UNITED STATES DEPARTMENT OF DEFENSE

DEFENSE HEALTH BOARD

BOARD MEETING

Hilton Crystal City
Chesapeake Room
2399 Jefferson Davis Highway
Arlington, Virginia, 22202
Monday, November 14, 2011
PARTICIPANTS:

Board Members:

NANCY W. Dickey, M.D., Chair

MAJOR GENERAL (Ret.) GEORGE K. ANDERSON, M.D.

M. ROSS BULLOCK, M.D., Ph.D.

VICE ADMIRAL (Ret.) RICHARD H. CARMONA, M.D.

ROBERT GLENN CERTAIN, Ph.D.

GUY L. CLIFTON, M.D.

REAR ADMIRAL PETER J. DELANY, Ph.D.

JOHN V. GANDY, III, M.D.

EVE HIGGINBOTHAM, M.D.

COLONEL (Ret.) DONALD JENKINS, M.D.

JAY A. JOHANNIGMAN, M.D.

GENERAL (Ret.) RICHARD MYERS

DENNIS S. O’LEARY, M.D.

HONORABLE TOGO WEST, JR.

Service Liaison Officers:

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LIEUTENANT COMMANDER PATRICK GARMAN

CAPTAIN PATRICK LARABY

MAJOR ROGER LEE
PARTICIPANTS (CONT’D):

COLONEL ROBERT L. MOTT
COMMANDER WILLIAM PADGETT
COLONEL KATHERINE RICHARDSON
COLONEL SCOTT STANEK

Public Attendees:

COLONEL (Ret.) FRANK ANDERS, M.D.
JAMES P. BAGIAN, M.D.
JOHN BALDWIN, MD
COLONEL JEFFREY BAILEY, M.D.
CAPTAIN (Ret.) BRAD L. BENNETT, Ph.D.
FRANK K. BUTLER, JR., M.D.
LIEUTENANT COLONEL STEVEN CERSOVSKY
BARBARA COHOON, M.S.N., Ph.D.
MARGARET CONSENTINO
CAPTAIN CHRISTOPHER DANIEL
WILLIAM DONOVAN
COLONEL (Ret.) WARREN C. DORLAC, M.D.
COLONEL BRIAN J. EASTRIDGE, M.D.
COLONEL WARNER D. FARR, M.D.
COLONEL MARK GAUL, M.D., M.P.H.
CAPTAIN PAUL S. HAMMER, M.D.
CAPTAIN JOSEPH HIBBELN, M.D.
PARTICIPANTS (CONT’D):

SOCM SHAWN E. JOHNSON
CHRIS KEEGAN
JAMES W. KIRKPATRICK, M.D.
LIEUTENANT COLONEL RUSS S. KOTWAL, M.D.
COLONEL JOHN LAMMIE
COMMANDER ROBERT LIPSITZ
WARREN LOCKETTE, M.D.
VICE ADMIRAL JOHN MATECZUN
COLONEL JOANNE MCPHERSON
NORMAN MCSWAIN, JR., M.D.
BORIS MELNIKO
SUSAN MILLER, M.D.
SCOTT J. MONTAIN, Ph.D.
EDWARD J. OTTEN, M.D.
COLONEL TODD RASMUSSEN
CHIEF MASTER SERGEANT THOMAS A. RICH
MICHAEL ROTONDO, M.D.
LIEUTENANT PETER SEGUIN
D. ERIC SINE
GEORGE PEACH TAYLOR, M.D.
MAJOR GENERAL TOM TRAVIS, M.D.
PARTICIPANTS (CONT’D):

WILLIAM UMHAU, M.D.

DHB Staff:

ALLEN MIDDLETON
CHRISTINE E. BADER
MARIANNE COATES
CAMILLE GAVIOLA
COLONEL WAYNE E. HACHEY
OLIVERA JOVANOVIC
JEN KLEVENOW
ELIZABETH MARTIN
HILLARY PEABODY
JESSICA SANTOS
KAREN TRIPLETT
STEVE CASEY

Court Reporter:

STEVE GARLAND
DR. DICKEY: Welcome to this meeting of the Defense Health Board. We have lots of important topics to discuss. A few data. Look at the size of our public participants today. And so in hope that we can stay on our agenda, let’s go ahead and get started.

Ms. Bader, would you please call the meeting to order?

MS. BADER: Thank you, Dr. Dickey. As the Alternate Designated Federal Officer of the Defense Health Board, a federal advisory committee and a continuing independent advisory body to the Secretary of Defense, via the Assistant Secretary of Defense for Health Affairs and the Surgeons General of the military departments, I hereby call this meeting of the Defense Health Board to order.

DR. DICKEY: Thank you, Ms. Bader. Now, carrying on the tradition of our board I ask that we stand for one minute of silence to honor those we are here to serve, the men and women who serve
our country.

(Minute of silence)

DR. DICKEY: Thank you. Ms. Bader, the DHB Director, has some administrative remarks for us before we begin the morning session.

MS. BADER: Good morning again, and thank you, Dr. Dickey.

First, I would like to thank the Hilton Crystal City Hotel for assisting with the arrangements for this meeting and the speakers who have all worked very hard to prepare their briefings, as well as the DHB staff. Jen Klevenow, Jessica Santos, Lisa Jarrett, Liz Martin, Hillary Peabody, Olivera Jovanovic, and Ms. Jean Ward.

Please sign the board attendance sheets on the table outside of the conference room if you have not already done so, and please indicate any recent change to your contact information if it is not accurately reflected on the list.

Restrooms are located just outside of the meeting room, down the hall to your left. And
for telephone, fax, copies, or messages, please see Jen Klevenow as she enters the room.

Refreshments will be made available for both morning and afternoon sessions, and we have a working lunch in the Potomac Room for the Board members. This will be a working lunch. Federal Agency Liaison Officers and Service Liaison Officers are invited as well.

For those looking for lunch options, the hotel restaurant is open for lunch. There are several dining options all within a mile of the hotel. If you need further information, please see the hotel front desk staff.

For those of you joining us for dinner, we will convene in the lobby at 6:15, as opposed to the 6:00 I mentioned to the board members earlier this morning. It will be 6:15, to walk to the restaurant. And again, the restaurant is located less than a mile from the hotel. The cost of the dinner is $35. If you would like to attend and have not already done so, please provide $35 in cash to Jen Klevenow so that she can prepay and
1 inform the restaurant.
2 Thank you very much.
3 DR. DICKEY: Thank you, Ms. Bader. I’d
4 like to start the meeting by going around the
5 table and requesting that all members briefly
6 introduce themselves.
7 I’m Nancy Dickey. I’m the Chair --
8 President of the Board and the President of Texas
9 A&M Health Science Center in College Station.
10 MS. BADER: Good morning. Christine
11 Bader, Director, Defense Health Board.
12 DR. CARMONA: Good morning. Rich
13 Carmona, Vice President, Defense Health Board.
14 Former Surgeon General, distinguished professor at
15 University of Arizona.
16 DR. LOCKETTE: I’m Warren Lockette,
17 Deputy Assistant Secretary for Clinical and Program
18 Policy and the Chief Medical Officer for
19 TRICARE.
20 DR. ANDERSON: George Anderson,
21 Executive Director of the Association of Military
22 Surgeons for the U.S. and a retired Air Force
medical officer.

DR. HIGGINBOTHAM: I’m Eve Higginbotham, Visiting Scholar in Health Equity at the Association of American Medical Colleges and formerly the senior VP for Health Sciences at Howard University.

DR. JENKINS: Don Jenkins, Chair of the Trauma Injury Subcommittee and Chief of Trauma, Mayo Clinic, Rochester.

DR. BULLOCK: I’m Ross Bullock. I’m Director of Neurotrauma Care at University of Miami and Professor of Neurosurgery.

DR. BALDWIN: I’m John Baldwin, Professor of surgery, Texas Tech University Health Sciences Center.

DR. CLIFTON: Guy Clifton, Clinical Professor of Neurosurgery, University of Texas Health Science Center Houston and Professor of Surgery, Uniformed Services University.

MAJ GEN ROBB: Doug Robb, Joint Staff Surgeon at the Pentagon.

MAJ GEN TRAVIS: Tom Travis, Deputy Surgeon
General, U.S. Air Force.

DR. JOHANNIGMAN: Jay Johannigman, Trauma Surgeon from Cincinnati, Ohio.

RADM DELANY: Pete Delany. I’m the Director of the Center of Behavioral Health Statistics and Quality at SAMHSA, part of HHS.

DR. CERTAIN: I’m Robert Certain, retired Air Force chaplain and currently an Episcopal priest in Atlanta, Georgia.

DR. GANDY: John Gandy, emergency medicine physician, retired from the U.S. Air Force.

DR. O’LEARY: Dennis O’Leary, President Emeritus of the Joint Commission.

DR. TAYLOR: Dr. Peach Taylor, Deputy Assistant Secretary of Defense.

GEN (Ret.) MYERS: Dick Myers, Vice Chair of the Defense Health Board, retired military, Air Force.

COL HACHEY: Wayne Hachey, Executive Secretary, Defense Health Board.

DR. DICKEY: And if we could get the
staff to identify themselves. Yes, ma’am.

MS. KLEVENOW: Jen Klevenow, DHB support staff.

MS. COATES: Marianne Coates, contracted consultant in communications for the Defense Health Board.

MS. JOVANOVIC: Good morning. I’m Olivera Jovanovic, DHB support staff.

MS. MARTIN: I’m Liz Martin, DHB support staff as well.

MS. PEABODY: Good morning. Hillary Peabody, also contracted DHB support staff.

MS. GAVIOLA: Hi. I’m Camille Gaviola, Deputy Director, DHB.

DR. DICKEY: And in the interest of time, I know all of you have signed in. And if there should be a time for you to speak today, if our public members would please identify yourselves before you speak, but I think we will forgo passing the mic around for this morning.

Our first speaker this morning is Captain Paul Hammer. Captain Hammer is the
Director of the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury. 
Prior to this position he served as Director of the Naval Center for Combat and Operational Stress Control at the Naval Medical Center in San Diego, California. Captain Hammer has trained thousands of Service members in operational stress control, psychological health, and traumatic brain injury. He is going to present an informational update regarding the DCoE’s activities. Board members can find his presentation under tab 5 of the meeting binders. Captain Hammer, we’re looking forward to your briefing.

CAPTAIN HAMMER: Just as soon as I untangle the mic.

