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14. ABSTRACT

Fratricide is not a new phenomenon in warfare; it is an unfortunate and tragic occurrence for which we continue to seek a solution. From World War I through the Vietnam War what has been generally accepted by many scholars and historians, is that two percent of all combat casualties resulted from fratricide. Recent combat operations by U.S. forces such as Desert Storm, Operation Enduring Freedom and Operation Iraqi Freedom have had fratricide rates that are considerably higher. This is despite the fact that there have been significant technological advances in hardware and weapons systems. The Department of Defense has spent countless dollars on technology in an effort to develop a system that will eliminate or significantly reduce fratricide, but technology alone is not the answer. Doctrine or the basic fundamentals of how U.S. forces are employed in combat is a critical component in reducing fratricide. More specifically, Joint Doctrine is how U.S. forces will conduct operations in order to accomplish their mission objectives. Current Joint doctrine does not specifically address fratricide prevention at a level/degree that provides operators with useable tools to ensure that fratricide prevention occurs at all levels of warfare. Using the principles of Operational Risk Management and incorporating them with methods within Joint doctrine we can improve the tools/products available to operators. U.S. military doctrine must continually be evaluated and evolve if it is to be relevant in today's fast-paced combat environment. The best way to reduce fratricide is through the synergistic effects of technology and doctrine combined.

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FRATRICIDE, TECHNOLOGY AND JOINT DOCTRINE

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A paper submitted to the faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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Fratricide, Technology and Joint Doctrine

INTRODUCTION

If one analyzes the historical occurrence of fratricide in combat, what is generally accepted by most historians and many scholars is that from World War I through the Vietnam War two percent of all casualties were the result of fratricide. In recent operations such as Desert Storm, Operation Enduring Freedom and Operation Iraqi Freedom, the fratricide level has been significantly higher. This is despite the significant technology improvements in U.S. military capabilities. Because fratricide has such a negative effect on operations, and high visibility in the media, it remains a critical issue for the Department of Defense (DOD).

Fratricide is defined in Joint Pub 3-09.3, Joint Tactics Techniques and Procedures for Close Air Support as "casualties to friendly forces caused by friendly fire."[1] In the Army's Field Manual 3-0, Operations, it is defined as "the unintentional killing or wounding of friendly personnel by friendly firepower."[2] Incredibly, fratricide is not defined in Joint Pub 1-02, Department of Defense Dictionary of Military and Associated Terms. While definitions are important, the real issue, which is nicely summarized by a retired Army command sergeant major's assessment: "Friendly fire isn't friendly."[3]

Fratricide has an impact not just at the tactical level but at all levels of warfare. Fratricide incidents have a significant effect on the combat readiness and effectiveness of the unit involved. At the tactical levels effects may include:

- Loss of aggressiveness during fire and maneuver.
- Loss of initiative.
- Hesitation to use supporting combat systems.
- Hesitation to conduct limited visibility operations.
- Increase of leader self-doubt.[4]

Fratricide also has a major psychological impact not only on the sailors, soldiers, or airman engaged in combat but on the public and, more importantly surviving family members. With coalition operations becoming the norm, fratricide involving coalition members can have a significant impact at the operational and strategic levels. These effects may include:

- Needless loss of combat power.
- Disrupted operations.
- Over-supervision of units.

- A general degradation of cohesion and morale.[5]

Recent combat operations by U.S. forces have demonstrated that technology alone cannot eliminate the occurrence of fratricide on the battlefield. Doctrine, the fundamental blocking and tackling skills of the armed services, is as critical as our technological advancements. U.S. military doctrine must continually be evaluated and improved if we are to ensure that it is not outpaced by the fluidity and complexity of today's fast-paced and highly maneuver oriented warfare. The key to reducing fratricide in modern warfare is through the complementary and synergistic effects of technology and doctrine combined. Doctrine enables the warfighter to maximize what technology brings to the battlefield.

