Risky Business: Challenges and Successes in Military Radiation Risk Communication

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ABSTRACT
Given the general public’s overall lack of knowledge about radiation and their heightened fear of its harmful effects, effective communication of radiation risks is often difficult. This is especially true when it comes to communicating the radiation risks stemming from military operations. Part of this difficulty stems from a lingering distrust of the military that harkens back to the controversy surrounding Veteran exposures to Agent Orange during the Vietnam War along with the often classified nature of many military operations. Additionally, there are unique military exposure scenarios, such as the use of nuclear weapons and combat use of depleted uranium as antiarmor munitions that are not found in the civilian sector. Also, the large, diverse nature of the military makes consistent risk communication across the vast and widespread organization very difficult. This manuscript highlights and discusses both the common and the distinctive challenges of effectively communicating military radiation risks, to include communicating through the media. The paper also introduces the Army’s Health Risk Communication Program and its role in assisting in effective risk communication efforts. The authors draw on their extensive collective experience to share 3 risk communication success stories that were accomplished through the innovative use of a matrixed, team approach that combines both health physics and risk communication expertise.

RISK COMMUNICATION: WHAT IT IS AND WHAT IT IS NOT

Chances are, if you asked a group of health physicists to define risk communication, you would get a wide variety of answers. Fortunately, there is a commonly accepted definition of risk communication:

Risk communication is an interactive process of the exchange of information and opinion among individuals, groups, and institutions. It involves multiple messages about the nature of risk and other messages, not strictly about risk, that express concerns, opinions, or reactions to risk messages or to legal and institutional arrangements for risk management.1

Although communication with the public is typically thought to be a public affairs or public relations function, the authors view risk communications as a unique discipline with expertise in communication that combines an understanding of science and its limitations with an appreciation of the psychology and sociology of how people, individually and collectively, process, understand, and ultimately come to accept or reject risks to human health.

Having provided a commonly accepted definition of risk communication, we now attempt to debunk some popular myths about it. First, risk communication is not a “quick fix” for dealing with a crisis, nor is it an afterthought in responding to an emergency, or a panacea for handling public concerns. Risk communication is never a one-way dialogue simply “telling” the public what the risks are, thereby ending the matter. Nor is risk communication public affairs or public information, where the purpose is to convey an organization’s message, story, or agenda.1 And finally, risk communication is never, ever “spin.” In its truest sense, risk communication is a combination of “tools” to be used when concern is high, and “processes” that integrate risk communication factors into the overall risk management of an issue. This paper outlines the use of these concepts in actual real-world situations involving radiation risk.

COMMON AND UNIQUE CHALLENGES OF MILITARY RADIATION RISK COMMUNICATION

Communicators of military radiation risk share all of the common challenges of anyone conveying radiation risks. First, the very nature of radiation makes communicating its risks very difficult. Although radiation is ubiquitous, exposure is imperceptible to the human senses, making it both unfamiliar and seemingly nefarious. Also, radiation risk is highly complex: radiation exposure at very high doses can cause immediate death clearly due to its effects, while at low doses it may or may not cause cancer years or decades after exposure (and if induced, these cancers cannot be identified as radiogenic). Further complicating matters is the fact that radiation can be both an internal and external hazard, depending upon the radionuclide and the type of radiation it emits (alpha, beta, gamma, etc). The general public’s overall understanding about radiation is also extremely limited and often tainted and distorted by misrepresentation of
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its risks in popular culture, the news media, and by ac-
tivists. Finally, society’s risk appetite has changed over
time, with increased demands by society’s members to
be involved in risk management decisions that person-
ally affect them, and a decreased overall societal toler-
ance of risk in general (eg, demands for zero risk).

Added to this already contentious situation are the
unique challenges of communicating military radia-
tion risks. First, there is a latent distrust of the military
that harkens back to the legacy of veteran exposures
to Agent Orange during the Vietnam War. Also, many
military operations are classified, thereby serving as a
serious barrier to open risk communication. To further
complicate things, the military also has its own unique
and sometimes unfamiliar radiation sources, such as nu-
clear weapons and depleted uranium which, because of
its unique metallurgic properties, makes it both an ideal
antiarmor munition and armor plating. Finally, the mili-
tary is a large, diverse, bureaucratic organization with
many stovepipe* and silo† components, making consist-
tent risk communication a constant challenge.

