ORTHOPAEDICS IN MOTION
Motion Orthopaedics
Spring 2012 / Volume 2 / Number 1

To Leave Behind a Legacy of Freedom

The following story was originally titled "Through and Through" and appeared as a post written on March 2, 2011 by Tom Sileo for his blog The Unknown Soldiers. *Reprinted with permission from www.unknownsoldiersblog.com.*

Landon Carpenter was born a month after his father, Lance Cpl. Andrew Carpenter, was killed in action in Afghanistan. Photo courtesy of Inara Studios; Nashville, TN.

Chilly winds rippled through the hundreds of American flags held and planted around Columbia, Tenn. on February 28, 2011, a few hours after severe weather had blown through middle Tennessee. Yet despite the blustery air, gray sky, and cold drizzle, thousands of citizens lined the streets, with their hands on their hearts and their minds on a grieving family struck by the storm of war.

To write a few hundred words about what I witnessed in this city does not do justice to the outpouring of love, patriotism, mourning, and support that thousands of fine folks showed to the relatives, friends, and fellow Marines of Lance Cpl. Andrew Carpenter. The fallen hero suffered catastrophic wounds on Valentine's Day in Afghanistan's Helmand province, and passed away on February 19, 2011.

The Heritage Funeral Home memorial service for Lance Cpl. Carpenter concluded with a beautiful, emotionally devastating moment. Sarah McLachlan's "Angel" softly played over the chapel's speakers as mourners sat in silence, cried, and prayed. When I walked up front to pay my respects at the Marine's open casket, I said a prayer for his widow, Crissie Carpenter, and the unborn son, Landon, who will soon bring her joyous light in a time of darkness. As Mrs. Carpenter poignantly said in her husband's obituary, Landon "isn't here yet, right now he's still in heaven with Andrew."

> *...with their hands on their hearts and their minds on a grieving family struck by the storm of war.*

As soon as cars began slowly leaving the funeral home for the drive to Polk Memorial Gardens, everyone in the procession saw a city's collective arms wrapped

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INSIDE

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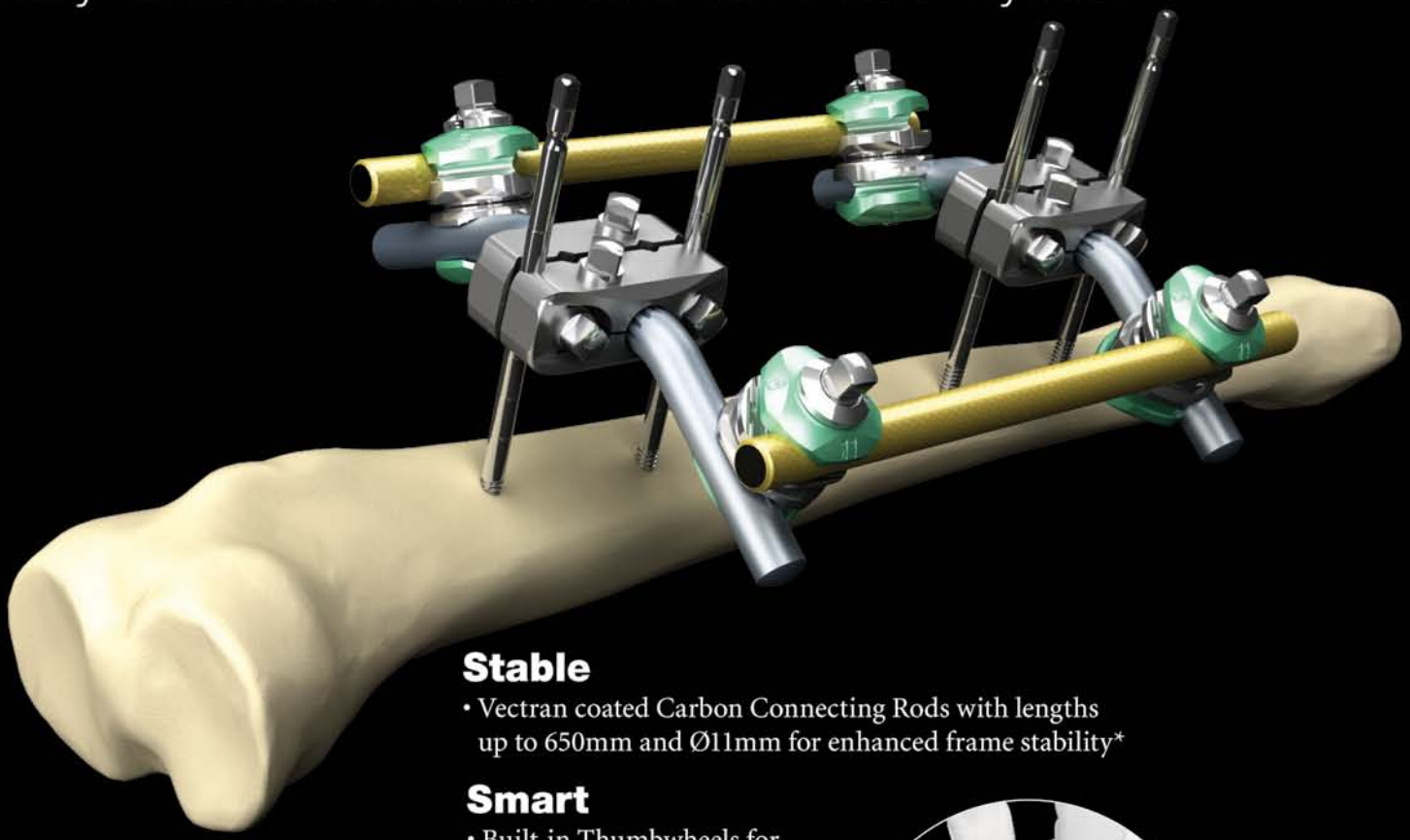