BACKGROUND

Fratricide is not new to warfare; it has existed in every conflict since man began fighting his fellow man. In the Peloponnesian War, Thucydides' describes the night attack at Epipolae in 413 B.C.:

> "The Athenians now fell into great disorder and perplexity…seeking one another, taking all in front of them for enemies, even although they might be some of their flying friends…They ended by coming into collision with each other in many parts of the field, friends with friends, and citizens with citizens, and not only terrified one another, but even came to blows and could only be parted with difficulty."[6]

An example of the impact fratricide can have at the operational to strategic level occurred during the Civil War. On April 30, 1863, Gen. Robert E. Lee's Army was contesting the Union Army's advance across the Rappahannock River near Chancellorsville, Va. Gen. Thomas J. "Stonewall" Jackson and his aides were scouting ahead for new advantages. "As they returned, a Confederate unit mistook them for Union cavalry and opened fire, wounding Jackson. He was evacuated from the battlefield and his left arm was amputated. Pneumonia set in and he died May 8, 1863."[7] His loss to the Confederate Army has often been cited as a possible reason for the South's loss of the war. "Using Stonewall Jackson's death as an example, some have said that his loss unbalanced General Lee so much that it caused him to abandon the principles of war at Gettysburg, to lose the battle, and possibly even influence the outcome of the war."[8]

During World War I, fratricide did occur but its documentation was sketchy at best. Fratricide incidents during WWII were also not tracked as well as incidents today but there are several well documented cases. Probably the first person to try to quantify the occurrence of fratricide during previous wars was Lieutenant

Colonel Charles R. Schrader. In his book Amicicide: The Problem of Friendly Fire in Modern War, he attempted to assign fratricide rates primarily based on data from WW II, Korea and Vietnam. Although his study was not scientifically based, which he acknowledges, it was the first real attempt by anyone to quantify the losses that occurred in battle due to friendly fire. Lieutenant Colonel Schrader cites the occurrence of fratricide from World War I through the Vietnam War as approximately two percent.[9] The advent of air power, improved weapons technology, and maneuver warfare has compounded the occurrence of fratricide from WWII through the present day.

During Operation Desert Storm the fratricide rate was significantly higher. "In a 13 August 1991 news conference, Department of Defense officials announced that during the Persian Gulf War 35 Americans were killed and 72 wounded by friendly fire."[10] The 35 combat deaths during the first Gulf War as a result of fratricide were 24% percent of all combat fatalities.[11]

Total fratricide incidents in Operation Enduring Freedom have not been finalized but fratricide incidents have occurred. "…Seven (possibly eight) out of 23 coalition hostile fire casualties in the Afghan war (a figure approaching 35 percent) have been caused by fratricide."[12] Some of these incidents remain under investigation.

Although Operation Iraqi Freedom has not concluded, a quick snap shot of fratricide incidents is available. "So far, 18 of the 149 fatalities suffered by U.S. and British soldiers were the result of errant strikes by coalition forces."[13] This places combat fatalities caused by fratricide at approximately 12 percent. These numbers do not account for the 18 allied Kurdish soldiers killed by friendly fire or account for more than 77 allied troops that have been injured.[14] Though not complete, these numbers provide a sense of the frequency of fratricide that has occurred thus far in the operation.

The higher number of fratricide incidents since Desert Storm seems to suggest that despite our advanced technology, fratricide is increasing. More importantly, the numbers demonstrate that fratricide remains an important issue that needs to be addressed by solutions beyond just technology alone. While technology has improved many of our systems capabilities, these new systems have been fielded in relatively few operational combat units. We are still in the early stages of providing U.S. forces with the tools necessary to maintain complete and uninterrupted situational awareness in the battlespace. Also, as each service works diligently to

improve its technology capabilities, interoperability remains an issue that hampers the effectiveness of these new systems.