COMPONENTS OF RISK COMMUNICATION

In the field of general communication, there are 3 dis-
tinct components, normally listed in this order: messen-
ger, message, and audience. However, in health physics,
one typically starts with the message (what is the dose),
then focuses on the audience (patients, workers, general
public), and rarely, if at all, do health physicists think
about themselves, the messengers. Conversely, in this
paper, we deliberately choose to begin with the audience
because, in our opinion, understanding the audience is
the most important part of effective risk communication.
However, as mentioned previously, it is usually consid-
ered secondarily, at best. Important information about
the audience includes their actual concerns (not what the
experts think are their concerns); other risks they may
be facing; their level of understanding of science and
their trust in both it and in scientists; their preconcep-
tions about radiation and its risks; and other cofactors
such as possible economic loss due to radiological con-
tamination, potential stigma by being “contaminated or
exposed,” and their overall perception of social justice.
Research also shows that the human brain processes
risk information differently when concern is high, so it
is important to account and plan for these changes in
message development and overall risk communication
efforts, particularly about radiation risks.4

Next, we address the messenger, the one actually com-
municating the risk. Often, health physicists find them-
severs as risk communicators because of their unique
expertise in radiation safety. However, while this expert-
ise is essential, the most important trait in an effective
risk communicator is empathy.5 This is because wor-
rried people need their emotions and perceptions about
specific risks verbally and visibly acknowledged by the
risk communicator before productive communication
can take place. Additionally, a messenger must be open,
honest, and sincere. Since many risk communication
events can be quite emotionally heated, the health physi-
cist must also be able to practice the fine art of deflec-
tion and detachment, not taking any anger or hostility
personally (which sounds easy but is very difficult to
do in practice!). Other factors to consider are the ability
to deal with uncertainty by describing what is known,
what is not known, and what will be done to fill any
data gaps; a genuine commitment to follow up; and be-
ing both willing and prepared to go the extra distance to
address the audience’s concerns (such as offering dosi-
metric monitoring or bioassay sampling even when it is
not legally required or deemed scientifically necessary).

Finally, we address the message. Although it’s tempt-
ing to merely develop messages based on a radiological
assessment alone, the most effective messages are those
that balance what the audience wants to know with what
you need to provide (thus our focus on the audience first).
No more than 3 messages should be provided in a given
situation, since the human brain when under stress is
capable of processing only limited amounts of informa-
tion.6 Messages should be simple (provided in the lan-
guage of the audience) and concise, but not condescend-
ing. Also, messages should always avoid the use of jarg
on and never include humor. The messages should be
brief (7-12 words, if possible) and include the reemphasis
of its clear points. Whenever possible, messages should
be validated by credible independent third party sources,
such as the National Council on Radiation Protection
and Measurements or the International Commission on
Radiological Protection for international audiences.

THE ARMY’S HEALTH RISK COMMUNICATION
PROGRAM

Health risk communication expertise within Army Med-
icine is available from 2 sources. First, risk communica-
tion expertise is now available within the Communication
Directorate at the Army Medical Command (MED-
COM) headquarters. This is a new skill set within the
Directorate intended to support issues MEDCOM-wide and
is slowly being integrated into sensitive, high-profile
projects throughout the Command. The subject matter
expert (SME) provides senior-level risk communication

*An organizational structure in which the flow of information is
restricted to up and down through lines of control but is inhibited
or prevented from moving across the organization.2
†A silo structure is one that functions almost entirely within itself,
without interaction, communication, or cooperation with other
components of the organization.3
guidance to identify and develop strategies to minimize communication and reputational risks, strengthen audience confidence in Army medicine, increase risk and crisis communication skills level and standardize crisis communication response throughout MEDCOM, and improve the effectiveness of communication efforts. The SME has provided risk communication recommendations and guidance to numerous MEDCOM-wide issues, including the temporary removal of dietary supplements, Soldier death from rabies, allegations of inadequate behavioral health care, use of expired blood products, and allegations of the use of recalled test questions in the Army’s radiology residency program. The risk communication SME has also provided onsite assistance to medical risk communication issues, such as the recent medical reevaluations of Soldiers seen by the forensic psychiatry team at the Madigan Army Medical Center.