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*White Paper (NL11-NA-TR-2465): Comparison between the Hoffmann II MRI and the Hoffmann 3 Systems: The mechanical behavior of the connecting rods and a monoplanar bilateral frame. E. Wobmann, MSc; M. A. Behrens, MSc; S. Brianza, PhD; T. Matsushita, MD, DMSc; D. Seligson, MD. Based upon Biomechanical Test Reports from Stryker Trauma AG, Selzach; BML 11-072 and BML 11-059.

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Adding a New Physician to Your Practice

Adding a new physician can bring value to your practice — if the recruitment process is well thought out and conducted carefully. If you fail to do your homework prior to interviewing candidates, the chances of finding a successful fit are reduced considerably. If your practice has plans to expand and add another physician, here are some issues you should consider.

What type of person do you want to work with?

What attributes do you want in a new physician? Decide ahead what experience, attitude, personality, and business sense you want in a candidate. List the professional requirements that are most desirable for your practice in order of their importance.

What type of compensation makes sense?

How will the new physician be paid? Will it be a straight salary or a salary plus bonus incentive? Will you offer the possibility of a buy-in to your practice after a specific number of years of employment?

In addition, decide on the patient volume you expect the new hire to bring into the practice and build upon over time. Have expectations about the amount of help you will provide to that end. Outline the distribution of responsibilities, including the division of call duty that you expect of a new hire. Know ahead of time if you are willing to offer the new hire some voice in general practice decisions. Carefully document all of these matters.

Will the candidate fit into your community?

Some people love the excitement and recreational opportunities offered by urban life. Others crave the solitude of rural life. Young, single physicians may have very different priorities than physicians with children when it comes to choosing where to relocate. You should be aware of issues that relate to potential candidates applying for the position and how easily they may fit into your community.

Your chances of finding a physician who is a good match for your practice will be greater if you take the time to clearly describe your expectations, the resources to be provided, the compensation package, and work conditions before you begin the actual search.

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New Knee Arthroplasty Text: Filling a Void in Orthopaedics

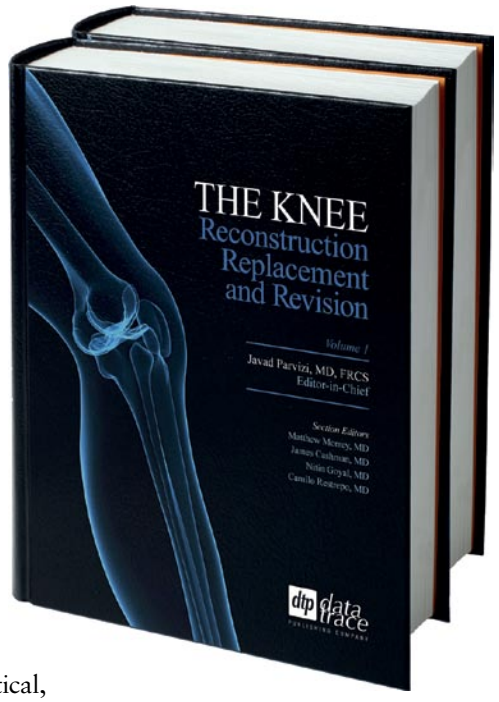
Primary total knee arthroplasty (TKA) is the gold standard surgical treatment for a wide variety of conditions that result in severe degeneration of the knee joint. The overall objectives of the procedure have changed little over time and include pain relief, restoration of a functional range of motion, restoration of alignment, proper stability in all planes, maintenance of a well-functioning extensor mechanism, and long-term durability.[1]

