



# THE INNOVATOR

OPTIMIZING COMBAT CASUALTY CARE



SEPTEMBER 2016

THE NEWSLETTER OF THE U.S. ARMY INSTITUTE OF SURGICAL RESEARCH

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## Maj. Gen. Holcomb visits USAISR

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## USAISR Staff Attend MHSRS

# CDR's Corner



Col. (Dr.) Shawn C. Nessen  
Commander, USAISR

areas of the ISR. She was impressed by the enthusiasm all of you express for the work you do and also the quality of your work. She, like me, was pleased to see our young enlisted soldiers making meaningful contributions to research and being credited for their work as authors. I appreciate very much all whom are mentoring and inspiring these young soldiers.

Mentorship is I believe an important component of leadership. Mentorship can be hard to define, but all know who we consider mentors. Mentors do more than teach us equations and principals. Mentors inspire us by their actions and show us the right way to approach our professions and

our lives. We often adopt the qualities of our mentors and learn to approach problem solving as they did. Sure signs you consider someone your mentor is, long after you have left their side, you reach back to them for advice when you encounter difficult problems or call them for important life events. So, friendship is often a result of mentorship.

All leaders should seek to acquire the skills of mentors. There is no greater legacy than to inspire the next generation. I see the results of mentors throughout the Institute and I am grateful for it. Thank you for all you do. I feel extremely honored to command the USAISR.

## "Optimizing Combat Casualty Care"

Team ISR,

I was privileged to attend the Military Health System Research Symposium in Orlando last month with many of you, and I could not be more impressed and proud of how the Institute was represented. The USAISR had 86 posters and 23 oral presentations. In addition, our personnel chaired nine scientific sessions, and had one entrant in the Young Investigators Competition. I was able to attend many of the presentations and view all of your posters, and I was truly amazed by the range and depth of the research you conduct here.

We were also visited recently by Maj. Gen. Barbara Holcomb who last month assumed command of MRMC. Maj. Gen. Holcomb met with many of you and was able to tour many the



Maj. Gen. Barbara Holcomb, Commanding General, U.S. Army Medical Research and Materiel Command and Fort Detrick, Maryland discusses her priorities with USAISR Commander, Col. (Dr.) Shawn Nessen, center, and USAISR Deputy Commander, Lt. Col. (Dr.) Michael Davis during her visit to the Institute Aug. 23.



# ARMY MEDICINE

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## SGM Says



Master Sgt. Natasha Santiago  
Acting Sergeant Major

Greetings ISR Team,

Professionalism. Pride. Poise. These are three words that completely describe the Soldiers, Non-Commissioned Officers, Officers, and Civilians who make-up the USAISR Team. I am going to share the experiences that I had in attending the Military Health System Research Symposium (MHSRS) in Kissimmee, Florida this past month. I have to say that I was completely in awe by what our talented staff presented.

Our team led the way in professionalism (some may say I am biased). For those who have never been to this symposium, the USAISR team presented over 100 posters during the three different iterations. I was truly amazed as Col. Nessen and I walked around to each poster; the level of detail and intricate specificity of research that was put into each one was something that I could not have imagined, and frankly take advantage of daily walking thru the halls of the BHT and the Burn Center. There was no doubt that the USAISR was a large presence that had a foundational history within this event.

Though I was not a presenter, I had such an enormous sense of pride going from all of the different breakout sessions that our team members spoke at. Many of our staff also served as moderators, presiding over entire sessions. The astounding thing to me as an



David Zamora, Ph.D., right, presents his poster to Col. (Dr.) Shawn Nessen and Acting Sgt. Maj., Master Sgt. Natasha Santiago during a Poster Session break-out at MHSRS Aug. 17.

observer, watching from afar, was that each presenter and moderator from the USAISR had such a grandiose sense of pride to call this unit their home.

One of the largest surprises for me during MHSRS was seeing the amount of Junior Enlisted and Non-Commissioned Officer presenters and their level of poise. All of our staff members had such amazing poise and could speak to their respective subject areas (whether civilian or military), but in my almost 18 years of service, I have never seen such poise and teaching ability in relation to science from such technically proficient Soldiers.

I left that week feeling rejuvenated in being part of such a great organization that is charged with a diverse mission; optimizing combat casualty care. Many of our Soldiers deploy, but the research that we do here at the USAISR is generating life-saving techniques that is translating to lives saved on the battlefield. Thank you for all that you do every single day!

**One Team.  
One Purpose!  
Conserving the Fighting  
Strength!**

## On the Cover



USAISR Senior Scientist, Victor "Vic" Convertino, Ph.D. demonstrates the features of the Compensatory Reserve Index Aug. 23 to Maj. Gen. Barbara Holcomb, Commanding General, U.S. Army Medical Research and Materiel Command and Fort Detrick, Maryland. This was the CG's first visit to this Institute since taking command of USAMRMC July 28.

Bottom Photo: Staff Sgt. Francisco Rosario presents a poster at MHSRS Aug. 17. USAISR staff presented 86 posters during the four-day symposium.

# Company Notes



Company Commander  
Capt. Cleveland S. Bryant Jr.

