to maintain a record of challenges faced as the project moved forward (See Table 1). Another important tool developed to manage the project was a contact and resource document. This document provided a quick and easy method to communicate between the many individuals that were involved in the process (See Appendix A).

In essence, these two electronic documents provided a bridge between the project, the timeline, and the key players. Additionally, it was necessary to create a working digital template for the survey to provide a guide for the AMEDD C&S survey developer to work from as she crafted the hypertext mark-up language (HTML) version that would serve as the web-based model. The survey template was designed using Microsoft Excel as its cell-based format provided an easy conversion model for the HTML version (See Appendix B and C).

The need to manage time led to the use of Microsoft Outlook to provide alerts for contact and resource requirements to meet the project's objectives. The Outlook calendar module and its

meeting scheduling sub-system provides an excellent tool for developing hourly, daily, weekly, monthly, and even quarterly or annual alerts. These alerts were vital to maintaining forward progress on the project over time while coordinating other residency and unit requirements.

*Validity and Reliability*

To establish a valid instrument the use of the expert panel review process and a pilot study was utilized. These two processes complement and augment each other. Reliability will be established in the post-project phase once the survey is administered on a broad scale and the results can be compiled, analyzed, and compared.

*Limitations*

Due to time constraints, only a pilot group was given the actual survey. Since the pilot survey was only administered to one FST, the results should not be used to establish any conclusive findings associated with the effectiveness or content of training at the ATTC. Time also impacted the review process and led to a realignment of the original objectives and scope.

Finally, the scope of this survey is limited to review of the training conducted at the ATTC. Therefore, the survey should not be used as a decision support tool for any other program.

## Results

The measure of success for any project is generally defined by its ability to produce results that will enhance or improve the body of knowledge. This enhancement and improvement can be as broad as creating a catalyst for change or as simple as establishing where a process may be ineffective. For the purposes of this project, the results are in essence the process itself and the final product, the survey.

In the table below, the process of developing the survey is broken into the categories established in the timeline discussed in methods and procedures. Each of these categories is expanded and reviewed in terms of time, resources, delays, and resolution. The focus of the table is to help define how each phase fit together in terms of these four factors.

As reflected by the table, the greatest delays associated with project completion occurred during the development phase.

Delays in both the review and submission phases also caused modification to the project's scope and timeline.

Table 1. Progress Control Table.

| Progress Control Table | | | | | |
|---|---|---|---|---|---|
| Phase | Time (in days) | Resources (Number of Contacts and Support Personnel) | Delays (In days) | Source of Delay (C=Communication, T=Time Constraints, R=Resource Contraints, O=Other) | Resolution (C=Communication, S=Change of Scope, M=Modification to Timeline, O=Other) |
| Start Point | 14 | 12 | 0 | - | - |
| Review | 140 | 3 | 20 | C,R | S, M |
| Develop | 130 | 14 | 40 | C,T,R | C,S,M,O |
| Refine | 20 | 6 | 0 | - | - |
| Submit | 90 | 4 | 21 | C,R | C,M,O |
| Revise | 21 | 4 | 0 | - | - |

The majority of these issues were resolved through effective communication and modifications to the scope and timeline.