A recently published population-based study notes that more and more patients are receiving the benefits of total knee arthroplasty with severe osteoarthritis as the primary indication for surgery.[2] The demand for TKA is projected to increase exponentially over the next few decades.[3] From 2005 to 2030, the number of total knee replacements performed annually in the United States is expected to grow by 673%, from 450,000 cases to 3,480,000 cases.

In early 2011, Dr. Javad Parvizi of the Rothman Institute and his associates recognized a vacuum within the orthopaedic literature, and set out to develop a comprehensive and clinically relevant text that covers a spectrum of knee reconstruction topics, from the basic science fundamentals and non-operative management of knee arthritis, to primary total knee arthroplasty in a patient with complex deformity and revision procedures for patients with periprosthetic joint infection. Dr. Parvizi and his associates sought to formulate a text that serves as a key resource for orthopaedic surgeons to utilize in the management of complications when they occur, and to assist in performing reconstructive procedures on patients with failed TKA. This text aims to provide the knowledge of how to mitigate risk for patients with disorders such as Paget's disease, extreme limb deformity and bleeding disorders, and to prevent failures, such as infection, periprosthetic fractures, and instability. These topics are critical for enhancing the success and longevity of TKA.

Published by Data Trace Publishing Company, **The Knee: Reconstruction, Replacement, and Revision** is written with this objective in mind. To feature relevant, practical, and vital information related to disorders of the knee so as to arm surgeons with the ability to adapt to the gamut of patients they encounter, whether it be a complex revision with osteolysis or a primary total knee arthroplasty in an obese patient. The subject matter covered are key facets to the training of any reconstructive joint surgeon.

This richly illustrated, 2-volume text provides a current and comprehensive, evidence-based approach to knee reconstruction from a global perspective. Written by experts from leading institutions around the world, **The Knee: Reconstruction, Replacement, and Revision** is a critical resource for both the practicing and training orthopaedic surgeon. Section titles include Arthroplasty Fundamentals, Prevention and Management of Complications, Joint Preservation Procedures, Knee Reconstruction, Revision Knee Arthroplasty, and Salvage Procedures. In addition, "Pearls and Pitfalls," "Suggested Readings," and "Case Examples" are included as supplemental resources for a comprehensive understanding as well as a quick reference to provide clinically applicable information.



The history of knee joint replacement is a true success story. However, the major responsibility of the profession at this time is to define those incremental opportunities that will truly improve the outcome from 90% to one that approaches 100%, and **The Knee: Reconstruction, Replacement, and Revision** is a step in the right direction.

The Knee: Reconstruction, Replacement, and Revision

Editor-in-Chief:
Javad Parvizi, MD, FRCS

Available Summer 2012

Order an advance copy at DataTrace.com

1. Insall JN, et al. Total knee arthroplasty. *Clin Orthop Relat Res.* 1985;192:13-22.
2. Singh JA, Vessely MB, Harmsen WS. A population based study of trends in the use of total hip and total knee arthroplasty, 1969-2008. *Mayo Clin Proc.* 2010;85(10):898-904.
3. Kurtz S, Ong K, Lau E, Mowat F, Halpern M. Projections of primary and revision hip and knee arthroplasty in the United States from 2005 to 2030. *J Bone Joint Surg Am.* 2007;89(4):780-785

Legacy of Freedom

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around Crissie and Landon Carpenter. Folks of every age and background stood on streets and highways to honor Lance Cpl. Carpenter and his loved ones. Businesses, places of worship, and schools shut down in the middle of a Monday afternoon to catch a glimpse of the passing hero and wave their flags.

One of the most touching moments I witnessed during the procession was in front of a school, where children stayed several hours after the afternoon bell to learn the meaning of sacrifice.

One of many businesses to shut down was Regions Bank. Employees stood quietly outside their workplace, in front of flags at half-staff, to show their support for the Carpenter family. During my drive home on Tuesday, I stopped at a Regions branch to make a memorial contribution to "Landon's Fund," which will go toward the child's future.