First Sergeant and I would like to welcome the following Soldiers to the ISR family: Staff Sgt. Heather Adkins, Staff Sgt. Avery Pegues, Capt. Katie Odom, Lt. Col. Daniel Kim, and Lt. Col. Vina Rajski. Please welcome these folks into the ISR family, if you haven't already.

We would like to express the utmost appreciation and gratitude to Sgt. 1st Class Dustyn Rose, Staff Sgt. Melissa Arizmendi, Staff Sgt. David Shelley, Staff Sgt. Pablo Sierra, Staff Sgt. Olarewaju Magreola, Sgt. Varkaris Thompson, Spc. Matthew Durant, and Spc. Chelsea Hornbeck for their honorable presentation in memory of beloved, esteemed medical researcher, Dr. Matthew Penick Rowan. The Soldiers presented an award and an American Flag to his beloved surviving family, an honorable tribute to a well renowned professional and friend within the ISR family.

Congratulations to Spc. David Watson and Spc. Shawn Lackey for their promotion to Sergeant. Please congratulate these Soldiers when you see them around. Great job and well done! We would also like to congratulate the August Soldier of the Month, Spc. Raymond Calzada. His photo will be on display at the Company area. Upcoming events: Promotion Board (Sept. 1), Labor Day Weekend (Sept. 2-5).

Continue to challenge yourselves and each other every day, step outside of your comfort zones by seizing new

opportunities and taking that leap.

Thank you all for everything you all do every day. It never gets old telling you all that it is truly an honor serving

as your Commander and First Sergeant!

One Team. One Purpose. Conserving the Fighting Strength.



USAISR Company Soldiers in formation render honors as a U.S. flag is being folded after being flown in front of the Institute Aug. 5. The flag was presented to the family of Matthew Rowan, Ph.D., during a memorial ceremony at the San Antonio Military Medical Center auditorium Aug 9. Soldiers folding the flag are, left to right, Spc. Robert Sadowski, Staff Sgt. Gina Chang and Sgt. Benjamin Joiner.



Soldier of the Month  
Spc. Raymond Calzada



# Bryant takes charge of USAISR Company

By Steven Galvan  
USAISR Public Affairs Officer

“The best thing about my position is that I believe that I can affect positive change in the lives of our Soldiers,” said Capt. Cleveland Bryant, U.S. Army Institute of Surgical Research Company Commander. Bryant took command of the USAISR Company July 15 and said that he believes this new position will bring about its challenges as well as great opportunity for personal and professional development.

“I am very excited and eager to witness the innovative research the Soldiers at this Institute are involved in,” he said. “Given my prior service as a 68K [Medical Laboratory Specialist], I find it really exciting to have the opportunity to mentor as well as learn of these Soldiers within such a phenomenal organization.”

With 15 years of service in the Army, Bryant said that he initially joined the Army to participate in the loan repayment program to pay off the student loans he accrued in college. However, he found it more gratifying that the Army provided a firm foundation of personal growth, challenge and honorable living.

“I also sought for a better way of life,” he said. “The Army has been a great blessing in my life since joining.”

Bryant attributes his success thus far in the Army to the support and love of his family.

“My family has been flexible, patient and understanding regarding the demands of military life for the past 12 years,” said Bryant. “Their unconditional love and support, as well as my faith in my Lord and savior, Jesus Christ, have been the critical factor in my life and career. I’m grateful for my family.”

Some of the things that Bryant would like the ISR Soldiers and staff to know about him is that he’s approachable and amiable.



Capt. Cleveland Bryant settles in to his new position as the USAISR Company Commander.

“I also love to listen to classical, jazz and choral music,” he added.

Bryant has some personal and professional goals that he’d like to accomplish while commanding the USAISR Company. Personally, he wants to compete in a Tough Mudder and/or Spartan Race. He would also like to spend more quality time with his wife and two children, panoramic tour South America, write a book and volunteer humanitarian assistance overseas. Professionally, he wants to improve Soldiers’ physical training,

bridge communication gaps between civilians and military, and as well as communication between officers and enlisted personnel.

“But most importantly, I want to produce a more cohesive and productive working environment,” he said.

For now he is looking forward to visiting every task area throughout the Institute and getting acquainted the Soldiers and staff at the Institute.

“I am very honored and privileged to assume command of this company,” said Bryant.

“I am very excited and eager to witness the innovative research the Soldiers at this Institute are involved in. Given my prior service as a 68K [Medical Laboratory Specialist], I find it really exciting to have the opportunity to mentor as well as learn of these Soldiers within such a phenomenal organization.”

**Capt. Cleveland S. Bryant Jr.**  
**USAISR Company Commander**



## USAISR staff attend combat casualty care symposium



Kristin Reddoch, Ph.D., answers questions after her presentation during the Young Investigator competition at MHSRS Aug. 17. Reddoch was among 10 finalists in the competition and placed 2nd.

By Steven Galvan  
USAISR Public Affairs Officer

Scientists, researchers, clinicians and staff from the U.S. Army Institute of Surgical Research at Fort Sam Houston, Texas, were among 2,400-plus attendees at the 2016 Military Health System Research Symposium in Kissimmee, Florida, Aug. 15-18.