The second source is the Army Public Health Command’s Health Risk Communication Program (HRCP), established in 1989 in response to increasing demands from the Army and the public for a broader approach to public health risks. The HRCP initially focused on risk communication training, but the program has expanded and now provides technical consultative expertise to customers throughout the Department of Defense, responding to the broad spectrum of health risk communication issues, including radiation. The HRCP staff members are highly trained and seasoned health risk communicators with diverse academic backgrounds, including education, public health, and health communication.

The HRCP supports the 3 components of the risk communication process (audience, messenger, and message), actively gathering qualitative data (eg, surveys, focus groups, sensing sessions) from concerned populations to assist in more effective communication throughout an entire project. The HRCP also uses audience feedback tools (eg, focus groups) to pretest and validate risk communication message effectiveness, for example, examining if the information presented is understandable, and are there words and/or phrases that resonate poorly with the target audience. The HRCP can assist risk communication messengers, often scientific subject matter experts who rely primarily on quantitative data, in becoming more effective. To this end, it provides several risk communication training options: introductory, advanced, and specialized. Over the past decade, the HRCP has provided several tailored and focused training sessions to Army health physicists, the most recent being a 2-day workshop based upon an actual case study involving the potential overexposure of a Soldier to 200 cSv. (It was determined that the Soldier’s dosimeter had been intentionally irradiated after the individual had worn it and turned it in.) The workshop included role-playing risk communication exercises involving actors playing the roles of the potentially exposed Soldier, his wife, and a news reporter. Finally, the HRCP provides complete support to public health crisis events, including the development and implementation of a comprehensive communication strategy, identifying and engaging key audiences, and providing on-the-ground support throughout the risk communication intervention to the evaluation phase.

The following case studies fully illustrate the comprehensive support provided by the Army’s health risk communication assets.

THREE MILITARY RADIATION RISK COMMUNICATION SUCCESS STORIES

The first radiation risk communication success story we present occurred in 2003, during the early phases of Operation Iraqi Freedom. High level concerns were raised about the safety of US troops occupying the Tuwaitha Nuclear Research Center, the crown jewel in Saddam Hussein’s nuclear weapons program, located just outside of Baghdad. At the time, over 4,000 Soldiers and Marines were in and around the facility which had been recently bombed during coalition operations, and vandalized and looted by local Iraqis. The decision was quickly made to assemble a special scientific team from within USACHPPM and expedite its dispatch to Iraq in order to perform a thorough field assessment and communicate the risks to the US forces deployed there. Since it was obvious that this was a radiation risk communication intervention, a matrixed team combining health physics (HP) and RC expertise was formed to develop a response strategy. First, the deploying team leader was provided refresher RC training and, based on demographic information and communication preferences of the units on the ground, key RC messages for the response were developed: (a) the team was deployed because of Army leadership concerns about protecting their troops; (b) the team’s mission was to ensure the safety of US forces; and (c) the team was comprised of the Army’s foremost radiation experts. Upon arrival, the team leader immediately met with the deployed Soldiers to present the situation and explain the safety of ambient radiation levels. Once environmental samples were analyzed and the risk assessment was completed, it was determined that the Soldiers were safe (the highest upper bound dose equivalent was estimated to be 1.2 cSv, which is less than one fourth on the annual allowable dose for radiation). Fact sheets were then developed and provided to the units and their direct leadership.
In the previous case study, a matrixed team was sent to the 442nd Military Police (MP) Company, New York Army National Guard, redeployed from Iraq, and were inappropriately denied routine postdeployment bioassay screening for depleted uranium. Disgruntled about their lack of medical testing, some of the Soldiers approached a local paper, the *New York Daily News*, for assistance. Despite the ethical implications of becoming part of the story, the paper coordinated and funded the collection and analysis of urine bioassay samples from the Soldiers. The *New York Daily News* sent the samples for analysis to the Uranium Medical Research Centre (UMRC)(Toronto, Canada), a self-proclaimed independent, nonprofit organization and alleged activist group opposed to use of depleted uranium. When the URMC sent the medical specimens to a nonaccredited geology laboratory, depleted uranium was detected (though no amounts reported) and the story immediately became headline news internationally and evoked widespread concern, including congressional inquiries. As before, a matrixed team of HP, RC and medical experts was assembled. A comprehensive RC strategy was developed to respond to all stakeholders. Support from senior Army leaders ensured full cooperation by all Army participants. Despite some initial reluctance to engage other recently redeployed Soldiers at Fort Campbell (home of the 101st Airborne), the natural inclination to “just let sleeping dogs lie” was overcome. Updated information about Tuwaitha was obtained from “boots on the ground” Army HP assets to augment what was already known about the site and provided to unit Soldiers. After interviewing the medic, RC messages were developed: (a) the TNRC was safe; (b) all the radioactive sources at TNRC had been properly contained and safely stored; (c) anyone desiring testing could provide a bioassay sample. Given that, preparations were made for the “nightmare scenario” of hundreds of individuals simultaneously wanting bioassays. As it turned out, however, only the medic ultimately wanted to be tested (his results were either below detection limits for anthropogenic radioactive sources located on the site or within camp in Iraq to survey for depleted uranium (none was detected). Risk communication training was provided to the medical staff at the Fort Dix hospital and the 442nd Soldiers were finally offered bioassay testing. Even though not medically required, offering the option to be tested reinforced the critical risk communication message that the Army truly cared about Soldier welfare. Despite the offer, only about one fourth of the roughly 200 Soldiers in the unit wanted to be tested (all of the results were consistent with natural uranium and within normal levels, as reported by the Centers for Disease Control and Prevention (CDC)). Once available, bioassay results were discussed with the individual Soldier, military Families, and healthcare providers. Briefings were also provided to senior National Guard leadership and select members of Congress from New York. Once again, due to the prompt and effective response, all stakeholder concerns were addressed and the crisis was successfully resolved.