Elderly people stood in the cold outside a nursing home, with one veteran, perhaps of World War II, saluting a fellow warrior. A few more miles down the rural highway, an active duty service member stood alone in the wind, saluting his brother in arms. Police officers and firemen were everywhere, going well beyond their duty to make sure the day's events went exactly as planned.

During a troubled time when the wars in Afghanistan and Iraq are mostly off the national radar, it's easy to get frustrated or even cynical about our country. But as it paid homage to a fallen volunteer warrior, the Volunteer State reminded us why our nation is still the greatest on earth.

Lance Cpl. Andrew Carpenter kissed his soul mate goodbye, served in Afghanistan, met his son in heaven, and was greeted by thousands of guardian angels in his hometown. As Columbia, Tenn., showed the world on February 28, 2011, the loved ones this Marine left behind will never be alone.

Spring Abounds with Food and Wine Offerings

Spring brings about lovely weather, fresh air, and beautiful blooms, but often lacks the obvious activities of other seasons. Summer is for swimming, tanning, and beach bumming. Fall brings us colorful foliage and an urge to hike. Winter abounds with sledding, skiing, and holiday celebrations.

If you are tired of simple strolls through the park in the spring, try taking in a food & wine festival or three. Below are many popular, and even some world renowned, US festivals occurring this spring, but many communities have their own, smaller festivals as well. Be sure to check your community's calendar for home-grown favorites.

Blowing Rock, North Carolina: Blue Ridge Wine & Food Festival – April 11-15, 2012

Pebble Beach, California: Pebble Beach Food & Wine – April 12-15, 2012

Fallbrook, California: Fallbrook Avocado Festival – April 15, 2012

Scottsdale, Arizona: Scottsdale Culinary Festival – April 17-22, 2012

Orange County, California: California Wine Festival – April 20-21, 2012

Gatlinburg, Tennessee: Ribfest & Wings – April 26, 2012

Stockton, California: Asparagus Festival – April 27-29, 2012

Austin, Texas: Austin Food & Wine Festival – April 27-29, 2012

Yakima Valley, Washington: Yakima Valley Spring Barrel Tasting – April 27-29, 2012

Tempe, Arizona: My Nana's Best Tasting Salsa Challenge – April 28, 2012

Pittsburgh, Pennsylvania: Pittsburgh Wine Festival – May 3, 2012

Atlanta, Georgia: Atlanta Food & Wine Festival – May 10-13, 2012

Las Vegas, Nevada: Vegas Uncork'd – May 10-13, 2012

Charlotte, North Carolina: Beer, Bourbon & BBQ Festival – May 12, 2012

Sevierville, Tennessee: Bloomin' BBQ & Bluegrass – May 18-19, 2012

Paso Robles Wine Country, California: Paso Robles Wine Festival – May 18-20, 2012

New Orleans, Louisiana: New Orleans Wine & Food Experience – May 22-26, 2012

Monterey, California: 36th Annual Monterey Wine Festival – June 8-9, 2012

Kapalua, Maui, Hawaii: 31st Annual Kapalua Wine & Food Festival – June 8-10, 2012

Aspen, Colorado: Food & Wine Classic in Aspen – June 15-17, 2012

Did You Know?

It is a myth that you should open windows to equalize air pressure within a building to help minimize damage in a tornado. Most destruction comes from flying debris, not unequal air pressure. Open windows simply allow destructive winds and debris into your home.

Ready.gov

Hope for the Best, Train for the Worst

Disasters come in all shapes and sizes and can occur at any moment, in any location. Contemplating how you would respond in various disaster situations is no substitute for disaster training. Below are just a few resources offering disaster training for individuals and larger organizations.

Yale New Haven Health – Center for Emergency Preparedness and Disaster Response (ynhhs.org/emergency/)

The New Haven Center offers many resources to aid in disaster planning including a selection of online courses ranging from 20 – 60 minutes in length and covering topics from "Emergency Preparedness for Health Care at Work and at Home" to "Essential Elements of Mass Fatality Planning." As an added bonus, many of the online courses also offer CME credits.

Columbia Regional Learning Center (ncdp.crlctraining.org)

The Columbia Regional Learning Center provides web-based and in-person training for public health workers and other responders.