The four-day conference is designed for communicating and disseminating new scientific knowledge resulting from military-specific research and development specifically for the medical needs of the Warfighter in combat. MHSRS is the Department of Defense’s premier scientific meeting sponsored by the Assistant Secretary of Defense for Health Affairs that brings together military, academia and industry leaders and researchers to share and discuss research topics related to healthcare initiatives under the topics of combat casualty care, military operational medicine, clinical and rehabili-

tative medicine and military infectious diseases to maximize research synergy for the DOD.

According to the USAISR Director of Research, Lt. Col. (Dr.) Kevin

Chung, USAISR staff members presented 86 posters and 23 oral presentations which equals to an 81 percent acceptance rate from the 134 abstracts submitted.

“Additionally, USAISR personnel served as moderators for nine breakout sessions, delivered one plenary address and fielded one presentation to the Young Investigator competition,” said Chung.

Ten finalists presented during the Young Investigator competition, including Kristin Reddoch, Ph.D., from the USAISR Coagulation and Blood Research Task Area. Her presentation *Platelet Additive Solution (PAS) and Storage at 4C Protect Platelets from Induction of Apoptosis Compared to Storage at Room Temperature or in Plasma: Feasibility of 15-Day Platelet Storage* earned Reddoch 2nd Place in the Young Investigator competition.

“Winning this award has been a very humbling and rewarding experience,” said Reddoch. “Receiving this award is also great validation of the hard work that both I and the Coagulation and Blood Research Task Area perform every day. I’m very fortunate to be able to work alongside such a

***MHSRS continues on page 7***



Lt. Col. (Dr.) Kevin Chung and Jose Salinas, Ph.D., co-moderate a breakout session at the MHSRS Aug. 17.



Spc. Melody Sandoval presents her poster at MHSRS Aug. 16 to Col. (Dr.) Lance Cordoni.

all, 1,051 posters were presented at the symposium.

USAISR Commander Col. (Dr.) Shawn Nessen commended the awardees and staff members who attended the conference “for their daily outstanding work superior representation at the symposium.”

“This is a dedicated staff that is always looking at innovative ways to improve combat casualty care,” added Nessen.

MHSRS is DOD’s premier scientific annual meeting which combines three previous conferences, including the former Advanced Technology Applications for Combat Casualty Care Conference; the Air Force Medical Service Medical Research Symposium; and the Navy Medicine Research Conference. By combining these conferences into one event, the meeting serves as a critical strategy session for leaders to set future milestones for the DOD’s deployment-related medical research programs, centered on the needs of the Warfighter.

**MHSRS continued from page 6**

talented group of scientists and to have the opportunity to conduct research that aids in the advancement of combat casualty care.”

Other awards presented to USAISR personnel were team awards in the poster sessions. First place in Poster Session #2 was *An Ex-Vivo ECMO Model Generates Pro-thrombotic Platelet-Derived Micro-particles* with team members: Dr. Andrew Meyers, Robin Kamucheka, Armando Rodriquez, Crystal Lefleur, Bijaya Parida, Ph.D., Michael Scherer, Dr. Andriy Batchinsky, Dr. Leopoldo Cancio, and Lt. Col. (Dr.) Andrew Cap. The USAISR team collaborated with members from the University of Texas Health Science Center, San Antonio and The Geneva Foundation. Third Place in the same poster session went to *The Impact of Transport Time on Outcomes Following Evacuation From Point of Injury* by Crystal Perez, Sheila Savell, Stephanie Russell, Jill Lear, Lauren Reeves, Alejandra Mora and Dr. Tuan Le collaborating with Lt. Col. Vikhyat Bebartha and Maj. Joseph Maddry from the

San Antonio Military Medical Center. Three poster sessions were held with four awards presented for each session to include an honorable mention. In



Members of the Air Force En route Care Research Center--USAISR/59th MDW/ST, SAMMC.  
Back Row: Avery Kester, Joni Paciocco, Stephanie Russell, Crystal Perez, Lauren Reeves and Maj. Joseph Maddry.  
Front Row: Jill Lear, Kim Medellin, Sheila Savella and Alejandra Mora.

# Safety Notes

By Stephanie L. Truss  
Health, Safety and Environmental Specialist



## September is National Preparedness Month

Are you prepared? During a disaster is no time to make a plan. Think ahead and be prepared. If an emergency occurred tomorrow, would you be ready?

September is National Preparedness Month. Sponsored by FEMA, National Preparedness Month aims to educate and empower Americans to prepare for and respond to all types of emergencies, including natural disasters and potential terrorist attacks.

National Preparedness Month is a time to prepare yourself and those in your care for emergencies and disasters, both large scale and smaller local events. We know that emergencies can happen unexpectedly in communities just like yours, to people like you. We've seen tornado outbreaks, river floods and flash floods, historic earthquakes, tsunamis, and even water main breaks and power outages that impact communities for days at a time.

As commendable as they may be in their profession of assisting those in need, police, fire and rescue may not always be able to reach you quickly in an emergency or disaster. The most important step you can take in helping your local responders is being able to take care of yourself and those in your care for at least a short period of time following an incident; the more people who are prepared, the quicker the community will recover.

You are not helpless in the face of an emergency. With just a few simple steps, you can be a force of nature by knowing your risk, taking action and being an example in your community.