DR. DICKEY: We’re trying to maximize your stress to make sure that you’ve taken all your own courses.

CAPTAIN HAMMER: Test, test. Can you hear me okay? Good morning, everybody. My name is Paul Hammer.

I’m the Director of DCoE. When I
briefed the board here back in, I believe it was February or March. I was only here onboard for less than a month and was just getting underway. And at that time I promised you I would come back with a more detailed update, as well as being able to answer any and all questions hopefully that you had.

What I wanted to do was talk about -- and this is the outline of what I’m going to talk about -- is to provide an update on the activities and way ahead for DCoE, particularly in today’s climate. I want to talk about our value proposition, what our competencies and capabilities are, what we’ve done in terms of strategic planning. I’m going to talk about what we do and what our role is in the realm of psychological health and traumatic brain injury care. I’m going to talk about some of our current initiatives and emerging areas of interest and what we’re dealing with. I’m also going to talk about the recent trip we took to Afghanistan, along with the Gray Team 4. And then a little bit
about our future governance and what the way ahead is with that.

First, the value proposition. One of the criticisms of DCoE in the last, well, prior to when I came onboard was difficulty understanding a strategic alignment as what is it you do and why do we have one and what are we supposed to be doing? So a lot of the work that was done with DCoE among my people initially before I even got there was to talk about a value proposition. Not so much a mission statement as what is it we do? Who are we? And this is it here. We are the principle integrator and authority on psychological health and traumatic brain injury knowledge and standards for DoD. We’re uniquely positioned to accelerate improvements in PH and TBI outcomes in policy that impact the continuum of care and further reduce variability across the Services.

Now, I realize that this is not a completely true statement and that in some ways it's more inspirational than anything else. But I
think this is something that we shoot for in terms of what we do. One of the problems that we had when we were first created and organized was we became all things to all people regarding psychological health and traumatic brain injury, and everything got dumped on us. And yeah, we'll do that. Sure, we'll do that. And we'll do that, too. And you ended up with a situation of DCoE running off in all directions. I think this focuses on what we do and this is principally -- that principal integrator thing is what we really want to focus on.

It's important also to understand this continuum of care process in that what are we doing to improve the system of care in each of these realms. And what I like to say is that our sweet spot, you know, the middle of the bat there, right near the trademark is right in this area in terms of diagnosis and treatment. There are a lot of things that we can do with surveillance and prevention and screening and rehabilitation and reintegration. Those mostly belong to other
people. But what we are doing is looking at really how well do we diagnose and treat for psychological health and traumatic brain injury.

So what do we do? Well, our unique competencies and capabilities are these and this is what we do that brings value-added to the whole system. We bring objectivity and credibility in the evaluation, analysis, and standardization of care. We look at the system and we're dealing with systems issues so that we bring good information to pathways of care, clinical tools, and programs. We prioritize and identify needs in PH and TBI research. I look at us as the bookends of research. On one end we prioritize needs, look at what's needed, feed that into the research system, and on the other end take what comes out and translate it into clinical care. And translate it into good, effective practices.

We are a comprehensive resource for current and emerging information and clinical educational research information regarding psychological health and traumatic brain injury.
I liken this as to for all audiences we provide information on this stuff, all different audiences, whether it's clinicians, whether it's politicians or policymakers, whether it's the run-of-the-mill public, from anywhere from the eighth to ninth grade level all the way up to the graduate level. My analogy is that you don't tell a medical student we're going to study cardiac physiology next week so go into the library, look up all the papers that are relevant regarding cardiac physiology, sift through what's important, what's not important, and then we'll discuss them next week. You have somebody who does that. You have an expert. You have a cardiologist that's been around in the field that looks all that stuff up and figures all that stuff out and then he writes a chapter in a textbook. And you can do the same thing, whether it's a newspaper article or the Reader's Digest article, all the way to a monograph or something that a really intelligent graduate level person needs to do. We're providing information and digesting information,
and putting it together in a way that people can
use is important.

And then we're the nucleus of DoD's
multidisciplinary, interdisciplinary collaborative
network regarding a lot of this stuff. We allow
subject matter expertise in unique perspectives
across stakeholders to be vetted and understood in
a lot of different ways. And to that end this is
how I view us, and I will tell you this was given
to me by General Robb and I shamelessly sort of
modified it from what the Institute of Surgical
Research has done down in San Antonio. They -- I
aspire to be what they are for trauma surgery.
That's what we aspire to be for psychological
health, for PTSD, and traumatic brain injury.

What they've done is they are the center
that has a lot of reach to a lot of different
areas, whether it's government agencies, whether
it's to the Joint Staff, whether it's to the VA,
to academic, to national meetings, to partner
centers, to other agencies and other institutions.
They were the center that was able to collect data
through the Joint Theater Trauma System from all
the way from initial care to long-term rehab care
and everything in between, collecting data,
identifying, evaluating, and analyzing it and then
putting out over 34 clinical practice guidelines
related to trauma care. I want to do the same
thing for PTSD and traumatic brain injury. And
we're getting there.

I'm going to show you some examples of
some of the good work that we've done along that
line. But you also have to remember that the
Institute of Surgical Research and the Joint
Theater -- well, the Joint Theater Trauma System
wasn't, but ISR was a mature organization when the
war began, whereas we got started in 2007, you
know, starting to stand up but actually stood up
in 2008.

What we want to do is create a Joint
Theater Neurotrauma System. And this also will be
something that long after the war is gone will be
able to provide information to us but do the same
kind of thing. No matter what level we're at,
we're collecting data, we're looking at the system, bringing it in, vetting it with other centers, looking at it and digesting it, turning it into knowledge. And not just raw information. Not just the kind of thing you see in the newspaper all the time where some study comes out and off we go taking chromium for whatever, you know, ails us. You know, look at it intelligently, digest it, and really turning it into knowledge. And then approaching the care by providing clinical practice guidelines, clinical support tools, monographs on various things. That's the kind of stuff that I think we do.

And I will tell you that DCoE has actually done a lot. I always hate when people do a slide and say I know this is hard to read but -- and here I am doing it. But I'm going to show you some detail later. This is just a small sampling. This is not every project or every initiative we have onboard. But what I asked my staff to do one day is say, look, I want to map everything we're doing to one of these things and see if it fits,
see what it fits, and look at where are we, you
know. We've done a lot of prevention initiatives
and you also can't say, well, you know, you've got
less here and more over here. The numbers of
initiatives are not weighted by how important they
are so I wouldn't look at that. But it is
important to understand that we have a lot of
things going on. And I will tell you the orange
is an existing project. The purple is RAND studies
or various studies and the blacks are other kinds
of things.

One of the major things we're doing is
the integrated mental health strategy between DoD
and VA. DCoE has 60 percent of the
responsibilities, 60 percent of the initiatives
for that. And, of course, there are other things
that do not fit along that continuum of care.
There are a lot of things that have impacts across
the continuum and there are a lot of initiatives
there.

Rather than blow you away with lots and
lots and lots of things, I want to talk about just
a few things and give you some sample activities across the continuum of care. One is I talked about the Joint Theater Neurotrauma System that we're trying to set up and start growing. But one of the major things we've been able to do is do TBI tracking, installing the BECIR, the Blast Event Concussion Incident Reporting System. If you have the Sydney, which is the system by which the line guys report significant events, the BECIR is a module within Sydney. That if you've been involved in a blast you have to put data into that BECIR. And DCoE is on the other end of that data. It goes through JTAPIC and a lot of other places but we are on the other end in terms of analyzing that blast data and looking and collecting blast data to understand that.

We have been significantly involved in DODSER. Our component center, T2, the National Center for Telehealth and Technology has, and owns, and runs the DODSER, the DOD Suicide Event Reporting System. And what they do is they collaborate or they collate all of the DOD suicide
event reports that are standardized throughout all four services that come into us. We are involved in the joint publication on Total Force Fitness and looking at how do we have resilience across the force. In fact, I brought my iPhone, and if you guys want to see the Mood Tracker app, or the PTSD Coach, or any of the T2 apps, I'm happy to show them to you. We have in-theater protocols for both PTSD and depression. We're doing in-theater CPGs and a DODI on the management of concussion in the deployed setting. And I will tell you, I'm going to talk a little bit about that later. That's actually happening on the ground in Afghanistan, that you're actually getting good, consistent care for mild TBI and concussion. It's not perfect, it's still got a long way to go, but it's light years ahead of where we were just a couple of years ago.

One of the things that you'll see in your goody bag I put in is a Co-Occurring Conditions Toolkit. I'm sorry, I didn't bring goodie bags for the general public; it's only for
the Board members, but I will show you those later on. And we have a number of web-based TBI case studies that we've had online to improve education for traumatic brain injury. We have a number of reintegration initiatives. inTransition is a program to provide coaching for people going from treatment situations, either from one MTF to another if they're PCSing in their move, or if they're transitioning out of the military into the VA.

The Real Warriors campaign is the only DoD anti-stigma campaign really ongoing. The only one. DoD really does not have any anti-stigma campaigns, really, other than Real Warriors. And afterdeployment.org is another website with tons and tons of useful information for Service members and their families regarding deployment and how to cope with what comes afterwards. And then lots of different initiatives. One of the major things we did recently was doing some consulting with Admiral Kiser and the Medical Education Training Campus
for the -- down in San Antonio where they train all the corpsmen and medics for all four Services -- in looking at revamping their psychological health curriculum to really make it more relevant currently.

So we've got a lot going on. And the one thing I also want to talk about is the annual conferences. A lot of people look at that as sort of boondoggles and, yeah, we're going to travel to nice places and do that. But I think annual conferences are critical to what we do because when you have a conference and you bring people together you get them focused on exactly what you want them to think about. They come together, they're away from work, they're not, you know, you get another barrage of e-mail, you get another document they have to read. They get away. They're able to look at that, and you can also shape what you want to do and the message that you want to put out regarding particular issues around that conference.

Now, I know the ATACCC and again, I'm
shamelessly and openly imitating what the
Institute of Surgical Research does. But they do
that with ATACCC, their annual trauma conference.
They do that every year. They bring out stuff,
put it out, and that's the conference where it
happens. And with our conferences -- we have
three of them actually -- the Warrior Resilience
Conference, the Trauma Spectrum Conference, and
the Suicide Prevention Conference, which is a
joint conference with DoD, are all critical in
each of those various realms. And, in addition,
the Defense and Veterans Brain Injury Center
(DVBIC) does an annual TBI conference where they
do real, concrete TBI education. Those are the
kinds of things that I think are value-added in
terms of what we do in really getting the
information out in a constructive way.