Drexel's National Resource Center on Advancing Emergency Preparedness for Culturally Diverse Communities (diversitypreparedness.org)

Preparing for disasters in communities with diverse cultural and possibly non-English speaking communities can pose specific challenges. Drexel's Resource Center addresses many of these issues and offers multiple training modalities and a wealth of information.

AMA's Center for Public Health Preparedness & Disaster Response (ama-assn.org)

The AMA seeks to make their CPHPDR a resource for both civilian and military providers alike and provides a wide selection of reading material on many recent disasters.

Jefferson University Hospital's Bioterrorism and Disaster Preparedness Center (jeffersonhospital.org)

The Bioterrorism and Disaster Preparedness Center offers courses that can be brought to your location and tailored to your organization's needs. Courses can range from a one-hour lecture to a 4- to 8-hour hands-on program. Cost varies based on the complexity of the program.

American College of Surgeons Committee on Trauma (facs.org/trauma/disaster/index.html)

Says the ACS website: "The American College of Surgeons Committee on Trauma recognizes that a mass casualty event is not just another busy night in an urban trauma center. Most surgeons have little or no background or experience in such circumstances. To fill this gap, the Committee on Trauma has developed this course to help surgeons and "acute care pros" develop the necessary skills, understand the language, and appreciate the structural transformation for effective response to mass casualties in disasters. This program is designed to stimulate thinking about how to become better prepared as individuals, professionals, organizations, and health care systems."

Except from Disaster-Rx.com, a blog designed to educate surgeons on austere environment medical care.

Kamal, a healthy 20-year-old Afghan male, got caught in cross fire after an improvised explosive device (IED) detonated in his neighborhood. He was brought to a level II field hospital in Southeastern Afghanistan with a gunshot wound through his right anterolateral thigh and multiple exit wounds in his right buttock. Amazingly, Kamal is neurovascularly intact. Although there is an exit wound near his rectum, it does not penetrate it. Kamal is hemodynamically stable and has no other injuries.

Radiographs show a segmentally comminuted subtrochantric femur fracture. The fracture includes some of the anterior cortex at the level of the lesser trochanter.

General surgery clears him of a rectal injury and irrigates and debrides his right buttock of secondary shrapnel.

When I saw Kamal, I had the brief thought that would be nice to call in the rep for a trochanteric entry third generation cephalomedullary nail. Then I remembered I was in Afghanistan.

What would be your next steps as the receiving surgeon? Visit www.disaster-rx.com to find out what our treating physician did next.

Orthopaedics in Motion

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Published by
Data Trace Publishing Company
PO Box 1239 • Brooklandville, MD 21022
www.datatrace.com

State of the Union: Ready or Not

Trust for America's Health is a non-profit, non-partisan organization dedicated to saving lives by protecting the health of every community and working to make disease prevention a national priority. Since 2002, the year following 9/11, Trust for America's Health has composed and released the *Ready or Not?* yearly report, an independent analysis of progress and vulnerabilities in the US infrastructure meant to manage public health preparedness for a wide-range of potential disasters.

The 2011 *Ready or Not?* report may be of particular interest, outlining where we stand in the decade after 9/11. While many strides have been made to improve our ability to prevent, diagnose, and respond to public health emergencies and disasters, many major gaps still remain. In addition, since the economic crisis began in 2008, local, state, and federal cuts are beginning to erode a decade's worth of progress. As of December 2011:

- Fifty-one, out of seventy-two, cities are at risk for losing their Cities Readiness Initiative funding, which aids the ability to rapidly distribute vaccinations and medications during emergencies;
- Ten out of ten state labs with "Level 1" chemical threat testing status are at risk for losing top level capabilities, leaving the CDC with the only public health lab in the country with full chemical testing capabilities and creating a situation that would dramatically slow testing and response times in the event of a chemical substance release;
- All fifty states and Washington, DC had cuts to their Hospital Preparedness Programs from 2010 to 2011; and
- Sixty percent of state health agencies have cut entire programs since 2008.

In addition to the funding gap exacerbated by these and other cuts, the *Ready or Not?* report outlines additional areas of weakness that continue to put the US at risk in the event of a disaster.