## In the Spotlight

Spc. Ashley Taylor  
**Job title:** Bioscience Research Specialist

**How long have you worked at the ISR?** Since August 2015

**What or who has been an inspiration to you in your work?** My husband and my faith in God inspire me to drive on with the mission each day, to put my best foot forward, and to lead by example.



**What is your favorite part of your work?** The favorite part of my work is knowing that what I do has a direct impact on not only combat casualty care, but also the medical field as a whole. I also love that I learn something new every day.

**What is your proudest achievement?** Finishing my B.A. in Biology and enlisting in the Army.

**Short- and long-term goals:** My short-term goals are to complete BLC and take the MCAT. My long-term goal is to become a Medical Doctor.

**Hobbies:** Spending time with family, horseback riding, hiking, and reading.

**Favorite book:** *The Bible* and the *Harry Potter Series*

**Favorite movie/TV show:** *The Big Bang Theory/Once Upon a Time*

**Favorite quote:** "He who is not courageous enough to take risks will accomplish nothing in life." - Muhammad Ali

### Take action

Make sure that you and your family are prepared for an emergency. Ensure that you can go for at least three days without electricity, water service, access to a supermarket, or other local services.

### Be an example

Be a positive influence on your community by sharing your preparedness story. Let your friends and family know that you're prepared for an emergency – and that they should be prepared too. Research has shown that many people won't prepare until they see others doing so.

### Basic Disaster Supplies Kit

A basic emergency supply kit could include the following recommended items:

- Water
- Food

- Battery-powered or hand crank radio
- Flashlight and extra batteries
- First aid kit
- Whistle to signal for help
- Dust mask to help filter contaminated air
- Moist towelettes,
- Wrench or pliers
- Manual can opener for food
- Local maps
- Cell phone with chargers

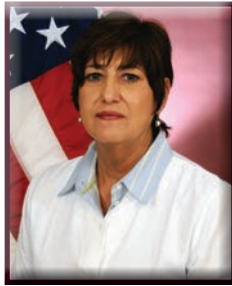
Knowing how to treat minor injuries can make a difference in an emergency. You may consider taking a first aid class, but simply having the following things can help you stop bleeding, prevent infection and assist in decontamination.

These are only a few areas to address during the month of September make it a family project to research and plan. As always keep Safety first! Ready or Not?



# Health News

By Maria G. Dominguez, R.N. COHN-S/CM Occupational Health



*“In many ways, September feels like the busiest time of the year:*

*The kids go back to school, work piles up after the summer’s dog days, and Thanksgiving is suddenly upon us.”*

Brene Brown.

Back to school shopping, going away to college, immunizations, etc. etc. So now we take a short break on Labor Day to change gears. Labor Day, the first Monday in September, is a creation of the labor movement and is dedicated to the social and economic achievements of American workers.

In addition, did you know the calendar is full of special months, weeks, and days that raise awareness for a variety of important health issues and conditions? Dates where people with certain health conditions, their loved ones, advocacy organizations, and support groups rally around a common cause: Health.

September rolls out National Childhood Obesity Awareness Month, National Food Safety Education Month. For the older workers: Healthy Aging Month, for students Backpack Awareness Day. Family Health and Fitness Day, Fruit and Veggies—More Matters Month. Encouraging families to make healthy changes together. How?

Make healthy meals: Taking small steps as a family can help you and your child stay healthy. Limit screen time: Keep screen time (time spent on the computer, watching TV or playing video games) to two hours or less a day. There’s home work to do anyway! For the working group, navigating workplace food choices requires mental labor, careful planning, calculations of calorie, carbohydrate and fat intake

and their effects on work performance. Water provides the opportunity to make a positive nutrition choice. Water offers not only hydration, pleasurable taste and quality but it is also valued for encouraging movement within the workplace and viewed as a deterrent to avoid certain foods.

Best of all, the new fitness center at San Antonio Military Medical Center opened in June. The 24/7 fitness area is located in the first floor atrium directly across from the multispecialty trauma clinic. The gym includes everything from treadmills and elliptical to yoga mats and cross fit equipment.

There is also the local Army Wellness Center. A state-of-the-art facility designed to help you reach your healthy lifestyle goals. Specializing in the three key components of health-

Sleep, Activity, and Nutrition- the highly trained staff is here to assist you by offering classes, assessments, and health coaching sessions. Services are open to all active duty, dependents over the age of 18, retirees, and DOD civilians.

National Suicide Prevention Week is also in September with World Suicide Prevention Day on September 10.

Let’s not forget our favorite health promotions! Seasonal Influenza . On Feb. 24, 2010 the CDC’s Advisory Committee on Immunization Practices voted for “universal” flu vaccination in the U.S. to expand protection against the flu to more people

*“By all these lovely tokens September days are here, with summers best of weather and autumn’s best of cheer.”*

Helen Hunt Jackson.

## Akeroyd Blood Donor Center Most Valuable Donor



Spc. Thomas Spino

Donor centers throughout the Armed Services Blood Program (ASBP) were asked to submit a donor or someone who is heavily involved in supporting the ASBP. The Akeroyd Blood Donor Center at Fort Sam Houston submitted Spc. Thomas Spino, a Medical Laboratory Specialist at the USAISR. The ASBP is presenting a video at the end of the American Association of Blood Banks (AABB) Conference and Spino will be included in that video.