I also want to talk about the integrated
mental health strategy with the VA. This is an
initiative from the Joint Executive Council
between DoD and VA with the HEC (Health Executive
Council) regarding how do we coordinate better in
terms of doing mental healthcare between the VA and DoD. There are 27 initiatives. Of those, DCoE has the lead on 19 of them, 60 percent. So we get the lion's share of what we have to do. Things like, you know, these are all the things -- the blue ones are the ones where we have significant actions. So quality measures, impact of caregivers, patient outcomes, the in-transition program, telemental health. Another major thing we're looking at with telemental health is how to resolve federal rules regarding health care. That's a key thing that, you know, people say, well, the telemental health, put it up here and we'll just do it. Right? Yeah, great. No. If you've got a physician in one state and a patient in another state you've got rules regarding medical practice that need to be overcome. You need -- and if they're not in a federal facility you've got a problem. You've got a major problem in terms of risk management, in terms of malpractice, in terms of licensure to practice. There are a lot of things that need to be dealt
with that. So those are the kinds of things that we look at.

And then in terms of strategic action, suicide risk prevention, family resilience, the mental health justice outreach, the chaplain's role, lots of different things involved and how do we integrate better in terms of doing mental health between the VA and DoD.

I want to spend a little bit of time talking about the Gray Team. And the Gray Team is important because it was Chairman Mullins' initiative to rapidly improve things that he wanted to focus on and cares about. The most significant thing that he did was regarding TBI. And that involved a lot of things and I think it ultimately helped get the directive-type memorandum involved or engaged in theater. But what the idea was with the Gray Team, and I think the Gray Team was named after gray matter like the brain, you know. I don't think the color was any big thing other than that. But it's a hand selected group of folks who have significant
expertise in what we're dealing with that represent the Service Chiefs, the Combatant
Commands, and the Chairman of the Joint Chiefs. And the idea is -- and the leader of our team was
Colonel Chris Macedonia. What his idea was is to use John Boyd's OODA Loop methodology. The idea that when you're in the middle of chaos, how do you make a decision about what to do next?

And there's a lot of people that will, you know, have lots of research studies and, you know, spend time doing things but when you're in the middle of a dogfight you can't do that. So observe, orient, decide, act. You observe what's going on, orient yourself to what's happening, make a decision, and act on it. So it isn't the idea that it's going to be the perfect solution to everything but it gets the ball rolling and gets us moving down the road. And what it was able to do was at least get some clarity on the concussion problem and get it started. So the first three Gray Teams dealt mostly with concussion.

Gray Team 4 was focused mostly on PTSD
and traumatic stress injuries. So the idea was
it's driven by the line leadership's desire to
act. Let's get moving. We haven't got time to be
all scientific and sit back and, you know, take
forever to make a decision. People are dying.
People are suffering. People are hurting. Let's
get on with it. Yet we also maintain the medical
tradition of we need to act scientifically, we
need to act deliberatively, we need to focus and
really understand the problem that we're dealing
with and not just have kneejerk reactions. So
it's a pretty unique mechanism for really looking
at things quickly and then making some decisions
and at least moving forward on it.

So our charter from the Joint Chairmen
and CENTCOM -- Joint Chiefs and CENTCOM was,
number one, let's look at mental health prevention
and treatment. What are we doing downrange? What
are we really looking at in terms of stigma? We
also wanted to look at sleep hygiene because that
was critical. We were hearing -- and everybody's
heard a lot about that. We wanted to talk about
standards of practice in both TBI and behavioral
health. We need to end the lottery of luck and
location. That the therapy you get happens to be
because you walked in and you happened to connect
with the right therapist at the right time that
has your needs in mind and you just seem to do
okay. And the problem that we have in the system
is that we have a lot of people flailing around
with not getting the right care at the right time
or hooking up with the right person in the right
way and they end up with the lottery of luck and
location. They flail around until they finally
get there and we can't have that.

I want to talk about the role of
leadership. And there were some reports and some
issues regarding toxic leadership and its
contribution to what happens with behavioral
health problems. I want to look at the
feasibility and desirability of putting out a
similar behavioral health directive-type
memorandum like we did for TBI. Would that be a
good thing to do? And if so, what would it
consist of? And we also wanted to look at how well is the current directive-type memorandum for TBI working? Is it happening? Is it really going? We also want to look at blast dosimeter fielding. DARPA had developed these blast dosimeters they wanted to look at and see if they want to field it, and previous Gray Teams had worked on getting MRIs out there and we looked at all the three major Role 3 sites regarding, you know, where they were with MRIs.

So I'm going to talk just a little bit to some of the findings. This is not the exhausted list but what we found was, gee, surprise, there's lots of variation in care. Lots of variation in care. And a lot of it is -- depends upon who you are and where you're at and what you think. We need to improve sleep hygiene. That was a significant problem. And that is a relatively easy fix and also something that the line can do. We noted that in the current tactical situation you have hundreds, literally hundreds of combat outposts and forward operating
bases where they are hungry for getting behavioral health providers out there. And when they do come out there you have lines that go, you know, around the buildings waiting to be seen. So what we thought was how can we extend or better utilize behavioral health extenders? How do we take psych decks and better utilize them? We found that complementary and alternative medicine was widely accepted and actually in some places really well utilized. There were a couple of units where they really found that pre-deployment screening, a good effort regarding pre-deployment screening really played off later on when the stress got high and they knew, gee, we're glad we did that pre-deployment screening so that we don't have as many problems. They're not seeing as many problems.

Like I said before, the TBI DTM is working. There are concussion centers, concussion care centers all over the place there. They're really working well. They have a good protocol down. It's happening and it's happening well. So
that, you know, the problem isn't solved yet but
the fear that a lot of line leaders had -- oh, my
God, if I send people to get screened I'm going to
lose them. They're going to be MEDEVAC'ed away was
not realized. They're getting 97, 98 percent --
well over 90 percent return-to-duty rates. Now,
at the same time though the medical folks are
being able to keep them for 10, 12, 13, 2 weeks,
you know, somewhere in that timeframe. So what
you've got is people getting adequate rest for an
adequate period of time before being returned to
duty.

And then we also found that there were
some concerns about leadership. That we need to
find a way to improve leadership so that it does
not exacerbate -- that stressed out leaders do not
exacerbate stressed out individuals. So some of
the recommendations we had -- and this is, again,
there are roughly 14 or 15 recommendations and I
selected some of the key ones. One key one that
they talked about, some of the people indicated
was embedded TBI care for high risk units. For
groups like route clearing and EOD units that are
getting blown up all the time, they could really
use somebody with real extensive knowledge
regarding traumatic brain injury. They could use
an embedded provider in that unit to provide care.

   Embedded behavioral health providers
were well accepted. And in fact, that’s the way
to go. Having behavioral health providers in the
highly populated, forward operating bases or the
main bases was not where you needed them. You
need them out with the FOBs and the COPs. You
need to get people out there because that’s where
they were stressed and that’s where they were
really willing to see people. So getting them out
there and getting them seen was important. And
the effect from the embedded behavioral health
providers, the ones that are actually organic to
those units, was profound. Like I said, they
would go out and have lines around the building
and they’d be -- they were cheap. They were just
a guy -- they’d find a shed for them to hang out
in and we talked to one guy who had just people in
the dark out there waiting for him, you know,
lined up around the building.

One of the things that we found and one
of our team members was involved in is the Navy
Mobile Care Teams. And the Navy Mobile Care Teams
were developed in order to address the mental
health needs for Navy individual augmentees. Now,
for those of you that are unfamiliar, largely the
way most of the Navy folks that are deployed go to
deployments, they're either with the Marines
embedded in Marine units or part of small medical
units with the medical battalions. Or they are
individual augmentees that are helping out other
Services, mostly the Army by filling in billets
there.

So what they did was they had these
Mobile Care Teams that went out and their goal was
100 percent contact with the Navy IAs sometime
during their deployment. And what they would do
is they took a survey with them, which is a
relatively simple survey and they were able to get
some good ideas about how well are people doing.
In some cases they had actually large, organic units. For example, doing detainee ops, you know, that sort of thing. You had some master at arms units that were doing that. But what they were able to do is look at this and have pretty good factual information, not just hey, how are you doing? And the guy says I'm fine, you know, and it's actual survey information with some statistics and some discipline to it.

So what we thought was maybe we need to look at how do we do this on a wider basis? How do we do this in a more complete basis for the entire force? We found also that people were using the ANAM for return-to-duty. And that's actually a good thing. That they were actually looking at the pre-deployment ANAM. They were able to reach back, get the record, get the pre-deployment ANAM from the record, and then compare it to the current ANAM and use that as one data point for return-to-duty decision-making. We also found a lot of other creative return-to-duty decision-making they were doing as well.
I was really impressed with what some of the occupational therapists in the concussion care centers were able to do. One of them, for example, I thought it was just brilliant. So what it was is a piece of paper with a tactical situation written on it that you would hand to the soldier and say give me a status report, you know, enemy situation kind of report. The individual would have to read the piece of paper, read the paragraph, create a status report and do it in a coherent way. So what did that test? Reading comprehension. Can he read it without getting a headache? Can he spit back the information in an accurate way? All those things are completely relevant to what that guy does as a soldier. It has nothing to do with, you know, test batteries or any of that stuff. Its relevant information is can this guy function as a soldier like he normally would?

We found a lot of supplement use. You know, Rip It was the drink of choice in many cases and that contributed to the sleep thing. One unit
did unit resilience training. And this was really
brilliant. What they would do is take a unit off
line -- out of the fight, bring it back to the main
base, and they would have like three or four days
where they would have a lot of downtime, a couple
of classes. They'd bring the behavioral health
provider and the chaplain and a couple of other
people in, do a little talk about resilience,
about taking care of yourself, making sure they
got good sleep. And then the day before they
would go back they would go back out, get out on
the range, fire weapons, feel good again. They'd
have a little organized volleyball, that kind of
stuff, some good unit cohesion and then send them
back out. A little miniature R&R, if you will, a
miniature resilience training.