Another aspect of combat operations, brought on by technology and advanced weapons systems, is the mobility and maneuverability of U.S. forces in the battlespace. Since World War II and the Vietnam War, technology improvements have helped change the way U.S. forces fight and conduct war. U.S. forces are much better equipped to fight at night, in all weather conditions, and at a much greater tempo. Our forces use weapons systems that have much more lethality and can engage the enemy at much greater distances. These advances have made fratricide prevention in the battlespace more difficult. Even with the improved systems technology, units still have difficulties determining friend or foe. This technology shortfall, coupled with the improved lethality of our weapons, makes fratricide prevention a critical issue.

The increasing capabilities in C^4 systems, to include the information available and the rapidity with which an operator will be able to access that information, can help mitigate future blue on blue engagements, but it will not significantly reduce them. We have spent countless dollars on technology, but technology alone is not the answer. Doctrine, the principles by which we train and fight, is what enables U.S. forces to consolidate overwhelming combat power in the battlespace.

ANALYSIS

Fratricide prevention cannot be studied without first understanding the primary causes of fratricide. The most common cause of fratricide is the loss of Situational Awareness (SA). In investigating fratricide incidents, almost every one stems from some loss of SA on a part of the members involved. Situational awareness errors may stem from inadequate instruction or clarity of orders (understanding), may include navigational errors in the battlespace by air or ground units, or may be caused by environmental conditions. Another common error contributing to fratricide is inaccurate Combat Identification or Positive Identification. This can be especially complicated in a coalition environment, which is how U.S. forces are commonly employed. Inadequate control measures such as Airspace Control Measures or Fire Support Coordination Measures often contribute to fratricide. Lastly, Weapons Errors such as failures of fire control discipline or violations of the Rules of Engagement are often causes of fratricide incidents. There are many other contributing factors that can lead to fratricide but these are the most common.[15]

Technology does play a role in fratricide reduction. Technological advancements since the end of WWII have been incredible. Inter-service connectivity and more advanced weapons systems such as precision guided munitions have given U.S. forces unchallengeable capabilities throughout the battlespace. Still, these advanced weapons systems have not eliminated the occurrence of fratricide. In fact, some evidence suggests that the improved weapons system technology has, in some cases, made recent fratricide incidents more lethal. Technologies that were developed to increase the efficiency and lethality of conventional warfare are just as deadly when they inadvertently hit friendly troops. The lethality of modern ammunition, for example, was a problem faced during Desert Storm. "In several instances; antitank rounds, fired at Iraqi vehicles, went entirely through them and hit U.S. Armored vehicles hundreds of meters behind them."[16] Another finding during investigations following Desert Storm was, "Three-fourths of the American tanks destroyed on the battlefield were hit by friendly fire."[17] Probably the most deadly incident during Operation Iraqi Freedom was when an American aircraft bombed a Kurdish convoy in Northern Iraq killing eighteen Kurdish fighters and wounding 45 others.[18] According to Lt. Gen. James T. Conway, commander of the 1 Marine Expeditionary Force, "combat ID [the identification of friendly and enemy forces]…was the biggest disappointment of the war; we had blue on blue [fratricide] again. It is a tragic story and young Marines are dying who simply don't have to die…"[19]

The Joint Combat Identification and Evaluation Team (JCIET) conducts large-scale tactical evaluations using the latest equipment from all four services to evaluate, investigate and assess integration and interoperability of systems, concepts and doctrine that directly affect combat identification.[20] Following an exercise conducted in April 2002, the organization acknowledged that "fratricide arises from many factors that are not easily ameliorated by technology."[21] Although technology will continue to be important in fratricide reduction, there is still much to be done. Interoperability between U.S. forces remains an issue. Operations in a coalition environment further complicate these issues. Additionally, system costs prevent everyone from having the latest technologies. For example, the Army's most promising new technology is what is commonly known as the Blue Force Tracker, or the Force XXI Battle Command Brigade and Below (FBCB2) tactical communications system. It greatly improves the situational awareness of combat units on the battlefield but costs about $10,000 per ground unit to install.[22] Current issues with Blue Force Tracker are that not enough

systems exist and that they are not interoperable with other systems such as the system used by the Marine Corps, the Mounted Digital Automated Communications Terminal (MDACT).[23] The Blue Force Tracker also does not allow supporting assets such as airborne assets or surface fire support assets to see blue force positioning, highlighting service interoperability problems.