Spino has been donating blood with the Armed Services Blood Program since he first heard of the program in 2014. He has been in the Army for almost three years, and prior to joining the military, had never donated blood. He currently has 14 whole blood donations.

In addition to being a regular blood donor, Spino volunteers during the Brooke Army Medical Center mobile blood drives by directing donors and handing out refreshments.

When asked why he finds blood donation important Spino replied, “I donate blood because it’s hard not to when I work near a hospital that cares for so many wounded warriors.”

# Around the ISR

Top right: Sgt. Daniel Wendorff inspects Spc. Jose Bernal before a promotion board Aug. 1.

Middle right: Staff members of the Research Support Division pose for a group photo Aug. 31.

Bottom right: Chili Cook-off winners. The USAISR Special Events Committee held a chili cook-off Aug. 19 and 1st to 3rd place winners are, left to right, Aaron Gleason, Kristina Dudman and Shiela Henthorne.

Bottom left: Lt. Col. Ammon Brown, left, administers the Oath of Reenlistment to Sgt. Shawn Lackey Aug. 31 during his reenlistment ceremony.



## Around the ISR cont.

Top right: Lt. Col. (Dr.) Kevin Akers, left, presents Lt. Col. (Dr.) Kevin Chung with a going-away gift Aug. 11 at his going-away ceremony.

Center right: Scott Dewey, Chief of Rehabilitation Services at the Burn Center explains the purpose of the Activities of Daily Living room Aug. 4 to the Texas General Land Office Commission, George P. Bush.

Bottom right: Capt. Sarah Hensley pins her husband Master Sgt. Burt Hensley with his new rank Aug. 5 during his promotion ceremony as his father, Michael Hensley looks on.

Top left: The USAISR Intramural Golf team placed 3rd in the Fort Sam Houston intramural golf season.

Left to right: Susan West, Staff Sgt. William Vidal, Dallas Burelison, Gary Muniz, Julia Arthur, Dr. John Kragh and Staff Sgt. Daniel Wendorff. Not in photo--Jacob Minnick.



# CELEBRATING SCIENCE



In this section the Combat Casualty Care Research Directorate endeavors to celebrate the dissemination of generalizable knowledge in the form of published manuscripts. One of the Combat Casualty Care Research Directorate's core missions is translation of knowledge gained through pre-clinical and clinical experiments in an effort to optimize combat casualty care. It is important to acknowledge and recognize the collective work of our investigators during this process. Hence, we plan on "celebrating science" on a regular basis.

## TOP PAPERS OF THE MONTH

### Predictor of Combat Mortality

The Military Injury Severity Score (mISS): A better predictor of combat mortality than Injury Severity Score (ISS).



Tuan Le



Kirby Gross

Le TD, Orman JA, Stockinger ZT, Spott MA, West SA, Mann-Salinas EA, Chung KK, Gross KR.

### J Trauma Acute Care Surg

**BACKGROUND:** The Military Injury Severity Score (mISS) was developed to better predict mortality in complex combat injuries but has yet to be validated.

**METHODS:** US combat trauma data from Afghanistan and Iraq from January 1, 2003, to December 31, 2014, from the US Department of Defense Trauma Registry (DoDTR) were analyzed. Military ISS, a variation of the ISS, was calculated and compared with standard ISS scores. Receiver operating characteristic curve, area under the curve, and Hosmer-Lemeshow statistics were used to discriminate and calibrate between mISS and ISS. Wilcoxon-Mann-Whitney, t test and  $\chi$  tests were used, and sensitivity and specificity calculated. Logistic regression was used to calculate the likelihood of mortality associated with levels of mISS and ISS overall.

**RESULTS:** Thirty thousand three hundred sixty-four patients were analyzed. Most were male (96.8%). Median age was 24 years (interquartile range [IQR], 21-29 years). Battle injuries comprised 65.3%. Penetrating (39.5%) and blunt (54.2%) injury types and explosion (51%) and gunshot wound (15%) mechanisms predominated. Overall mortality was 6.0%. Median mISS and ISS were similar in survivors (5 [IQR, 2-10] vs. 5 [IQR, 2-10]) but different in nonsurvivors, 30 (IQR, 16-75) versus 24 (IQR, 9-23), respectively ( $p < 0.0001$ ). Military ISS and ISS were discordant in 17.6% ( $n = 5,352$ ), accounting for 56.2% ( $n = 1,016$ ) of deaths. Among

cases with discordant severity scores, the median difference between mISS and ISS was 9 (IQR, 7-16); range, 1 to 59. Military ISS and ISS shared 78% variability ( $R = 0.78$ ). Area under the curve was higher in mISS than in ISS overall (0.82 vs. 0.79), for battle injury (0.79 vs. 0.76), non-battle injury (0.87 vs. 0.86), penetrating (0.81 vs. 0.77), blunt (0.77 vs. 0.75), explosion (0.81 vs. 0.78), and gunshot (0.79 vs. 0.73), all  $p < 0.0001$ . Higher mISS and ISS were associated with higher mortality. Compared with ISS, mISS had higher sensitivity (81.2 vs. 63.9) and slightly lower specificity (80.2 vs. 85.7).