We thought that was such a good idea and
it seemed to be so well accepted and so positively
seen that we thought, you know what? They need to
evaluate that more. One of the other things we
thought is maybe combine that with something
called integrated war fighter management. Look at
it as you have your star player that you spent $70 million on in free agency and it's the middle of August and he's getting shellacked in a particular game. You don't just leave the guy in there; you take him out. You pull him out. Now, who makes that decision? Well, the manager and maybe the pitching coach, maybe one of the other coaches. You all huddle together. What's going on? What's the data? How's the guy doing? And then you make a decision whether to pull him or not. But what you don't do is leave the guy in there to flounder around because, well, the relief pitchers aren't too good or, you know, whatever. Well, we need to look at our soldiers, marines, sailors, and airmen in the same way; that we need to manage their stress well. But what line leaders are often looking for is tools to do that. How do I make that decision? What criteria do I use? What, you know, other than my gut level feeling? And so that's the kind of thing that we've got to do, is provide like we do with a Mobile Care Team, surveys of units. And then we
also looked at -- and by using those survey instruments which can be relatively simple and plugged into a relatively simple sort of report, you give the individual leader an idea of his subordinate unit. What are they doing? How are they responding? And you enable him -- you give him -- I guess the pitch count is probably the good analogy -- of where are they at? How tired are they? What's going on? And how do we pull them out?

The other thing is psychological first aid. That needs to be taught better. All the services are teaching similar concepts. This is a validated, evidence-based concept that the VA's National Centers for PTSD has put out regarding what do we do when people are acutely traumatized? The problem is the Army sort of teaches it sort of haphazardly. The Navy has an acronym of seven Cs that nobody can remember. And it's not really well taught. So we need to revamp that in some way and teach it better to make it, you know, a little simpler, a little more comprehensible.
So that was the Gray team. Some of the results we had, some of the recommendations, and some of the way forward and work to look at. And I wanted to finish up with talking about our governance. When we were first created the legislation stated that we would be placed under an executive agent. It didn't say who or how, but over the course of the last two years or so the biggest concept has been placing DCoE under the Army with the Medical Research and Materiel Command. That seemed to be a good fit. And it seemed to be a good way to go. So I wanted to talk about our DCoE governance update on where we are at with that process and the way ahead and what we're doing with it.

So in April 2011, the Undersecretary of Defense for Personnel and Readiness signed off on a report regarding DCoE governance that basically said they're going to establish a CoE advisory board and then transfer support responsibility from TRICARE Management Activity over to MRMC. So the idea is that DCoE will still carry out its
mission and still have relationships with Health Affairs and TMA but will require support and get support and guidance and a lot of care and feeding from MRMC. So we are working on this and we are — our target date at this point is October 2012, next year. Now, I know some people go, well, why hasn't it happened already? You can't move people and money and a lot of things without a lot of authority, so there's a lot of paperwork and stuff to do.

So one of the things that I wanted to show you is our proposed future governance and what we're looking at in trying to understand this and sort of work out some of the details. So currently, this is our chain of command more or less. It actually shouldn't be HA, it should be TMA. But the Assistant Secretary of Defense for Health Affairs, Dr. Woodson, wearing his TMA hat. And then, you know, we have the SMMAC, the Senior Military Medical Advisory Committee. And now we have this CoE oversight board that we report to and it's more or less our board of directors.
What we would now do is report to the
Department of the Army through the commanding
general of MEDCOM, the Surgeon General, down through
MRMC and then we would be under them. We would
still have the dotted line over to the Health
Affairs' TMA side, and we would also have sort of a
dotted line to the coordination with the Army's
Executive Agent Coordination Office and the Office
of the Surgeon General.

So this is kind of generally what we're
working on. We are looking at what functions do
we have? What efficiencies can we gain? What
administrative support do we need? How do we deal
with contracts? How do we deal with money? How
do we deal with people? What kind of functions
are we dealing with? And so there are a lot of
details to sort of hash out.

One of the things that we're looking at
is how do we make ourselves a little bit leaner in
order to get there? And also, what do we do with
our component centers because they're still out in
the wind as well? What we're looking at is right
now we have three component centers -- DVBIC
(Defense and Veterans Brain Injury Center), the
Deployment Health Clinical Center, and the
National Center for Telehealth and Technology.
And what we're considering is trying to figure out
ways to make the headquarters element more like a
headquarters element and have execution functions
with a TBI focus with DVBIC, a psychological
health focus with DHCC, and then looking at
technology, innovations for PH and TBI with T2.
So still working out a lot of those
details. There's a lot of issues related that
we're trying to figure out. There are a lot of
different models. We had six or seven different
models. We did a recent offsite in Frederick,
Maryland, with the folks at MRMC, where we looked
at different models, we looked at different places
where it could go and what the pitfalls and risks
and advantages were of doing any of these. So
that's basically where we're at. We're still
working on it. It's a work in progress and I'm
happy to answer any questions on that particular
aspect of it.

And what I wanted to do now is if you've got your little goodie bag -- okay. I hope I brought mine with me. I wanted to demonstrate at least show you some of the products that we have in sort of a concrete way. And I'll sort of have to demonstrate for the folks over here. Probably the thing that I'm really proud of is this one, which is a Co-Occurring Conditions Toolkit. And when you look at it in terms of what's our mission, in terms of providing clinical guidance and improving care and the diagnosis and treatment of traumatic brain injury and PTSD, this is probably one of the centerpieces. It's got little tabs where you can go and look up things. You've got -- in most cases there's a table there. I liken it to being back in medical school looking at the Sanford Guide, you know, that kind of thing. Okay. What antibiotic do I use for this bug? Okay. What do I do for sleep for this guy? How do I deal with this kind of symptom? And this is the kind of thing that we can put out.
And by the way, we're working on an app for this thing as well. We have the T2 apps. If you want to see, I brought my iPhone. I'm happy at the break to show you the T2 apps. You can download them for yourself. They're free from the Apple iTunes store -- the Tactical Breather, the Mood Tracker, the PTSD Coach. So they're all excellent apps.

If you look in the folder there -- there's a couple of different folders in addition to the black thingy that goes in the bottom of the bag. If you look at this multicolored folder here, this one has a lot of guides regarding depression, regarding PTSD. There's cognitive rehabilitation for mild traumatic brain injury, a lot of good information to put out. This one has information on the Real Warriors campaign. This is a toolkit that comes with Real Warriors. You can download a lot of these things but the major point of Real Warriors is the website, which basically says, you know, you don't -- if you ask for help, that's a sign for strength, too. Each
of you gets a free squeezy brain.

We have a couple of things on case management of concussion and mild TBI. So there's a lot of stuff in here. And what's the other booklet? So the Mild TBI Pocket Guide. And again, this is an app. This is about to become an app pretty soon. So you can carry it on your iPhone. And I was encouraged by somebody who I talked to -- I forget who it was -- recently, but they had said -- gave a talk and they said, yeah, I was just out at the VA in Phoenix and I saw these things all over the place. And if you go to Bethesda, if you go to the new Walter Reed, if you go all over the place, we put probably 10,000 of these co-occurring condition toolkits out. We're into our second printing and we're actually revising it so that -- tweaking some of the recommendations.

We have a seat on the Clinical Practice Guidelines Workgroup. They're a combination of VA-DoD Clinical Practice Workgroups. We're a part of that. And it's actually an interesting
partnership because they like putting out the
Clinical Practice Guidelines but they're unsure
about what's the next step. How do we get people
to use them? How do we actually get them
incorporated? And when you look at the normal
cycle of medical innovation and new treatments and
new improvements to therapy, how long does that
take? Four, five, seven years sometimes? It gets
to a national meeting. Some people pick it up.
Others aren't so sure. It's got to get out there.
There's a medication. What happens? You've got
drug companies on your doorstep with the latest
coffee cup and, you know, all the other crap that
they bring you. But our goal is to get that stuff
out there and accelerate the improvements quickly
so that when we have a new innovation with TBI,
when we have something with PTSD that we can
really get rolling, that we get it out there.

So there's a lot of stuff that we've got
to do and we've got a wide, you know, my front --
my warfare front, if you put it that way, is you
know, a mile wide and sometimes an inch deep. You
know, we have a lot of stuff that we're working on. So that's where we're at. That's where DCoE is right now. We have lots and lots of stuff we're working on, and I feel much more competent coming to speak to you today and answering questions now than I did 10 months ago. So I will leave it at that.

Are there any questions? I've got about 10 minutes.

DR. DICKEY: Dr. Jenkins?

DR. JENKINS: Paul, that was a fantastic presentation and a great job in such a short amount of time that you've been at the helm there.

A question for you is, you know, I run into a lot of young men and women in southeast Minnesota who don't have access to a VA Hospital. They're getting care in family practice shops, et cetera. Is there any effort at all -- it's a huge undertaking I understand -- but to get this out to the general public through perhaps lettered organizations -- the AMA, et cetera -- because there's a lot of this that just has to get out to
the civilian community?

CAPTAIN HAMMER: Yeah, I concur.

There's a great need out there, particularly with the National Guard and Reserve population. And they are the most difficult nut to crack in this particular thing.

Number one, all of our stuff is freely available on our website, so it's out there in a public domain and anybody can get it. Number two, both inTransition and Real Warriors have -- and we have a significant outreach capability and outreach mechanism that really goes out to a lot of different partners to put this stuff out and make it known. There's also a lot of training available for free for providers, particularly civilian providers in terms of getting trained up, number one, in, you know, how do you relate well to the military population? You know, how do you speak military? As well as, you know, we have -- there's still a lot of training available to improve the level of care. But as you say, there's still a long way to go that we have to do
that. But, yeah, that's a significant effort in our outreach, is doing that.

DR. DICKEY: Dr. Higginbotham.

DR. HIGGINBOTHAM: I'm glad you ended with the challenges of translating evidence to actual practice because certainly when you look at all the clinical trials that have been done at the National Institutes of Health, it takes decades to really change practice. So just piggybacking on my colleague's question, to what extent are patients empowered to actually help with a feedback loop back to you? Because it seems like a lot of your materials are provider-oriented but sometimes if patients are empowered to ask the questions and then if they're not getting the care they need it could be an early, you know, indicator. But certainly congratulations on your work. I mean, this is a huge effort and you're on the right track.