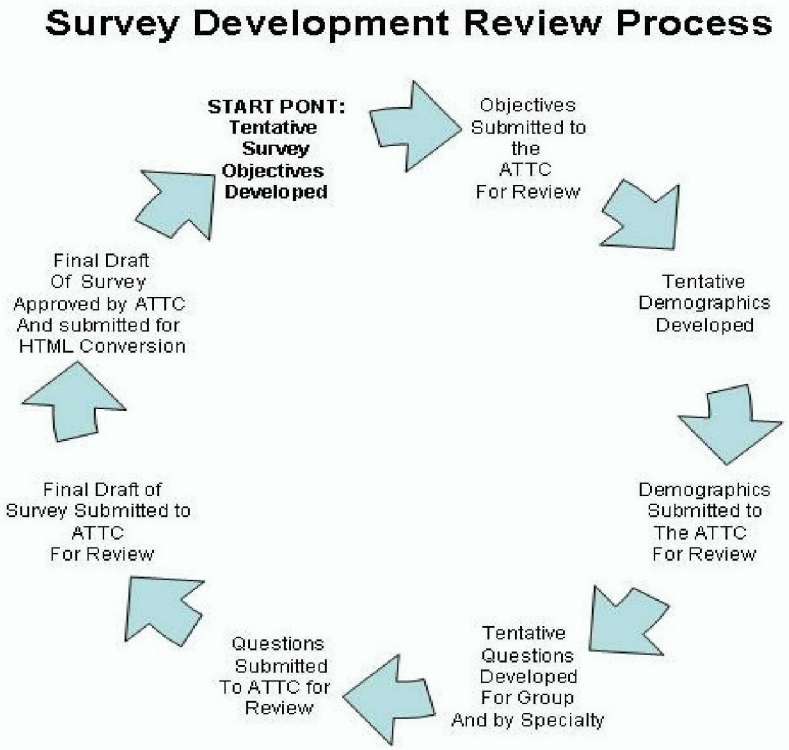
*Process to Progress*

The survey tool went through numerous echelons of review in the development and refinement phases of the project. The chart below illustrates this process of staffing the project to assure that the final product would meet the needs of the ATTC, AMEDD C&S, and MEDCOM.

As the chart clearly articulates, the methodic nature of developing and reviewing was repetitive and arguably redundant.

However, this process was necessary to create a product of joint effort that was of relevant value to the ATTC.

Chart 2. Survey Development Process




While the tool was converted to HTML, a pilot study was conducted using the 801st FST to field the final draft for participant feedback. The objective of this process was to produce a parallel review and further validate the survey's content and approach.

*Final Product*

The survey (see Appendix B) was administered to the pilot group. In verbal feedback post-participation, the participants found that the tool adequately allowed them to convey their thoughts regarding the ATTC. Further feedback indicated the length, structure, and logic of the survey's design was also appropriate. The ATTC staff was also concerned with length and structure and aided in streamlining the tool to optimize valid and reliable feedback from the participants. The feedback from the pilot participants and the modification suggestions from the ATTC led to minor changes to the end product (See Appendix C). These final changes have been submitted to the AMEDD C&S survey developer and are pending amendment. Once the changes have been made, the survey will be submitted to the ATTC through the Executive Officer along with the consolidated participant roster so that administration of the survey can begin and the results can be used to evaluate the effectiveness of training conducted at the ATTC.

# Discussion

## *Challenges*

The scope and objectives of the original design for the GMP were tremendous; simply trying to find supportive literature proved to be a significant undertaking. During the literature review over 120 articles, documents, books, and regulations were evaluated for topical relevance. None of the initial articles provided any direct guidance for how to create a survey of this nature or with this focus. The integration and blending of numerous ideas and concepts was necessary to produce a product that met the purpose of the GMP.

Communication also proved to be a significant challenge as the project evolved. Even with the use of email and telephone, it was difficult to adequately establish regular or scheduled discussions over the progress of the project. The fact that we were and are a nation at war shifted the significance of this process as training deploying units and meeting DoD level objectives for overall after action evaluations supplanted the

survey. Consistency and flexibility were essential for the project to continue to move forward.

As the survey tool evolved, the amount of effort required to sustain communications and monitor the developing product grew exponentially. By March it was obvious that a change in the scope of the project's original objectives would be necessary to meet the GMP submission requirements and still produce a final product that would be of benefit. The original plan had been to actually deploy the survey to all FST team members that were deployed in support of OEF and OIF and provide feedback on the results as a part of this study.

As war time mission requirements and directives consumed the available time the ATTC had to work on the review of each segment of development and the amount of time the survey developer had to singularly dedicate to the actual digital conversion of the survey, a project review with my preceptor and reader led to a realignment of the primary project objectives. This realignment changed the focus from administration and

evaluation of statistically relevant findings to the actual creation of the survey tool.

*Successes*

Each phase of the process of survey development built on the last with reasonable success. The methodic development of the tool prevented significant revisions as the survey evolved. The demographics and group and individual segments of the survey were crafted to focus on the team approach that the ATTC fosters. Even with the tumultuous environment for the ATTC staff and leadership, this approach created corporate buy-in and helped to augment the amount of responsive involvement provided by the ATTC.