**CONCLUSION:** Military ISS predicts combat mortality better than does ISS.

### Acute Ocular Trauma

Low-Level Primary Blast Causes Acute Ocular Trauma in Rabbits.

Jones K, Choi JH, Sponsel WE, Gray W, Groth SL, Glickman RD, Lund BJ, Reilly MA.

### J Neurotrauma



Jae-Hyek Choi



Brian Lund

The objective of this study was to determine whether clinically significant ocular trauma can be induced by a survivable isolated primary blast using a live animal model. Both eyes of 18 Dutch Belted rabbits were exposed to various survivable low-level blast overpressures in a large-scale shock tube simulating a primary blast similar to an improvised explosive device. Eyes of the blast-exposed rabbits (as well as five control rabbits) were thoroughly examined before and after blast to detect changes. Clinically significant changes in corneal thickness arose immediately after blast and were sustained through 48 h, suggesting possible disruption of

endothelial function. Retinal thickness (RT) increased with increasing specific impulse immediately after exposure. Intraocular pressure (IOP) was inversely correlated with the specific impulse of the blast wave. These findings clearly

indicate that survivable primary blast causes ocular injuries with likely visual functional sequelae of clinical and military relevance.



### TOP PAPER OF THE MONTH

Kristin Jones, a Ph.D. candidate at the University of Texas Health Science Center, San Antonio, right, is presented with a Combat Casualty Care Research Program coin Aug. 31 for earning the Top Paper of the Month by Lt. Col. (Dr.) Kevin Akers, Deputy Director of Research.

Photo by Capt. Melissa Kottke

## CLINICAL RESEARCH

### **Burn Resuscitation**

Oxalate Nephropathy after Continuous Infusion of High-Dose Vitamin C as an Adjunct to Burn Resuscitation.

Buehner M, Pamplin J, Studer L, Hughes RL, King BT, Graybill JC, Chung KK.

*J Burn Care Res*

## EXTRAMURAL COLLABORATION

### **Dismounted Complex Blast Injuries**

Dismounted Complex Blast Injuries: A Comprehensive Review of the Modern Combat Experience.

Cannon JW, Hofmann LJ, Glasgow SC, Potter BK, Rodriguez CJ, Cancio LC, Rasmussen TE, Fries CA, Davis MR, Jezior JR, Mullins RJ, Elster EA.

*J Am Coll Surg*

### **PCR/ESI-TOF-MS**

The use of PCR/Electrospray Ionization-Time-of-Flight-Mass Spectrometry (PCR/ESI-TOF-MS) to detect bacterial and fungal colonization in healthy military service members.

Vetor R, Murray CK, Mende K, Melton-Kreft R, Akers KS, Wenke J, Spirk T, Guymon C, Zera W, Beckius ML, Schnaubelt ER, Ehrlich G, Vento TJ.

*BMC Infect Dis*

## TRANSLATIONAL RESEARCH

**Muscle Grafts**

Autologous Minced Muscle Grafts Improve Muscle Strength in A Porcine Model of Volumetric Muscle Loss Injury.

Ward CL, Pollot BE, Goldman SM, Greising SM, Wenke JC, Corona BT.

*J Orthop Trauma*

**Pseudomonas aeruginosa**

Whole-Genome Sequence of Multidrug-Resistant Pseudomonas aeruginosa Strain BAMCPA07-48, Isolated from a Combat Injury Wound.

Sanjar F, Karna SL, Chen T, Chen P, Abercrombie JJ, Leung KP.

*Genome Announc*

**Dermal  $\gamma\delta$  T-Cells**

Dermal  $\gamma\delta$  T-Cells Can Be Activated by Mitochondrial Damage-Associated Molecular Patterns.

Schwacha MG, Rani M, Nicholson SE, Lewis AM, Holloway TL, Sordo S, Cap AP.

*PLoS One*

**Pseudomonas aeruginosa**

RsmW, Pseudomonas aeruginosa small non-coding RsmA-binding RNA upregulated in biofilm versus planktonic growth conditions.

Miller CL, Romero M, Karna SL, Chen T, Heeb S, Leung KP.

*BMC Microbiol*



**Reddoch earns 2nd in Young Investigator competition**

Rear Adm. Colin Chinn, Director of Research, Development and Acquisition for the Defense Health Agency, right, presents Kristin Reddoch, Ph.D. with a 2nd Place award in the Young Investigator competition Aug. 18. **Reddoch explains what this award and the research she conducts means to her.**

“Winning this award has been a very humbling and rewarding experience. All of the participants in The Young Investigator Competition delivered outstanding talks that were filled with phenomenal research. Being chosen as a winner, among the top young investigators in the military health research field, was extremely exciting and has given me added confidence that I will continue to apply in all of my future endeavors. Receiving this award is also great validation of the hard work that both I and the

Coagulation and Blood Research Task Area perform every day. I’m very fortunate to be able to work alongside such a talented group of scientists and to have the opportunity to conduct research that aids in the advancement of combat casualty care.