CAPTAIN HAMMER: Thanks. I think patient empowerment is critical. And I think that's an important piece. As part of our
outreach, we have a call center where people can call into us with comments or asking for resources to get help. I will confess that I am largely focused on the provider and I think that's our biggest need right now, is fixing the system. Because I'm not comfortable with how well we're doing in providing good care. And I think it's still kind of haphazard. It's still, you know, I use a joke that if you have a clinic with, you know, 20 mental health providers in it you have 20 private practices that happen to be in the same location. You know, and that there isn't that synergy. We're not triaging well. We're not doing good case management. We're not doing a lot of the things that I think we've got to do. And I think if we can do that better I think patients will be more satisfied. But certainly, I think that's a good point, that I need to take into account, is how do we give, you know, good feedback from patients? Because, you know, it's like the old customer service thing. You know, the customer won't tell the company that they had
a bad experience; they'll just go off and tell all
their friends. And I worry that that may be part
of what's going on with us. That we need to
really seriously look at that.

DR. DICKEY: Yes.

DR. BULLOCK: I think DCoE is emerging
as this huge resource.

CAPTAIN HAMMER: You might want to use a
mic so they can get -- it's recorded.

DR. BULLOCK: I think the size of the
resource that you have is enormous. How about
closing the loop for research? For example, how
much feedback? Of the problems that you're
uncovering, how much feedback is there back into,
for example, CDMRP and the other (inaudible)
research?

CAPTAIN HAMMER: Huge. In fact, on
November 30th and December 1st, I will be a voting
member in the review and analysis of the PH and
TBI research portfolio. And, in fact, that I
think is one of the major advantages to being
aligned with the Medical Research and Materiel
Command because they don't own CDMRP. They own all the joint program committees that actually do the research. And in the last several months we have really been interacting a lot more.

I think they value that interaction with us where we are able to say, hey, what we really need is, you know, more research on X, Y, and Z. And then at the other end, being able to take what they are giving us. Here's the newest, latest, greatest thing that this group just came up with that we funded. Okay, how do we put that into practice? And I think that's the core thing for us, is being there to influence the system. In other words, there are other people. The Surgeons General of each respective military service own their medical system. But having somebody there to input and sort of translate for them I think is important. But we're very much involved in the research, both the front and back end. What we don't do is middle. We don't do the research. We're fitting into it and we're taking out from it.
DR. DICKEY: You mentioned a number of the apps, and some of you will recall we had a chance to see some of those when we were at Washington State. Several of them are actually for the soldier to use. So can I assume we're issuing every soldier with a smart phone now?

CAPTAIN HAMMER: Can I put my order in for an iPhone instead of an Android?

DR. DICKEY: I assume lots of them actually have the iPhones and so we're telling them ahead of time that those apps are there and they can buy them.

CAPTAIN HAMMER: They're free. They don't have to buy them. They're out there.

DR. DICKEY: You're right. So they can just download them.

CAPTAIN HAMMER: Just download them and use them. And we've got a lot of good feedback on the PTSD Coach. That can be something you can use alone or you can use that along with your therapist if you choose to. The Breathe2Relax I think is an excellent app. I use that sometimes,
DR. Dickey: Are we telling soldiers about this before they head over so that -- how do they even know that app is there to buy, that it may be a tool they want to use?

Captain Hammer: We have a lot of mechanisms to get the word out but, you know, certainly we can do a better job of publicizing it more. But putting the word out and getting the word to the average soldier is a challenge.

DR. Dickey: I'm sure. Other questions?

General Myers.

General Myers: Good brief, Paul. The relationship with the VA, how good is it really?

Captain Hammer: I have three VA employees. The major one is my deputy -- one of my deputy directors for VA coordination. So that's actually pretty good. Like I said, we have -- the Integrated Mental Health Strategy is a joint DoD-VA project. So we have a pretty good relationship with the VA. I think we're working to improve it and to mature it and be more
interactive with them but we have a lot of good interaction with them.

GENERAL MYERS: Let me test that a little bit.

CAPTAIN HAMMER: All right.

GENERAL MYERS: My understanding is the VA -- one of their centers for TBI is down at McGuire, just down in Richmond. Have your folks been down there? Is there a dialogue with the doctors down there that are treating many cases of TBI? Now, there are severe cases. Most cases are (inaudible).

CAPTAIN HAMMER: Yeah, because they're polytrauma centers. They're mostly severe TBI. Richmond, I believe, is one of our DVBIC polytrauma center sites.

GENERAL MYERS: But, I mean, is there some kind of relationship?

CAPTAIN HAMMER: We have people there. Yes, there is a relationship there.

GENERAL MYERS: Okay. How do you handle -- under this current organization that you're
going to -- how do you handle real controversy?
Let's say you come up with some, you know, you're
looking at all the research and you say, hey, we
ought to go this direction in treatment, for
instance, and the Army Surgeon General says I
don't think that's a smart idea. Now, I know that
never happens actually. (Laughter) But I
actually have seen it. The Surgeons General of
the Services have a lot of power.

CAPTAIN HAMMER: Yes, sir.

GENERAL MYERS: And now you're stuck
under one of them.

CAPTAIN HAMMER: Yes, sir.

GENERAL MYERS: And I'm just wondering
how do you -- what's the relief valve to
promulgate good ideas?

CAPTAIN HAMMER: I think the relief
valve is the dotted line in the other direction
with Health Affairs. And hopefully looking at the
CoE Advisory Board. Now, again, they've only
stood up. They only had a few meetings and
they're only a couple of months old. But I think
-- let me back up. This whole concept of the
Center of Excellence is a very new concept. I
don't think it's -- it wasn't as if somebody was
going, oh, my God. We really need these Centers
of Excellence. They sort of got legislated and so
DoD had to do it. So now that we have them, what
are we going to do with them? And how do we
utilize them? And what is their role and what do
they -- a lot of my task I see is sort of trying
to think through that in a way and also think
strategically, at least a few years into the
future, to understand how will it be when we don't
have the war and it isn't in our face and so
acute?

So your point is, yes, we are going to
have to hash out some of those issues of what if
one Surgeon General wants to go one direction and
the other two don't? And that's the one that owns
me. It may be difficult. I think the dotted line
to Health Affairs and to the SMMAC is probably the
way to hash those controversies out but we'll have
to look at a mechanism to take issues of the chain
of command and then -- as anything it's, you know, okay, what battle do you really want to fight? Is that a significant enough battle to fight or is it (inaudible)?

GENERAL MYERS: Right. No, that'll be your decision or the decision of the folks there.

The other question is on the diagram you stole from General Robb, or modified or whatever, is your -- give me some more detail on how -- who you can reach out to. It's obviously not just governmental agencies. On the chart you at least indicate you can go to private sector but are you allowed to pretty much go anywhere you want to to gather data? I mean, are there any restrictions on you, I guess?

CAPTAIN HAMMER: No, sir. I don't think there are any restrictions on that. We have to be careful about relationships that we have with governmental contracting kinds of things to make sure that we don't violate anything or cause any problems for anybody by having a unique relationship with one entity that then they're
going to put in a proposal or something, you know.

But in terms of academic sorts of things, I think most organizations are very open to having us be involved with them and having a relationship at least in terms of sharing information. So we have a lot of informal relationships right now. We used to have some component centers with the Center for Deployment Psychology and the Center for Studies of Traumatic Stress. We still have a relationship with them. We still have a relationship with USUHS. We look at other academic centers. But again, we have to be careful when it involves research, that we're not poisoning the well, so to speak, if people want to go get proposals or that sort of thing.

But in terms of coming to conferences, to participate in conferences, to being collaborative in helping people get projects started, there's -- nobody has put any restrictions on me other than there's enough time in the day to do all that stuff. So other than just practical prescription, there's no real
restriction.

GENERAL MYERS: Thank you.

DR. DICKEY: Dr. Lockette.

DR. LOCKETTE: I just want to follow up to the General's question because it may not be clear. I chair the Centers of Excellence Oversight Committee and there was the concern expressed that if you give the executive agency -- give the center to an executive agent that it may bias the views of one particular service. The Centers for Excellence Oversight Board can actually field those kinds of concerns. And then what the SMMAC is, for those who don't know, is the Senior Military Medical Advisory Committee, which is composed of all Surgeons General. So operationally the way this would work in terms of chain of command is the Centers of Excellence Oversight Board would bring those kinds of discussions to the Senior Military Medical Advisory Committee, which would then allow discussion among all the Surgeons General and the ASD for Health Affairs for resolution.
GENERAL MYERS: Thank you.

DR. DICKEY: Yes, sir.

MAJOR GENERAL ROBB: As I watch the Joint Theater Trauma System mature, in fact, raise of hands, how many people here have been part of that? All right. So what you see is that the Joint Theater Trauma System, which the center of gravity is the ISR which then belongs to MRMC, you can see the good and the jointness that came out of that. And I really believe that MRMC is a lot more joint than folks give it credit for. The portfolios are jointly staffed. The agendas are -- things go up to be solved for joint solutions. Sir, I don't think we have to worry too much about it being dominated by one Service. And again, if you want to look at the success model, look at the ISR is the center of gravity and then you'll see what I say, DCoE would be the center of gravity for the psychological health in the TBI area, much like the ISR is for the continuum of care. And when you look at the continuum of care for the ISR, even though it's the Institute of Surgical
Research, they reach out from tactical trauma
casualty care, all the way back to polytrauma and
rehab. And they've brought those, again,
intellectual capacity all together working for a
same common end state. And I believe the vision
will be the same here. And I think hanging it on
MRMC, and again with a success model like we've
seen before, I think it's going to set us up for a
future of nothing but good for the Department of
Defense and the VA.

DR. DICKEY: General?

GENERAL MYERS: We may be finally
organized properly with this particular issue,
which is good. But I guess I'm going back to --
what I would like to -- hope we don't do is go
back to early the last decade where we didn't --
we first ignored -- we didn't know about the
problem. We ignored it when we brought it up, and
so we've got thousands out there untreated. And I
don't know if there was Services bias in that or
not. I'm not commenting on that but we didn't
handle it well. Now, we may have -- at least
that's my impression. We're starting to get our arms around it a little bit. We're better organized but I hope we -- this is not an area that is a well understood and, I mean, just look at that. The thickest thing in one of your handouts is all the medications. This may not be, you know, you treat symptoms. It may not treat the disease. I don't know. I'm not a doctor.

But that's impressive that we have that much on medications and very little on everything else. I'm just hoping that you have the freedom of initiative that when the research indicates that we can take steps to come up with better -- on the continuum of care, the diagnosis to treatment and the rehab piece a little more aggressively than we seem to have done in the past. That's my -- that was my concern. And it looks like -- I have no problem with the way it's organized. I think it's good we're now organized and that's comforting, General Robb, but, you know, where it's placed now is probably appropriate.
CAPTAIN HAMMER: I think I have the range of freedom or the range of initiative to be able to do all that.