The bridge between U.S. forces' advanced weapons systems capabilities and effective combat employment is doctrine. Doctrine is how the services achieve their missions/objectives at the operational and tactical levels. For the most part, it is the guiding principles by which a service trains and fights. Doctrine among the services is not that different. What is unique is that each service's doctrine reflects the particular battlespace environment in which they tend to operate. In a perfect world, before a new technology could be introduced its effects on doctrine would have already been examined and doctrine updated or adjusted accordingly.

Doctrine is vital to all of the services. It provides a framework but is still flexible enough to allow a commander to execute his mission and requires that he exercise judgment. Joint Pub 1-02, Department of Defense Dictionary of Military and Associated Terms, defines doctrine as: "Fundamental principles by which the military forces or elements thereof guide their actions in support of national objectives. It is authoritative but requires judgment in application."[24]

As important as doctrine has become to each of the services and joint service integration, there is little discussion on fratricide prevention in our Joint Pubs. This is due in part to the fact that most DOD efforts to reduce fratricide following Desert Storm have concentrated on technological solutions. The Joint Air Defense Operations/Joint Engagement Zone Exercise in 1994 was one of the first DOD efforts to examine our Combat Identification capability. The Dismounted Soldier Identification Demonstration in October 2003 and Millennium Challenge 2002 are examples of the continuing focus on technology efforts to solve the problem of fratricide. As Lt. Gen. Conway stated in his address to the Marine Corps Association, "…We need devices out there that would indicate whether or not you are friendly or enemy. I am satisfied that there is a system out there just waiting to be discovered that will do that."[25] The focus on technology is hard to resist. Technology solutions are tangible, they can be seen and usually result in software or hardware people can touch. Doctrine is intangible and harder to quantify, but doctrine is just as critical to the prevention of fratricide.

Army doctrine publications are the most comprehensive regarding fratricide and fratricide prevention methods. This is principally due to the fact that throughout history the Army has been the service that suffers the most casualties in a war from fratricide. The Air Force has increased the emphasis regarding fratricide prevention in its doctrine publications. The Marine Corps addresses fratricide prevention in its doctrinal publications as well, but not to the extent of the Army or Air Force. Navy doctrinal publications say very little regarding fratricide, or its prevention.

In all cases, however, when operations include multiple services, it is Joint doctrine that is to be followed. The first problem immediately evident is that there is no Joint doctrine publication devoted to fratricide prevention. The Joint Electronic Library CD-ROM (June 2003) contains approximately 95 different publications ranging in topics from Warfare of the Armed Forces, to Civil Affairs, to Bulk Petroleum and Water Doctrine. Yet in all of these doctrine publications not one is dedicated to fratricide prevention or avoidance. Fratricide prevention is discussed in some of the Joint Pubs as it relates to a specific mission area, but even then it tends to be generic in its treatment. A closer examination of the Joint Pubs will illustrate this problem.

Joint Pub 3-09.3, Joint Tactics Techniques and Procedures for Close Air Support, updated September of 2003, is one of the more thorough Joint Publications regarding fratricide. It states:

> "Items such as detailed mission planning, standardized procedures for friendly force tracking and supporting immediate air requests, realistic training/mission rehearsal, use of friendly tagging or tracking devices, and effective staff, forward air controller (FAC)/air officer (AO) and air liaison officer (ALO) coordination, and sound clearance of fires procedures can significantly reduce the likelihood of fratricide."[26]

While each of these is true and are excellent considerations regarding fratricide, Joint Pub 3-09.3 does not provide the reader with a comprehensive resource, including checklists, to ensure that fratricide prevention measures are being properly carried out during planning or execution of the mission. Appendix C (Sample Close Air Support Aircrew Mission Planning Guide) is an excellent source of information and very useful guide but it does not specifically address risk management for fratricide prevention.