The evolution of the project, its scope and timeline helped to solidify the principles of managerial leadership and their relevance and significance in a real-world setting. Being articulate, listening well, establishing a plan, and realizing when time constraints must guide the scope of a leader's objectives and shape the path for meeting them are all essential skills. This project touched on each of these crucial precepts.

As challenges presented themselves, modifications were made to meet the purpose of the GMP. Each of these modifications was driven by balancing time constraints and available resources with the significance of meeting the project's original objectives. As a senior executive, being able to weigh the value of many variables and produce a decision that is mission and vision oriented is essential. In the case of this project, the challenges faced were overcome by adapting the scope to meet time and resource constraints. Ultimately, the completion of the development, review, and approval of the survey instrument was the most important objective to achieve success.

Another significant achievement is the actual automation of the survey instrument to a web-based tool. This automation is revolutionary and will allow the ATTC to gather the data from the survey on a real-time basis. It will also allow the survey team at the AMEDD C&S to statistically evaluate the results with more expediency, thus producing more rapid and responsive changes to the POI when and if necessary.

This web-based approach will also provide the ATTC with the opportunity to make modifications to the metrics of the survey with relative ease as the program grows and changes. Further, these results can be quickly shared electronically with FST Unit Commanders to assist them in developing sustainment training that augments the ATTC rotations and enhances wartime mission readiness. These positive features combined with portability and security may help to establish the electronic, web-based survey media as the benchmark for gathering statistically relevant feedback on training for the MEDCOM and the Army.

Another valuable end product of this process has been the tracking documentation developed to monitor and regulate its progress. As MEDCOM moves to establish enterprise level thinking, utilizing pre-developed tools that assist leaders in accomplishing mission objectives will be essential. Each of the tools developed for this project are simplistic to use, built on industry standard software, and have been submitted to the Army Knowledge Online Knowledge Enterprise.

## Conclusion

As the MEDCOM works diligently to meet the demands of more and more field missions, assuring that the value and content of training is relevant to those missions is critical. The final product of this project will provide a much needed feedback mechanism to the crucial area of trauma training. Upon completion of this project, the objective will be to deploy this survey instrument as soon as possible to gather information. Once the deployment is completed, a follow-on project to statistically evaluate, review, and present the data collected will be essential to ultimately produce the results that will enhance the quality of training to our most forward surgical elements.

## Appendix A: Sample Contact Information Data Sheet

| Rank/Name | Title | Email | Telephone Number |
|---|---|---|---|
| COL Fretwell | Removed for Privacy | Removed for Privacy | Removed for Privacy |
| COL Holcomb | Removed for Privacy | Removed for Privacy | Removed for Privacy |
| COL Jones | Removed for Privacy | Removed for Privacy | Removed for Privacy |
| COL Knuth | Removed for Privacy | Removed for Privacy | Removed for Privacy |
| COL Pasquerella | Removed for Privacy | Removed for Privacy | Removed for Privacy |
| LTC LaFrance | Removed for Privacy | Removed for Privacy | Removed for Privacy |
| LTC Penner | Removed for Privacy | Removed for Privacy | Removed for Privacy |
| LTC Walker | Removed for Privacy | Removed for Privacy | Removed for Privacy |
| MAJ Favand | Removed for Privacy | Removed for Privacy | Removed for Privacy |
| MAJ Pace | Removed for Privacy | Removed for Privacy | Removed for Privacy |
| MAJ Schelinger | Removed for Privacy | Removed for Privacy | Removed for Privacy |
| Mrs. McCormick | Removed for Privacy | Removed for Privacy | Removed for Privacy |

## Appendix B: Demographics Survey Template for ATTC

| DEMOGRAPHIC INFORMATION | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Component | AC | RC | NG | | | | | |
| | | | | | | | | |
| Position | 61J | 61M | 66E | 66H8A | 66HM5 | 70B | 91D | 91W |
| (Check the box that applies) | | | | | | | | |
| Deployed Operation | OEF | OIF | Other | | | | | |
| (Check the box(es) that applies) | | | | | | | | |
| Attended ATTC Training | YES | NO | | | | | | |
| (Check the box that applies) | | | | | | | | |
| | 2 weeks | 4 weeks | Other | | | | | |
| If you checked "YES", how long was your training at the ATTC? | | | | | | | | |
| Total time on station (in months) | | | | | | | | |
| Time on station prior to deployment (in months) | | | | | | | | |
| Month and Year of attendance at ATTC | | (MMYY) | | | | | | |
| Total time deployed (in months) | | | | | | | | |
| Check the boxes that indicate training you were certified in at the time of your deployment | BCLS | ACLS | PALS | NNRP | BEMT | | | |
| | BTLS | ATLS | TNCC | CEN/CCRN | ABLS | | | |