- A workforce gap: There simply are not enough experts to effectively respond during an emergency. In the past 20 years, we have seen a drop of 50,000 public health workers, one-third of current public health workers will be eligible to retire within the next five years, and a new generation is not being trained to fill the gaps. Budget cuts are compounding the problem, resulting in a workforce reduction, furloughs, and shortened work weeks.
- A surge capacity gap: During a disaster, the health care system is stretched beyond normal capabilities. Surge capacity is the ability of the medical system to care for a massive influx of patients and remains one of the most serious challenges for emergency preparedness. The gap extends not only to staffing abilities, but to equipment and space to treat patients.
- A surveillance gap: The US still lacks an integrated, national approach to biosurveillance, which is essential to response capabilities ranging from bioterrorism attacks to catastrophic disasters to a contamination of the food supply. Currently, there are major differences from state to state in the ability and format for collecting and reporting data.
- A gap in community resiliency support: The ability of the public health system to aid communities in their coping and recovery from disaster is a major challenge. It is particularly difficult to address the needs of at-risk populations, such as children, the elderly, those with underlying health conditions, and low income communities.
- A gap in vaccine/pharmaceutical research, development, and funding: The research and development of medical countermeasures is, in short, highly outdated in the US. This is largely due to the fact that this is not a highly profitable venture for pharmaceutical companies. Government projects, such as BioShield and BARDA were meant to spur innovation, but so far, results have been limited. Investments did help in the record development and production of a vaccine for the H1N1 flu strain, but only limited quantities could be produced by the beginning of the flu season due to a reliance on an outdated egg-based production strategy.

For more information, download the whole 2011 Ready or Not? Report at www.healthyamericans.org.

Did You Know?

The US experiences about 1,000 tornadoes each year. On average, Texas is the state that sees the most tornadoes in a year. However, Florida has the most twisters per square mile.

Livescience.com

ORTHOPAEDICS IN MOTION
Orthopaedics Motion
Spring 2012 / Volume 2 / Number 1

dtp data trace
PUBLISHING COMPANY
P.O. Box 1239
Brooklandville, MD 21022-9978

Editorial: Preparing for Disaster

Disasters come in all shapes and sizes. They can be natural, a consequence of a declared war, or secondary to terrorism. Disasters such as the one in Haiti, point out the difficulties and medical inconsistencies inherent in treating mass casualties within organized medicine. During a disaster with massive casualties, it is necessary to address "standard of care;" credentialing; limited resources; austere conditions; unstable infrastructure; and working in a foreign country. Ironically, within the United States, a disaster similar to the Haitian one might have been more problematic — potentially requiring "martial law," federalization of physicians, use of the military, etc. Within the United States, provider licensure is by state. It is a crime to practice medicine without a license other than as protected by *Good Samaritan laws* which do not cover hospital based services or surgery except under extremis. It is potentially malpractice to deal outside of "standard of care" which may be necessary in a severe natural disaster or a large terrorist attack.

While our military are well-trained and have superb capability of performing care in austere environments, they rarely function outside of standard of care. In combat in Afghanistan and Iraq, acute stabilization and battlefield management is augmented and supported by almost limitless resources within referral hospital systems. Without these resources and capacities, what happens if there is a large scale natural disaster or terrorist event in which there are no referral hospital sources? What happens when triage includes expectant care for patients who could potentially be "saved" in a non-altered standard of care environment?

As an example, a tidal wave strikes one of our coasts and there are 200,000 casualties. Roads are damaged, air transport is limited, and there are "inadequate" medical personnel to provide care. There are 50,000 level-I trauma victims and every hospital within 1000 miles is filled within 12 hours. How do we respond? Do we have physicians who are trained and comfortable with functioning outside the standard of care? For example, in Haiti one physician wrote "need different lengths of IM nails and interlocks and by the way, send a c-arm." Perhaps these patients should have been treated with a cast brace or an open, undreamed, and unlocked intramedullary nail. An unreamed – unlocked nail – cut to the correct length with a sterile hacksaw and a tennis shoe with a duck tapped derotation bar is simpler but different then "standard practice." Are we prepared to make these accommodations? Is there any training available?

Within this newsletter, many of these issues are discussed and several of our resources outlined. The *American College of Surgeons Committee on Trauma* is working on how to be better prepared for these types of disasters as is the *Jefferson University Hospital, Bioterrorism and Disaster Preparation Center,* and the *AMA Center for Public Health Preparedness and Disaster Response.* Even as these issues are addressed, I have significant concerns that we are not prepared; do not have training processes in place to provide large scale medical care in an austere environment; and that modern orthopaedic surgery will be unable to function within the current standard of care. I sincerely hope that this is only a theoretical concern. I hope that you will enjoy this newsletter and I look forward to any comments or suggestions.

— L. Andrew Koman, MD