DR. DICKEY: Thank you, Captain Hammer, for an excellent presentation. If you continue to make this kind of progress each year we'll have you back once a year to tell us about other great things that are going on. And thank all of you for a good discussion. The Center has come a long way since our last presentation.

We really just finished a break so if we can let's keep going. Our second speaker this morning is Dr. John Gandy. Dr. Gandy currently serves as an emergency medicine physician from Shenandoah Emergency Physicians in Woodstock, Virginia. He recently retired from the U.S. Air Force with his final duty assignment as Chief of Aerospace Medicine, Detachment 3, Air Force Flight Test Center in Las Vegas, Nevada. Dr. Gandy participated in numerous worldwide deployments supporting Special Ops forces.

He's also a member of the Trauma and
Injury Subcommittee and will present an informational brief on behalf of the Subcommittee chair regarding the potential addition of ketamine to the Tactical Combat Casualty Care guidelines. Board members can find this presentation under tab 6 of your meeting binders. Dr. Gandy, we're delighted to have you with us and look forward to your presentation.

DR. GANDY: Thanks. Well, good morning. And thanks for that introduction. I appreciate the opportunity to talk to you guys. I try to restrict my lecturing and teaching to audiences where I'm the smartest person in the room, and today is not going to be such a good day for me I can tell. I've got many -- many former instructors, mentors, senior enlisted folks that squared me away a time or two along the way and I look forward to sharing with you what I have today. I was thinking I saw General Taylor here. The last time I spoke to a group that was this impressive it was the -- I can't remember if it's called the Corona something. It's all the
medical generals of the Air Force all in one
location and I'd just come back from Afghanistan
and they said, hey, we want some guy to give us a
-- and I'd written a little after action report
because I was a major and I had a lot to say. And
some of it wasn't so nice. So they got forwarded
up. My boss made me go do a presentation for the
Corona. So I knew I was in trouble. They say,
"Hey, show up in your flight suit or you BDUs.
You know, so it's in Omaha, Nebraska. I fly in
that night, go to the DLF, get up the next
morning, walk across the street to the meeting
room. And I walk in. Everybody's in dress blues,
except for me in the flight suit. Right? And
the lady who is checking me in is a full berth
colonel. I'm a major. I'm the only major there.
General Taylor may remember this. We're at the
Corona.

So I give my briefing as a major about
my experiences in Afghanistan and there's a lot of
turmoil in the room and he comes up to me
afterwards and says -- hands me a coin instead of
shaking my hand and said, “Thanks, John. You may want to leave now.” (Laughter) And I did. I went straight to the airport from there. So I guess it got pretty interesting right after that.

Today we’re going to be talking a little bit about battlefield analgesia. And the reason I’m going through the history piece of this before we get to the ketamine piece is I'd like to have this as the first of several changes to the TCCC guidelines as we go along because I think this group understands what military medicine has contributed to trauma care and to medicine in general, but if you look at battlefield analgesia from the time of wounding all the way back to Walter Reed, we maybe have some gaps. We may have some areas where we could be improving, and we may have been very dogmatic in our treatment of pain over the last 100 years or so. And having probably been guilty of that myself, I'm a convert now and I believe that pain should probably be treated. And some other people that believe that.

What an infinite blessing was the quote
from one of the combatants in this war, the battle that's depicted here. And those of you who have had severe pain and had it treated would probably agree that that is an infinite blessing. Those of you who have had severe pain and didn't have it treated could probably attest to the fact of the physical and emotional toll it takes on you when you're hoping to get that pain resolved. Right?

So this is the Battle of Chancellorsville, just down to Fredericksburg. Go west a little bit, about 20 miles.

And the person that was quoted here is -- the young man on the left side of the screen is General Stonewall Jackson. He had had a very good day on the battlefield. Had been victorious.

Nightfall came. He went out to recon the battle plan for the next day with some of his staff. On the way back in their hit their own sentries and somebody said, "Halt, who goes there?" about the time they shot them. And then, of course, they yelled back, "Don't shoot. It's General Jackson."

And the major-in-command said, "It's a damn Yankee
trick. Fire.” And they shot him again. So he
got shot three times. Once in this arm, twice in
this arm. And of course, nobody really cares
about that in this room. Everybody wants to know
who's the surgeon. Right? Who did his case? As
we all do. Who did the case?

SPEAKER: Hunter Holmes McGuire.

DR. GANDY: Hunter Holmes McGuire.

Right. From Winchester, Virginia, who had trained
in Philadelphia and also had trained at Tulane.
That's why I was wondering if Norm -- Norm, did he
train under you at Tulane? (Laughter) Was he any
good? Yeah, right.

So he did a little work down in Tulane,
too. And he quoted -- and they had this quote as
he was going under anesthesia with a chloroform
gas. And he is said to have said, “What an
infinite blessing.” And then he just kept
repeating “blessing, blessing, blessing,” as he
went unconscious. The bad news is that all the
trauma surgeons in the room will identify that he
died of an anesthesia complication about eight
days later. (Laughter)

So, but you see 1863 we're talking about here. And this was the Spanish-American War, maybe the first time they used gas anesthesia and then the Civil War used it a lot at that point. So a big change at that point.

A little bit about our agenda for this morning. I want to talk about the importance of early pain control, a little bit about the history, the current state of battlefield analgesia, the future of far-forward pain management, and then I'll get into the FARDA, which is a decision brief that I'll be presenting to the TCCC Committee and the Trauma and Injury Subcommittee tomorrow. So you guys are getting it a day ahead of time.

So what about the consequences of untreated pain? You know, I think for a long time, and I can say I was guilty of ordering 800 mg. of “suck it up” more than one time in my career. And I think as we get more and more evidence to say that pain -- untreated pain and
pain that's severe and treated and then allowed to
get severe again, you know, in a pattern of pain
controlled, pain uncontrolled, pain controlled,
uncontrolled. Both of those can cause long-term
effects. The pain management folks describe that
as the pain pathways sensitization. So they're
kind of up-regulated and they stay that way and
then they require more and more pain medicine to
get them under control.

This leads to chronic pain syndromes.

If you work in an emergency room like I do, you
see these people every day who, when I ask them
what I can do for you today they say, “Make the
pain go away.” And I try to tell them I'm
probably not going to be able to do that but maybe
we can get it to a controllable level for you
today. So that's chronic regional pain syndrome.
It used to be called reflex sympathetic dystrophy
and fibromyalgia. This, of course, leads to
short- and long-term abuse of narcotics,
especially if it's the only drug you have. And
narcotic addiction can lead to depression. If you
see these people in chronic pain, they look depressed. And if you've ever experienced chronic pain you know that it probably will cause severe depression. And there's a link between post traumatic stress disorder and untreated pain on the battlefield. It's, you know, it's not that great a correlation but it makes sense if you think about it.

So what about the history of battlefield analgesia? As early as man has been on the battlefield they've been trying to treat the pain. Opium and different opium products have been drunk on the battlefield and for recreational purposes for as far back as recorded time. Of course, wine and grog and rum, I guess, growing up watching cowboy movies it's, you know, a bottle of whiskey when you get shot. The same idea. A patient can control (inaudible). You just keep drinking it until the pain goes away.

Morphine was isolated from opium in 1803 by a guy named Friedrich in Germany. A scientist maybe. Maybe akin to the guys you'd have, you
know, with a trailer out in the woods in West Virginia using a lot of electricity and hydrocarbons to make their meth. He was an experimenter and maybe a user himself. But he was able to get morphine isolated from opium. There's some documents that say they may have had morphine in the Byzantine Empire but they kind of lost the formula somewhere along the way. I don't know who was in charge of it but somebody lost it.

The hypodermic needle was invented in 1850ish and that kind of made it more easy to use on the battlefield by just giving an injection. It was pretty widely used, morphine was, for pain control during the Civil War. Moving forward to WWI, the main pain medicine was morphine. In WWII, the main medicine on the battlefield was morphine. And then you kind of see a pattern developing here. And morphine was used and we never really I don't think looked for much else. It was the gold standard. It's what all the other pain medicines -- narcotic pain medicines are judged against, their ability or their comparison
with morphine. It's reigned on the battlefield for more than 150 years, and many in the anesthesia and pain management fields feel that it's an outdated medication.

And I think from a provider perspective, if you've taken care of hurt people, really hurt people, you understand that one agent, just morphine alone, may not get rid of your pain in a polytrauma patient. You may need other agents, different classes of medications, more newer, stronger medications. And I can remember the days of -- well, I gave you -- look, I saved your life and now you're complaining of pain. I've given you 30 mgs of morphine. What else do you want me to do? And that's really not good enough just to save their life anymore. Now we have to say not only are we going to save your life but we have to think about what kind of life are we going to give you after you recover? So when does recovery start? Recovery starts right after you get wounded. Right? So from then on you're recovering. So you have to kind of change your
mindset a bit and it looks like I have had to over
the years.

So this is a quote from a mid-level
provider who had taken a trip to Baghdad in 2003.
He said, "Pain control in Baghdad 2003 was the
same as in the Civil War; A nurse with a syringe
full of morphine." I'm not saying that morphine
doesn't have a place on the battlefield. But I
think we can look and see that there are other
options available to us that may control pain
better.

So morphine predominated on the
battlefield until -- I can't remember the exact
date, Frank, but maybe you can help us out. A
rogue band of medical heretics proposed a change.
It was the great 2001-2002 fentanyl lollipop
debate back when the TCCC Committee was -- we were
using the back of envelopes and meeting in a
minivan that we rented. So it was a big fight to
add something new to the TCCC protocols. We knew
that fentanyl worked. We knew it was a good
medication. And this was a novel way of giving
it. Basically, a patient-controlled analgesia. You lick the fentanyl lollipop and you lick it until your pain goes away and then you quit licking it and then you lick it some more when the pain comes back.

So what's the problem with that? Well, the FDA has a black box warning on fentanyl which says it can only be used for cancer breakthrough pain in people that are opiate tolerant. And, you know, I think it's kind of -- I'd say it's discrimination to only treat cancer pain patients when other people have pain as well. So if you think of a polytrauma multi-amputation blast injury patient, he's got severe pain. He needs strong medicine to get rid of that pain or to control that pain. But we argued about it for several days and finally decided to go ahead and push forward. We asked the FDA why there was that black box warning and we asked them for about seven years before they actually returned our call. And the reason -- the cases that they sent us were almost all non-accidental overdoses of
fentanyl and people that decided they wanted more
of it, to the point that they were unable to
breathe anymore. And that happens with all pain
medications.