Blood banks store platelets at room temperature (RT) for up to 5 days due to a high risk of bacterial growth. This limited shelf life often results in chronic shortages in inventory and amounts to an estimated wastage rate of over \$1 billion annually in the US. At the

height of operations in Operation Iraqi Freedom (OIF)/Operation Enduring Freedom (OEF), RT platelets were only available in busy Role 3 facilities and not at Role 2 facilities. Now, RT platelets are only available at Bagram, leaving them unavailable for our troops deployed in Iraq and Afghanistan. RT platelets are also unavailable to support operations at sea and other locations (i.e. PACOM, AFRICOM).

Hemorrhage is the leading cause of preventable death on the battlefield, and therapeutic treatment of hemorrhagic shock requires the use of a 1:1:1 transfusion regimen consisting of red blood cells, platelets, and plasma. A dependence on RT platelets means that we’re unable to deliver optimal therapy in most places, most of the time, and what we are providing patients may be sub-optimal for treating blood loss (since the longer platelets are stored at RT the worse their function becomes).

So there’s a huge need for an alternative to RT platelet storage that both preserves platelet function and extends shelf life. Cold stored platelets in platelet additive solution (CSP-PAS), a concept developed at ISR, shows the potential for a 15-day shelf life with good preservation of function for bleeding control. This extra shelf life would allow for the delivery of this life-saving product to significantly more at-risk troops. Additionally, the implementation of CSP-PAS could also improve trauma care in many US civilian hospitals, especially rural facilities that lack regular access to platelets.”

**Top Research Abstract**

Col. Elizabeth “Liz” Mann-Salinas and Jennifer Trevino with the 1st Place plaque for the best research abstract at the TriService Nursing Research/Evidence Based Program Dissemination Course Aug. 23. The abstract is titled “*Evaluation of Elapsed Time and Mode of Transportation from Point of Injury to Role 2.*” Other associate investigators include: Tuan Le, M.D. DrPh, Dr. Russ Kotwal, Bruce Tarpey, Capt. (Dr.) Zsolt Stockinger and Lt. Col. (Dr.) Keving Chung.



The USAISR Information Support System received a three year accreditation. IMO personnel worked diligently to meet the challenges imposed by the new process, changes in assessment tools, evolving guidance practices, and the recent transition from MED-COM to DHA for accreditation approval.

The accreditation was the first granted by DHA to a MRMC organization under the new Risk Management Framework (RMF) platform. The new RMF is a life cycle based process for managing information security risk and is now the standard for all government IT systems. DoD began transition from the old DoD Information Assurance Certification and Accreditation Process (DIACAP) in 2014. For the USAISR ISS system the security controls

increased from approximately 100 under DIACAP to approximately 400 under RMF. In addition the 150 validation procedures under DIACAP increased to approximately 1500 assessment objectives under RMF. These increases resulted in an intense level of effort and cost increase to support the accreditation process.

IMO personnel: Back row: David Fuqua, Donaya Ashoka, Trent Rossey, Glen Gueller and Jose Rodriguez. Second row: Aaron Gleason, Gerardo Smith-Salinas, Martin Dahlman, Derrick Kelley and Phyllis Turner. Third row: Rosalio Gallegos Jr., Christopher Miller, Calvin Cooper, Guy McSweeney II and James Ward. Front row: Bobby Norman, Jorge Villareal, Donald Hardy, Ira Lawson and Bernadette Couteau.



**USAISR Receives Three Year Accreditation**

# USAISR burn center earns ABA re-verification

By Steven Galvan  
USAISR Public Affairs Officer

The U.S. Army Institute of Surgical Research Burn Center collocated with the San Antonio Military Medical Center at Fort Sam Houston, Texas, received re-verification by the American Burn Association and the American College of Surgeons Committee on Trauma Aug. 19.

The re-verification notice was received by the Burn Center Director Col. (Dr.) Booker T. King in a letter from the ABA Verification Review Committee that represents the two national organizations. A site visit was conducted at the Burn Center June 29-30 by two members of the verification committee, and according to King, the ABA Verification Review Committee commended the USAISR “for its commitment to excellence and its commitment to providing quality burn care to its patients.”

“This achievement is a direct reflection of the entire burn team’s unwav-

ering commitment to provide the optimal care to all of our burn patients,” said King. “Our multidisciplinary team strives to meet and exceed the demanding standards every day set for the re-verification process.”

Since 2003, the Burn Center has cared for more than 1,000 wounded warriors evacuated from Iraq and Afghanistan and more than 4,500 civilian emergency patients from the South Central Texas region. The Burn Center employs approximately 300 staff members (Army, civil service, and contractors) with multiple critical burn care skills. As the sole burn center for the Department of Defense, the USAISR Burn Center is one of the largest burn centers in the U.S, with more than 800 annual admissions. It is also one of 67 centers in the U.S to receive verification by these two prestigious organizations.

“I am extremely proud of the entire Burn Center staff,” said USAISR Commander Col. (Dr.) Shawn C. Nessen. “The dedication of the multidisciplinary burn center staff provides

innovative and exceptional burn care and research every day to military and civilian burn patients alike.”