| COMMON CORE QUESTIONS | | | | | |
|---|---|---|---|---|---|
| Rate the following questions using the scale provided: | 1=Strongly Disagree | 2=Disagree | 3=Agree | 4=Strongly Agree | N/A |
| The training provided at the Army/Ryder Trauma Training Center enhanced my readiness to provide care to trauma patients in a forward theater of operations | | | | | |
| The training provided at the Army/Ryder Trauma Training Center appropriately focused on the skills I needed to do my job while forward | | | | | |
| The training provided at the Army/Ryder Trauma Training Center should be continued for all FST's | | | | | |
| The environment at the Army/Ryder Trauma Training Center enhanced my learning experience | | | | | |
| The trainers at the Army/Ryder Trauma Training Center worked together well and encouraged a team approach to training | | | | | |
| The trainers at the Army/Ryder Trauma Training Center listened to my feedback | | | | | |
| I would attend the Army/Ryder Trauma Training Center training again | | | | | |
| The amount of time allocated for training at the Army/Ryder Trauma Training Center was sufficient to meet my training needs | | | | | |

Appendix C: ATTC Recommended Modifications

Please evaluate the following areas using the scale below.

SD=Strongly Disagree D=Disagree A=Agree SA=Strongly Agree N/A=Not Applicable

When responding to each statement, primary consideration for each response should be based on how well you feel each area prepared you to perform your job (garrison and deployments)

*GENERIC Combo: (Used for all MOS)*

1. Team Training facilitated through practical exercises such as: the Skills Lab, the MASCAL exercise, the Anatomic Exposure Lab, was an adequate length.

The classroom lecture series was adequately focused.

The classroom lecture series was an adequate length.

The Clinical Hands-On was adequate and properly focused to provide our team with the skills needed to do our job while deployed (on the battlefield).

The Capstone exercise was adequate and properly focused to provide our team with the skills needed to do our job while deployed (on the battlefield).

2. Team Training in regard to the primary survey of a multi-system trauma patient obtained through practical exercises, facilitated experiences and other discussions was adequate and properly focused to provide our team with

the skills needed to do our job while deployed (on the battlefield).

3. Team Training on the secondary survey of a multi-system trauma patient obtained through practical exercises, experiences and other discussions was adequate and properly focused to provide our team with the skills needed to do our job while deployed (on the battlefield).

4. Team Training in regard to MOS specific critical trauma tasks obtained through training, practical exercises, and other experiences at the ATTC enabled me to become a more functional member of my team.

5. Please take the time to write down any additional ATTC training related comments that you feel would aid us in enhancing the readiness of future Forward Surgical Teams.

*61J*

1. Team Training on Triage and MASCAL provided through practical exercises, experiences and other discussions were adequate and properly focused to provide our team with the skills needed to do our job while deployed (on the battlefield).

2. Team Training on the primary survey of a multi-system trauma patient obtained through practical exercises, experiences and other discussions was adequate and properly

focused to provide our team with the skills needed to do our job while deployed (on the battlefield).

3. Team Training on the secondary survey of a multi-system trauma patient obtained through practical exercises, experiences and other discussions was adequate and properly focused to provide our team with the skills needed to do our job while deployed (on the battlefield).

4. Team Training on the surgical management of the multi-system trauma patient obtained from the anatomic exposure lab, practical exercises, and actual surgical cases was adequate and properly focused to provide our team with the skills needed to do our job while deployed (on the battlefield).

5. Please take the time to write down any additional ATTC training related comments that you feel would aid us in enhancing the readiness of future Forward Surgical Teams.

*61M*

1. Team training on diagnosis and management (surgical and non-surgical management) of the orthopedic trauma patient obtained through practical exercises, experiences and other discussions was adequate and properly focused to provide our team with the skills needed to do our job while deployed (on the battlefield).