Just on the side, self-reporting abuse
of drugs by physicians, what group do you think is
the number one abuser of drugs?

SPEAKER: Psychiatrists.

DR. GANDY: You've got to remember this
is self-reporting. It's emergency medicine
physicians. What's their drug of choice?
Marijuana. We're going to go rock climbing after
work, you know, dude. And so number two is
anesthesiologists. Do you know what their number
one drug of choice is? Sufentanil, which is 10
times stronger than fentanyl. Right? So there's
a different -- let's just say the
anesthesiologists know which pain medicines work
really well. Right? None of them are abusing
morphine if they have a choice. (Laughter)

So current status of battlefield pain
management. And I put these in this order for a
reason. The first, you've got nonsteroidal
anti-inflammatory drugs and Tylenol. Right? And
then under that is morphine, intramuscular
injection of morphine. Okay? And then as you'll
notice when we see the TCCC guidelines later,
there is no IM morphine recommended in the TCCC
recommendations. And then we go oral narcotics,
morphine IV, fentanyl lollipop, fentanyl IV,
dilaudid, ketamine. And I put these on here
because they're being used on the battlefield
every day. They have been used on the battlefield
every day. But what we have is a case of the
haves and the have-nots.

So if you look at Special Operations,
Special Mission Units, Ranger Battalion, et
cetera, you'll see these newer, stronger
medications. If you look at the line Army, Marine
Corps, corpsmen, et cetera, they're going to be in
those top two. IM morphine and oral non-narcotic
medications. So the effort of the TCCC Committee
to get fentanyl lollipops out there has been
largely unsuccessful outside of Special
Operations. Other units won't allow their medics to buy -- to purchase these because there's a black box warning on it by the FDA, even though we've proven that it can be used safely and effectively on the battlefield. So, you know, we have the haves down here and the have-nots up here. And something that we need to talk about some more is that just because we make recommendations doesn't mean that Surgeon Generals and leaders of the different Medical Corps are going to implement those. Right? We make recommendations as the TCCC Committee.

So what's the future of battlefield analgesia? And I think most of you probably know Tripp Buckmeyer, right? He's the anesthesiologist in the Army and he's been going around telling us over and over again to anybody who will listen, but it's multi-modal pain management. And so it's early treatment with different classes of medications so you use more than one class of medication. You use blocks -- different blocks, regional blocks, that sort of thing. And then you
make sure that you don't let the pain come back
after you get it controlled, you know, which for a
while I know in the chain going back towards
Landstuhl and then back across the pond, sometimes
we weren't doing that good of a job and the guys
would report pain well controlled. You know, and
then pain not well controlled in or out. Pain
well controlled. Pain not controlled. And that's
not good for the overall outcome.

And the reason why, you know, it makes
sense if you use different medications that work
through different modes of action then you don't
have to use as much of any medication. With every
medication, the more you use it the more you push
towards the side effect profile of that
medication. Right? So if you use more and more
morphine you're going to get the side effects if
you keep using more versus if you use some
morphine, some ketamine, some regional blocks,
some barbiturates, depending on what you're doing.
But the idea is that you attack it from multiple
different directions.
So I put new medications on here because they will be new to many people on the battlefield. Like I say, Special Operations forces and Special Mission Units have been using these with great effect. I think if you look at what the -- and when we did the First Responders Conference, all the junior medics that got sent over with the regular Army units and Marine Corps units, their choice was still IM morphine. And when Captain Butler made them all stand up after they told of these horrific injuries that they had taken care of, multiple casualties, and made all the guys stand up at the end and said what did you use for pain medicine? IM morphine. And what was their pain level when they started? Ten. What was the pain level when you evaced them an hour later? Ten. Went straight down the line except for the one kid who said it was 10. And what was it when you evaced him? Six. Five. And the kid didn't want to tell but what he had done is he takes his auto injector and injects it into a 250 bag of saline and lets it run in an IV because he
can give IV saline. So he was smart enough -- he put the morphine in the bag and ran it in. But, of course, he knew he was about to get in trouble when he told us that at that meeting.

But these medications have been out there for a while and we'll talk a little bit more about their use in the civilian world here in a minute. And then routes of medication that administration for ease of use. So there have been all sorts of talk about using patches and transdermal things. Transbuccal, which we're using the fentanyl lollipop. Intranasal. If you look back, I know the bisque, which some of you know what that is, but I was looking back at some of the meeting minutes and we've been given money through some company named Javelin, I think, for about seven, eight years now to develop some intranasal ketamine for battlefield use. I looked on line. It looks like they're about to go into receivership. I don't know if that's a good use of our money or not. But we've been talking about it now since 2004 but we haven't been doing it.
And intranasal route, most people have a nose that works in some way. I envision, you know, for the non-IV starting medic, that you would have either one syringe of fentanyl and one of ketamine and you go like this and give them a little shot through their nose and, you know, five to eight minutes later they feel a lot better. Or you'd give them another dose. And it sounds pretty simple and like I say, it's being used as we'll talk about in the civilian world already. We've spent a lot of money trying to develop the special pump but I think if we can get a syringe and a nasal atomizer you'll probably get a similar result.

So this is just to show you that fentanyl is in use. Fentanyl is the drug of choice for EMS units, especially air medical units. However, in my research I looked at the West Virginia protocols. Any of you guys from West Virginia? Anyone? No. Okay. So they're not really known for their medical care in West Virginia. I'm just going to say that. All right?
(Laughter) I have a license in West Virginia. I'll say that I do but they have a few meccas and then large areas of nothing as far as medical care. But the state of West Virginia is taking morphine off their protocols and putting fentanyl on their protocol. So if West Virginia is ahead of us we may be a little behind the power curve. I'm just saying.

And this is Denver area metro EMS. It's like 20 different EMS organizations around the Denver area. This is their standardized protocol. And not only do they have fentanyl, but you'll see that they have it by the intranasal route. In, intranasal route for adults, intranasal route for pediatrics. Right? So they're doing this in the back of the ambulance, not at the hospital, using fentanyl intranasally. I found four other different EMS organizations that were doing that. There have been four or five studies about kids with arm fractures in the emergency room. You give them a shot of intranasal fentanyl at triage, they go get their x-ray, they're happy.
You don't have to start an IV, you know, unless, of course, you're going to have to manipulate the bone. But if it's just to get them their pain controlled and get them through to getting a splint on, you know, why do you have to start an IV or give them a shot of morphine when you can just put fentanyl intranasally up their nose and get as good a pain control and get it quicker.

So just to let you know that we're not really breaking new ground if we move towards some of these newer medications and newer routes of administration. And all of you who practice, you all use medications that are off label probably every day. If you have a specialty, there's something that you use that is off label and you use it every day in your practice and it works and everybody in your specialty society knows it works and you don't even talk about it because it's not really applicable to what you do, which is provide good care for your patients safely.

So this is a shot of a paramedic giving the kid with a broken arm a little shot up the
nose. And like I say, there's a lot of
organizations spending a lot of money to develop
this special pump, you know, prepackaged pump of
ketamine when all you need is a syringe, a lure
lock and one of these mucosal atomization devices
which are for sale for -- I mean, literally, I
don't know how much they cost. I don't know. It
can't be more than a few bucks. It's a piece of
Styrofoam and a little nozzle. And you can buy
them at -- all the tactical or EMS organizations
that sell EMS equipment have these. And you just
squirt it and it atomizes it into the small
particles and you get the effect you want.

I'll talk some more about how ketamine
is used intranasally here in just a minute. Oh,
and I did find at least one study that showed that
where people had been thinking about this before
and that you could put ketamine and morphine in
the same syringe or in the same packaging and it
would be stable. And they checked it up for like
six months and found the activity of both was
good. There's no precipitation, that sort of
thing. So, you know, if you're thinking ahead you
could put fentanyl and ketamine in a single
syringe with one of these devices on it and get
quick, powerful pain relief through a multi-modal
mechanism.

So let's talk about ketamine

specifically. And once again I'll say that this
has not been vetted through the TCCC Committee and
we may have some discussions about the actual
doses and routes and those things when we get
together tomorrow, different opinions on that. I
think all in all, most people are onboard that we
need to add new medicines for analgesia.

So ketamine is a derivative of PCP. I
think Park Davis found it in 1962. It's an NMDA
receptor agonist at most dosages. At higher
dosages you actually get some mu receptor, just
like the opioids. But most receptors -- most of
the levels we're talking about, most of the
mechanism of action is through NMDA receptors. At
lower doses, potent analgesic and mild sedation;
higher doses, dissociative anesthesia and moderate
to deep sedation. It gained popularity in the U.S. in clinical practice in the '90s. In Europe, it's been popular for much longer than that. Our NATO allies will tell us that they've been using it successfully for much longer than us.

It's unique among anesthetics because the pharyngeal-laryngeal reflexes are maintained and the patients continue to breathe on their own despite being anesthetized. It's also unique in that unlike most anesthesia medications it stimulates cardiac activity rather than depressing it so your heart rate and blood pressure may go up a little bit. And it works reliably by numerous routes -- oral, rectal, intranasal, IM, IO, IV, intrathecal. You name it, it works on all of them. So however you want to get it to them, it will work.

It's a receiving mixture of both S(+) -ketamine and R(-)-ketamine steroidal isomers. The S(+) - ketamine is thought to be the more potent analgesic and anesthetic. R(-)-ketamine is thought
to be responsible for more of the side effects that you see from ketamine. S(+) ketamine is what they use in Europe, the purified S(+) ketamine mostly. And in the U.S., mostly available as the racemic mixture.

So what do they use ketamine for? Currently, as a single-agent surgical anesthesia in austere settings and developing countries. Ketamine is on the World Health Organization's List of 100 Essential Medications. So they have a list of things if you have to go somewhere and can only take 100 medicines, take this one with you. It's used for anesthesia induction, procedural sedation. We use it often in the emergency department to reduce shoulder, reduce fractures, to do burn dressings, things like that on pediatrics. Sometimes you even use it to get children to lay still while they get CT scans, that sort of thing. It works pretty good.