Fratricide is also discussed in Joint Pub 3-30, Command and Control for Joint Air Operations. Joint Pub 3-30 emphasizes the importance of the Joint Force Air Component Commander's (JFACC) responsibility to establish procedures to be followed in a joint operating area (JOA) in order to reduce the potential for fratricide. It also discusses the importance of implementing an Airspace Control Plan (ACP), the Air Tasking Order (ATO), and Airspace Control Measures (ACM), etc., to coordinate the flow of assets in the airspace and prevent fratricide from happening, but it does not provide the user with a product to implement or follow. More importantly, Appendix A (Joint Air Operations Plan Format) does not address any risk management procedures regarding fratricide prevention during plan development. Risk analysis is discussed in Chapter Three and states: "The commander must balance the potential for fratricide and collateral damage with mission success. When risk becomes unacceptable, the commander should consider changes in operational employment."[27] This seems reasonable, but what steps does the operational commander consider, or what risk management tool did he use to make his decision? Even in Figure III-9, Risk Analysis: Operational Factors, fratricide is only listed as a factor to consider with no other detail provided to the user.

Joint Pub 3-09, Doctrine for Joint Fire Support, also has many references to fratricide. Emphasis is placed on the importance of risk management for the commander and how he must identify and assess situations in which fratricide may occur and how this assessment must be fully integrated during the planning and execution of operations.[28] This Joint Pub emphasizes the importance of fratricide avoidance yet there is not a chapter included on risk management and fratricide. In fact, fratricide prevention is only a short section at the end of the manual, and says less than the section on fratricide prevention in Chapter One.

In summary, what is described in the Joint Pubs are excellent methods and important considerations concerning fratricide but Joint doctrine needs to go further if it is to be useful in today's operating environment. The impact of fratricide is too great an issue at all levels of warfare. Operation Enduring Freedom and Operation Iraqi Freedom made this fact very evident, when our President found it necessary to send apologies to our coalition partners due to fratricide incidents in both operations. Joint Publications tend to be written in a fashion that allows greater interpretation and greater flexibility for the services, but in regards to fratricide prevention the publications should be as specific as possible. The Joint Pubs need to place more emphasis on risk management techniques and provide operators with useable tools/products to facilitate this process.

In addition to Joint doctrine, another document where the importance of fratricide prevention can be emphasized is the Operational Plan (OPLAN) or Operational Order (OPORD). A review of the OPLAN for Operation Iraqi Freedom revealed that a specific section on fratricide prevention did not exist. Fratricide prevention was addressed in mission specific sections but, as with the Joint Pubs, the OPLAN tended to provide methods to prevent fratricide or considerations that were useful in improving general awareness, rather than specific risk management products/checklists.

Recommendations

Joint doctrine regarding fratricide is spread throughout several of the Joint Publications, which makes it difficult to access or learn from. It also lessens the likelihood that an individual will search through all of the required publications to glean the critical lessons provided. This is a critical aspect to consider because of the sheer volume of material that tactical operators must keep up with.

The first action that needs to be taken to improve the impact of doctrine on fratricide is to develop a Joint Publication that deals specifically with fratricide prevention. This publication should focus on where fratricide most often occurs, historically ground-to-ground engagements and air-to-ground engagements, but the publication should also include the other battlespace environments where fratricide can occur, such as air-to-air, ground-to-air (land), surface-to-air (sea) and air-to-surface. Creating a single publication will facilitate users reading it and also improve the information available by focusing on fratricide prevention aspects in each of the warfare environments described. A single publication on fratricide prevention will also create a one-stop shopping reference on a very important issue. The pub will make it easier for service members to discover information regarding fratricide prevention techniques and also make it more likely to be used by them.