The USAISR is a subordinate command of the U.S. Army Medical Research and Materiel Command. The USAISR mission to “optimize combat casualty care” which is accomplished by conducting science and clinical research in the fields of damage control resuscitation, hemostasis, engineering, and tissue regeneration affecting combat casualties, including burns.

The ABA is dedicated to improving the lives of burn patients. With more than 3,500 members worldwide, the ABA and its members dedicate their efforts and resources to promoting and supporting burn-related research, education, care, rehabilitation and prevention.

The ACS is devoted to developing and implementing meaningful programs for trauma care in local, regional, national, and international arenas through education, professional development, standards of care and assessment of outcomes.

## FSC student finishes summer college internship at USAISR

By Steven Galvan  
USAISR Public Affairs Officer

As Florida Southern College student Allison Tempel heads back to the classroom to start her junior year as a Pre-Dentistry Track (Biology Major) student, she heads back with a renewed sense of knowing that she’s on the right track to becoming a military dentist. Tempel was among 19 college undergraduate students to attend a 10-week summer internship program at the U.S. Army Institute of Surgical Research at Fort Sam Houston, Texas.

“I aspire to become a dentist and this program has sparked my interest in dentistry even more, and I believe it will help me be a competitive candidate in the application process,” said Tempel, a self-proclaimed Army brat whose father has been in the Army her

**TEMPEL continues on page 17**



Allison Tempel discusses her research with Kai Leung, Ph.D. during the summer intern poster presentation Aug. 10.



**TEMPEL continued from page 16**

whole life. “And, I feel pretty strongly about either being a dentist in the military or working as a civilian dentist for the military.”

Tempel was mentored by Lt. Col. (Dr.) John Decker, chief of Dental Regenerative Medicine, who had three items for her to focus on during the summer – understand the research process, gain insight into military research and develop a practical lab skill set.

“She was an excellent intern,” said Decker. “The steps involved in research and developing a project were the most important part of the whole experience. She was engaged, learned the process and asked challenging questions about the research. As a mentor, it’s exactly the type of attributes and behavior you are hoping to see when you have such a short period of time with a student.”

Tempel and her fellow interns were able to present their summer research projects with a capstone poster presentation to highlight their work.

“Her poster presentation was wonderful,” Decker said. “It helped me grasp the time, effort and hard work she put into her project and the knowledge and understanding of research she now possesses.”

Lead Intern Mentor and Combat Casualty Care Research Scientist at the USAISR, David Burmeister, Ph.D., stated that the summer program is sponsored by the Oak Ridge Institute for Science and Education to expose college students to a laboratory environment and provide them with invaluable research experience.

“This program also helps students to clarify their educational goals and enables them to reach those goals,” added Burmeister.

During the summer, the interns did more than research; they also attended weekly seminars, led journal club sessions and attended Burn Center Intensive Care Unit rounds with the burn center staff.

“I think that the military exposure here is exceptional,” said Decker. “Allison witnessed the greatness of

our Army as well as the sacrifice that befalls some Warriors during conflict. When it comes time for her to make the decision to serve in the military, she will be able to reflect on this experience to help her make that decision.”

Tempel added that she was grateful that she was given “an amazing experience” since getting selected for the program is very competitive. This year more than 600 students applied for the internship, up from 60 the year before. That number is expected to continue

to grow as students like Tempel share their experience with their classmates.

“The first thing that I will tell them is how important the research being done at the ISR is and how rewarding it would be to see the people you are doing the research for every day, the men and women of our Armed Forces,” said Tempel. “The second thing I would tell them is that there are few places that will allow them the experience that the ISR allowed me.”



Lt. Col. (Dr.) Keving Chung presents Allison Tempel with a Certificate of Appreciation during the intern poster presentation Aug. 10.



Summer intern, Allison Tempel with her mentors, Lt. Col. (Dr.) John Decker and Maj. Rose Grimm.

Back When...



Can you guess who this ISR staff member is? This photo was taken in 1995 when she was the #1 seeded player as a junior at Louisa High School in Louisa, Virginia.

Submit your photo for publication in upcoming issues.

Last Month's Answer:



Staff Sgt. Olarewaju Magreola  
Training NCOIC

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Library News

By Gerri Trumbo  
Library Manager



Using your Athens account may prove helpful when we are faced with temporary blocks or IP problems that occur with LEAP. Although Athens is meant for off campus use, it can be used at your work computer and the username/password log-in may result in being able to get access to the articles of choice, rather than a blocked website or cannot connect error message.

If you need an Athens account, please make sure you register at this Library

first. The ISR is allotted a certain number of user accounts by USAM-RMC and we have to be sure you are a registered library patron. Please use the form located on the intranet on the library home page under Forms and Publications, or stop in and fill out a form located at the front desk. The CAD# we ask for is the ID number on back of your CAC card. This number is your library "barcode" and helps us maintain circulation records. Complete instructions for an Athens account is given on the intranet page.



The Research Regulatory Compliance Division will be conducting a Research Orientation on Sept. 27, 0800-1500 in the BHT1 2nd floor conference room. This orientation is for new research or support staff who need a "primer" on how to perform research processes within the USAISR.

Learn about library resources, help with agreements between institutions, scientific editing, etc.