2. Team training on diagnosis and management of extremity injuries to include fractures, amputations and crush syndrome obtained through practical exercises, experiences and discussions was adequate and properly focused to provide our team with the skills needed to do our job while deployed (on the battlefield).

3. The cross-training obtained on general surgical trauma patients through practical exercises, experiences and discussions was adequate and properly focused to provide our team with the skills needed to do our job while deployed (on the battlefield).

4. Please take the time to write down any additional ATTC training related comments that you feel would aid us in enhancing the readiness of future Forward Surgical Teams.

*M6, M5, 8A and 91W (all will be the same)*

1. Team training regarding the over-all care of a multi-system trauma patient obtained through practical exercises, experiences, and other discussions was adequate and properly focused to provide our team with the skills necessary to do our job while deployed (on the battlefield).
2. Team training on the primary survey (ABCD's) of a multi-system trauma patient obtained through practical exercises, experiences and other discussions was adequate

and properly focused to provide our team with the skills necessary to do our job while deployed (on the battlefield).

3. Team training on the secondary survey of a multi-system trauma patient obtained through practical exercises, experiences and other discussions was adequate and properly focused to provide the skills necessary to do our job while deployed (on the battlefield).
4. Team training on MOS specific critical trauma tasks obtained through training, practical exercises, and other experiences at the ATTC enabled me to become a functional member of my team.
5. Please take the time to write down any additional ATTC training related comments that you feel would aid us in enhancing the readiness of future Forward Surgical Teams.

*70B*

1. Team management training (unit movement, HAZMAT, Convoy, Communications & Unit Force Protection), obtained through practical exercises, individual lessons, and other experiences was adequate and properly focused to provide our team with the skills necessary to do our job while deployed (on the battlefield).
2. Logistical and medical re-supply training obtained through practical exercises, individual lessons, and

other experiences was adequate and properly focused to provide our team with the skills necessary to do our job while deployed (on the battlefield).

3. Unit patient administrative management training (patient information management, evacuation, case log, blood tracking, and disposition tracking) obtained through practical exercises, individual lessons, and other experiences was adequate and properly focused to provide our team with the skills necessary to do our job while deployed (on the battlefield).
4. Please take the time to write down any additional ATTC training related comments that you feel would aid us in enhancing the readiness of future Forward Surgical Teams.

*66F*

1. Traumatic and complicated airway management training of the multi-system trauma patient obtained through practical exercises, experiences, and other discussions was adequate and properly focused to provide our team with the skills necessary to do our job while deployed (on the battlefield).
2. The team training obtained through practical exercises, experiences, and other discussions regarding the management of acute respiratory conditions and the necessary equipment needed to care for these patients was adequate and properly

focused to provide our team with the skills necessary to do our job while deployed (on the battlefield).

3. Central line placement and A&P training obtained through practical exercises done at the Cadaver lab was adequate and properly focused to provide our team with the skills necessary to do our job while deployed (on the battlefield).
4. The field anesthesia machine training obtained through practical exercises, experiences, and other discussions was adequate and properly focused to provide our team with the skills necessary to do our job while deployed (on the battlefield).
5. Please take the time to write down any additional ATTC training related comments that you feel would aid us in enhancing the readiness of future Forward Surgical Teams.

*66E and 91D (will be the same)*

1. The assist, scrub, and circulation skills obtained through surgical trauma training, exercises, and other experiences were adequate and properly focused to provide our team with the skills necessary to do our job while deployed (on the battlefield).
2. Team Training on Triage and MASCAL provided through practical exercises, experiences and other discussions was adequate and properly focused to provide our team with the

skills needed to do our job while deployed (on the battlefield).

3. Team training in regards to surgical room set-up and trouble shooting of operative instrument sets obtained through practical exercises, experiences and other discussions was adequate and properly focused to provide our team with the skills needed to do our job while deployed (on the battlefield).
4. Team training on the primary and secondary survey of a multi-system trauma patient obtained through practical exercises, experiences and other discussions was adequate and properly focused to provide our team with the skills needed to do our job while deployed (on the battlefield).
6. Please take the time to write down any additional ATTC training related comments that you feel would aid us in enhancing the readiness of future Forward Surgical Teams.

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