In developing a new publication regarding fratricide prevention, it is important to ensure that the principles of Operational Risk Management (ORM) are applied to each of the battlespace environments where fratricide can occur. This is the key element that will make the publication useful at all levels of warfare. It will provide the basis for updating current doctrinal practices by developing specific resources and checklists for service members. Operational commanders are already tasked with using ORM principles in the operational planning process; including it in a Joint Pub specifically dealing with fratricide prevention will elevate its importance to the appropriate level for all players. The basic principles of ORM should be familiar to most

service members and include identifying the hazards, assessing the hazards, making risk decisions, implementing controls, and supervising or evaluating the outcome. Using these very basic principles, we can greatly improve our fratricide awareness and reduce it in our complex battlespace. The Army has been the leader in ORM and has well established procedures in many warfare areas. The Army has also established a specific publication pertaining to risk management, Field Manual 100-14, Risk Management. In FM 100-14, the basic five step principles of ORM, plus two additional steps, are used to address specific mission tasks. A Risk Management Worksheet (found in Appendix-2) starts by identifying the mission or task to be accomplished. It then identifies the hazards, assesses the hazards, develops controls, determines residual risk, implements controls, determines overall mission/task risk, and supervises and evaluates. Work sheet instructions can be found in Appendix-1, Figure A-1. Also included are several examples in the Appendix, Examples of Risk Management Application that operators can use for guidance. While the examples are specifically related to ground missions, the essential premise is very straightforward. Using the Army risk management model, a similar document specifically related to fratricide prevention could be developed. Another good example from the Army is found in FM 3-90.2, The Tank and Mechanized Infantry Battalion Task Force. Appendix D, Risk Management and Fratricide Avoidance, covers risk management throughout the entire Military Decision Making Process (MDMP). Using these two publications as a starting point to develop a manual on fratricide prevention that is tied much more closely with operational risk management, will lead to doctrine with more teeth and, more importantly, doctrine that is more attuned to the dynamics of today's battlespace.

Updating current publications so that they include more emphasis on risk management procedures is a way to help raise awareness and reduce the risk of fratricide. For example, Appendix C (Sample Close Air Support Aircrew Mission Planning Guide) of the previously cited Joint Pub 3-09.3 could easily be adapted to include a specific section regarding fratricide prevention measures, based on ORM principles. It may also be useful to include a specific risk management section for fratricide prevention as part of Appendix A (Joint Air Operations Plan Format) in Joint Pub 3-30, Command and Control for Joint Air Operations. Similarly, Appendix A (Control and Coordination Measures), of Joint Pub 3-09, Doctrine for Joint Fire Support, contains

very useful information that if re-configured in an ORM framework could make the appendix a more useful tool/product that operators could employ.

A Joint Pub on fratricide prevention is only part of the answer. Fratricide prevention should also receive more attention in the OPLAN or OPORD. As noted in the OPLAN for Iraqi Freedom, fratricide prevention is not specifically addressed in a separate section or appendix. Any document coming from the operational commander needs to stress the impact fratricide can have on operations and the importance of preventing it. By emphasizing the importance of fratricide prevention and including specific ORM measures addressing each environment that fratricide may occur, the operational commander can directly heighten the awareness of all units in his area of responsibility (AOR).

Another recommendation to improve doctrine's combat effectiveness is to increase the opportunities for Joint training. Doctrine is best examined and validated through training in which U.S. forces and personnel use Joint doctrine to accomplish mission objectives. Joint training needs to become the norm rather than the exception. Joint training opportunities may have improved since Desert Storm but many units still have not been able to take advantage of these opportunities. Because the services are required to participate in Joint training, one way to improve participation is to specifically allocate a portion of a unit's training dollars toward Joint training. There are many requirements placed on the training dollars budgeted for the services, and this additional requirement would place appropriate emphasis on the problem by ensuring that some unit training be joint or multi-service.

When Joint training does occur, the training must be focused on integrated operations and must test the principles contained in Joint doctrine. This is a key component in the development of working relationships and building trust between units of different services involved in combat operations. Service parochialism and anxieties, which may lead to fratricide, can only be conquered if Joint training occurs. Since Desert Storm there have been several large scale exercises such as ASCIET (All Services Combat Identification and Evaluation Team) or Millennium Challenge that evaluates systems and doctrine among the services, but too often these exercises are dominated by the technology aspects, and evaluation of doctrine is overshadowed. Joint training, emphasizing Joint doctrine, is an essential component of fratricide prevention and, until such training becomes the norm, fratricide will continue to plague U.S. and coalition forces.