The final case study event occurred in the summer of 2007, when a medic from the Army’s 101st Airborne Division redeployed from Iraq. Having been to the Tuwaitha Nuclear Research Center (TNRC) during his deployment, the medic contacted the CDC to ask about the health risks of radiation exposure because of health problems he was experiencing. Fortunately, an Army physician, who was coincidentally doing a fellowship at CDC, was contacted and the matter was properly referred to the Army Medical Department. As with the 442nd MP Company, the media also became involved, though much later in the response than the previous case.

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CDC reported dietary levels for other naturally occurring radionuclides. In order to assist other potentially concerned Soldiers, a combined HP and RC team deployed to Fort Campbell (where an onsite medical expert joined the team) and 3 town hall meetings were held for Soldiers, their Families, and members of the local press. By delivering the actual briefing prepared for the Soldiers to the assembled reporters, the team leader was able to tell the good news story that the Army was genuinely concerned and was making sure that its Soldiers were safe. During all of the town hall meetings, the team’s RC expert observed the HP’s message delivery and response to questions, and provided real-time feedback to enhance the process. Once again, the concerns of stakeholders were addressed and the crisis was satisfactorily resolved. Feedback from the initially concerned medic and his fellow Soldiers indicated the response was effective, and press reports were very favorable overall.

SUMMARY AND CONCLUSIONS

Risk communication is more than just a message; it is both a discipline and a process. Military radiation risk communication shares all of the difficulties of communicating civilian radiation risks along with its own unique challenges. Effective risk communicators address all three of the components of communication: audience, messenger, and message, specifically in that order. The Health Risk Communication Program is a vital corporate asset of the United States Army that provides unique and essential expertise to enhance risk communication, whatever the risk. The proper partnering of health physics and health risk communication expertise, coupled with senior leadership support, allayed public concerns and diffused 3 high stakes crises, despite media involvement and Congressional scrutiny in two of them. As illustrated in the case studies discussed, effective risk communication is actually achievable and we firmly believe that without it, properly responding to crises, actual or perceived, is impossible.

RECOMMENDATIONS

Recognizing that risk communication is a discipline and a process, not merely a product, is essential for success. All health physicists should add risk communication training as part of their professional development, and integrate risk communication into their ongoing professional practice, and not just during emergencies. Whenever possible, health physicists should seek to partner with competent health risk communicators in a matrixed team, thereby exploiting the synergy between these 2 diverse, yet complimentary disciplines. Finally, health physicists should also share their risk communication success stories, along with their failures, so others can learn from their experiences.

REFERENCES


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