Operational commanders continue to have a significant impact on training within their area of responsibility (AOR). Theater commanders should require that all units in their AOR conduct training on fratricide, to include its impact on operations and how to prevent it. This training could be similar in scope to the training provided for the Rules of Engagement, and also include situation exercises. Additionally, a theater commander can greatly facilitate opportunities for U.S. forces to conduct Joint training; enabling them to improve their understanding of each other's doctrine. As units are forward deployed to a theater, opportunities exist to train with each other and with coalition partners. These training evolutions do not need to be large scale or complicated exercises. Instead, small scale training opportunities between units that allow the operators to more freely explore doctrine should be the norm.

Finally, though not the focus of this paper, technology will continue to play an important role in the prevention of fratricide. We must continue to develop systems that improve the situational awareness of units throughout the battlespace if we are to reduce current fratricide rates. Technology solutions need to focus on interoperability between services and connectivity among all units/players, including our coalition partners, if a Common Operational Picture is ever to be a reality. Current systems technology also needs to expand beyond just identifying the friendlies in the battlespace and allow us to determine the foes as well.

Conclusion

The impact that fratricide can have on operations ranges from the tactical level all the way to the strategic. Recall the incident in which General "Stonewall" Jackson was mistakenly shot by his own men near Chancellorsville and died a few days later or, more recently, the strain on U.S./Canadian relations caused by the fratricide incident in Afghanistan during Operation Enduring Freedom.

Because doctrine plays such a vital role in how U.S. forces train and fight, it is critical that doctrine keep pace with technology and the highly complex battlespace of today. The importance of fratricide prevention to participating units, especially in coalition operations, the environment in which the U.S. expects to operate, cannot be underestimated. Increasing fratricide prevention awareness does not mean that the incredible combat power and capabilities of the armed services will be negatively impacted; rather it means that the effectiveness and interoperability between the services will be improved.

Current doctrine discussions regarding fratricide in our Joint Pubs provide useful methods to help reduce its occurrence. We must go one step further, however, and formally provide operators with more useful tools to ensure that fratricide prevention occurs at all levels of warfare. A Joint Pub dedicated to fratricide prevention, that uses the principles of ORM, would greatly increase the ability of units operating in a joint environment to prevent it. Many of these strategies and methods already exist in various service and Joint Publications, and in the operational planning process, but by formalizing them at the operational level we raise them to a significantly higher plane. It is also important to remember that by centralizing the information on fratricide in a single Joint Pub, which is easy to access, the probability that operators will use it also increases.

Joint training is also important to the development of improved doctrine. As the opportunities for Joint training increase, it will be important not to focus solely on technological solutions to fratricide but to also dedicate training time to the evaluation of doctrine. Doctrine can only be validated in a training environment, and must be prior to its use in combat. As with any system, the first time to use new doctrine is not in combat.

Modern combat is an extremely multifaceted evolution that is further complicated by highly maneuverable forces and extremely fast-paced operations. While technology will help mitigate fratricide, it must be integrated in conjunction with doctrine. Fratricide can not yet be eliminated completely in warfare, but by ensuring that our doctrine remains current and relevant we continue to do all that is possible to reduce the impact of fratricide during joint or coalition operations. It is essential to remember that "Doctrine is not fixed; any given doctrinal position reflects a snap shot in time."[29] Doctrine must continue to evolve if it is to be effective.

NOTES

1. Joint Chiefs of Staff, Joint Tactics, Techniques and Procedures for Close Air Support, Joint Pub 3-09.3 (Washington, DC: 3 September 2003), I-4.

2. U.S. Army, Operations, Field Manual 3-0 (Washington, DC: 14 June 2001), 4-10.

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