Perioperative pain management. More and more as more of the population becomes opioid tolerant, when you take these people to surgery
and you're already on three or four different opioids before you go to surgery, the idea that how are we going to control their pain after they have surgery, that's a big question. And they've done several different studies that show that maybe a ketamine drip through the operative period and then extending post-operatively will help reduce or be an opioid-sparing drug so it will bring the amount of opioids that you have to use down a bit.

It's been used for cancer breakthrough pain. And guess what route they're using it for cancer breakthrough pain? Intranasal. So they're using it intranasally for cancer breakthrough pain and with good results. I think that was the same company -- I want to say it's Javelin -- that was doing those studies and had good results. And that was three or four years ago that those results were released. Also used for migraine headaches intranasally. Chronic pain syndromes. This is the part where, you know, it gets kind of -- no offense, but it gets kind of like hyperbaric
oxygen. It's good for everything. (Laughter)

Chronic pain syndromes, it turns out if you put people on a ketamine coma, people with chronic pain syndrome, put them on a ketamine coma for several days, their chronic pain goes from here down to here and the effect lasts for much longer than the half-life of the medicine. Don't really know why that is but that's what it does.

Chronic severe depression. They're using that for people who are not tolerating normal medications for severe depression. They put them on a couple of hours of ketamine drip and reducing their depression and making them functional by the time they get off their ketamine.

Narcotic withdrawal. If you need to withdraw from narcotics you go out to Vegas. They'll put you in a ketamine coma and kind of reduce your narcotic need over a couple of days. So if anybody needs to get hooked up with that let me know. I get a little kickback. (Laughter)

No, just kidding.
Intubation sedation. It's one of the medications of choice for severe asthmatics because it has a bronchodilator effect and the patient continues to maintain their own respiratory drive while you're doing the intubation.

And then sedation for prolonged extractions in EMS. If you're trapped in your car or under a heavy object for a long period of time and you really don't want to remember that too much, ketamine would be a good choice of medication to use to help you kind of zone out from that a bit.

Battlefield analgesia and sedation has been used since it's been available. Different areas -- the Thai- Cambodia border, the Falklands, Iraq, Afghanistan, many other places that it's been used by other countries as well as the United States safely and effectively. There are protocols for its use in the Military Advanced Regional Anesthesia And Analgesia Handbook. There's protocols in the USSOCOM tactical trauma
protocols, the Ranger Medic Handbook has some
protocols for ketamine use and the Pararescue
Procedures Handbook has -- already has protocols
in place for the use. None of them are exactly
the same but they're all kind of in the same
ballpark and so that's kind of where we're going
with what we're trying to recommend.

It has a very favorable safety profile.
Few, if any, deaths, and I say few, if any, deaths
have been attributed to ketamine as a single agent
drug despite large overdoses. So this is from the
FDA insert. Ketamine has a wide margin of safety.
Several instances of unintentional administration
of overdoses of ketamine up to 10 times that
usually required have been followed by a prolonged
but complete recovery.

I did a little study on this when I was
in residency and I think the case they're talking
about here was a pediatric patient who was
supposed to get 60 mgs of ketamine and got 600 mgs
of ketamine and slept for two days and then woke
up. You know, no problem. No long-term effect.
And if you look at there's two deaths that may have caused -- been from ketamine. One was ruled a homicide and the other one was a lady who was using ketamine daily for more than a year recreationally because she had a lover on the other side so she used ketamine to get to the other side, right, and then she finally decided she wanted to be with her lover on the other side forever. And I think when they did the autopsy it was like 600 times an anesthetic dose of ketamine in her system. This is Park Davis, the manufacturer's information. Other than that, if you look at New York Poison Control information, they don't have any reports of death just from ketamine.

Okay, so now, that's not to say it doesn't have side effects. It does have side effects because originally anesthesia, the guy said it's going to be the perfect anesthetic. It's going to be the perfect anesthetic. We're never going to have to have anything else. But like most medicines it does have side effects.
The absolute contraindications are head injuries at risk for increased intracranial pressure. That doesn't mean, you know, you bumped your head-type of head injury. It means if you've got increased intracranial pressure you don't want to give ketamine because it may increase it some more. The evidence for that is not really that good, that it should be an absolute contraindication but it's written so I'm going to write it up here, too. Glaucoma and globe injuries, same idea. It can increase your intraocular pressure. And then, of course, if you're allergic to ketamine you probably shouldn't take it.

Side effects. Elevated heart rate, elevated blood pressure, hypersalivation, nausea, some kind of muscular clonus and twitching. And nystagmus as you get to higher doses you can get into nystagmus with ketamine.

Bad dreams. Ketamine can cause bad dreams but there is kind of a thought that the way you go to sleep is the way you wake up. So if you're very -- if you're prone to having bad
dreams in your regular life, you're more likely to
have bad dreams when you're on ketamine, which
means that I would probably like this drug a lot
because my dreams are usually pretty good.
(Laughter) So, but usually, you know, the bad
dreams are not really a major problem.
Hallucinations, outer body experience. And then
emergence phenomena is mostly dose-related. It's
reported in about 12 percent of overall number of
people they get anesthetized with ketamine. So if
you're using ketamine as an anesthetic agent --
emergence phenomena is not just ketamine. There's
other anesthetic gases that will, as you're coming
out of the anesthesia, will give you an emergence
phenomena, which is basically just a very anxious,
confused, disoriented period of time, not
necessarily dangerous but anesthesiologists are on
a tight schedule. They don't want to really deal
with anybody. They're just kind of whooping and
hollering in the recovery or, sorry, the post-
anesthesia care unit. You can't call it the
recovery room anymore. So for them it's a
problem, 12 percent. And in kids, it almost never happens. It's more common in adult females than males but not by a lot. It usually doesn't happen in the pediatric population.

You can usually treat it with benzos, barbiturates, and narcotics. Usually lasts, at the worst, for a couple of hours. Some people report having hallucinations for up to a day if they have an emergence phenomena. Once again, dose-related. Higher doses, more chance.

If you take ketamine IV and you push it in really fast by IV, you can cause some brief apnea and respiratory depression. Usually, if you push it in nice and slowly over a minute or so, dilute it out, usually it doesn't cause any problems with apnea or depressed respirations. The treatment for that is assisted ventilation.

Kind of common doses of ketamine, if you look at the literature, they vary widely depending on what the clinical situation is. If you're, you know, in Uganda and you want to take somebody's appendix out and you want them to be asleep for a
little while you're going to use a higher dose
than if you're in my emergency room and I just
want to put your shoulder back in place. Right?
So surgical anesthesia, surgical induction and
procedural sedation, and then analgesia would be
kind of the dosing range where we're talking about
starting out with ketamine as a battlefield
analgesia.

All right. So once again I'll say this
has not been vetted by the TCCC Committee as a
whole. For those of you who haven't seen these
recommendations before, this is kind of the format
that the guidelines are in and pretty much you can
see if the person is able to fight and they have
no severe pain you can give them Tylenol or Mobic
and put them back in the fight. If they are not
going to be in the fight anymore, then we
recommend -- and they don't need an IV for any
other reason than they recommend using the
fentanyl lollipop.

If you're going to put an IV or IO in
otherwise, right now we recommend IV morphine in
doses with reassessment every 10 minutes or so, monitoring for respiratory depression. Right now we still have the Phenergan or Promethazine as our anti-nausea medicine on the protocols and we haven't addressed that yet but we may give you some other options here soon.

And this is the part where we're talking about a change. And I'll read this because most of the guys haven't seen this yet. For patients with persistent severe pain after treatment with narcotics or patients in whom narcotics are contraindicated and they don't otherwise need an IV or an IO, ketamine 100 mgs IM repeat dose every 30 minutes to one hour as necessary to control severe pain. If you're going to put in an IV or an IO, then give ketamine 20 mgs slow IV push over one minute, reassess in 5 to 10 minutes, and repeat the dose as necessary to control severe pain up to five doses or until the patient develops nystagmus. Nystagmus, rapid eye movement, is a side effect of ketamine that's known. And when you get to a certain level of
sedation with ketamine you expect it. You know, so when you're pushing up to the procedural sedation level you'd expect to start seeing some rapid eye movements and some eye twitching. Does that mean, you know, you necessarily have to stop? It's kind of just a point where you need to reassess and say, you know, this doesn't seem to be controlling their pain so maybe I need to -- I'm either going to need to go bigger or get another medication onboard, something. I need to do something else or they're going to be more sedated than just analgesia control.

Continue to monitor for respiratory depression and agitation. Ketamine should not be given to patients with head injuries or eye injuries. Pretty generic with the head injuries or eye injuries but we usually address the details of that in the text that goes along with the guidelines to tell them which type of head injury and which type of eye injuries do you not want to give the medication in.

So I guess I'll leave this up here for
the discussion instead of going to the next slide.
But in closing, you know, I would just like to say
again I think we have some room for improvement in
the battlefield analgesia through the care
continuum and I think we need to start making
little steps to get these medications out to the
field and get the medications -- the medics
trained on them, get them used to using them, get
them comfortable with them, knowing what the side
effects are and then as we do that, as we
introduce new medicines, just keep adding to their
availability and the number of things that they
can do. Having more tools in their toolbox. And
then I think we've proven through multiple
different units, and not just in our country but
in other countries, that ketamine can be used
safely and effectively as a battlefield analgesia.
And with that I'll take any questions.
No questions? All right.

DR. LOCKETTE: I have questions.

DR. DICKEY: Thank you, Dr. Gandy. And
we do have a couple of questions.
DR. GANDY: Oh, okay. Yes, sir.

DR. LOCKETTE: Actually, I had several quick questions.

DR. GANDY: Yes, sir.

DR. LOCKETTE: I'm still unclear as to the FDA, the approved FDA indications for ketamine. Does it include what you're proposing?

DR. GANDY: It does. By IM and ID routes. It does not mention anything about IN nasal use of ketamine. And I think the stuff that Javelin was making was a little single dose ketamine in a nasal preparation. It pretty much said the same thing as the fentanyl. You know, only to be used for cancer breakthrough pain.

DR. LOCKETTE: I mean, I guess one of the things that the Board -- I would ask to consider because one of the concerns we have is when recommendations -- and I talked to Rocky Farr about this this morning -- That when drugs come up for recommendation as a clinical guideline or a clinical recommendation where it has not been sanctioned by the FDA, what we should be doing
about that.

Secondly, I'm a little concerned not having seen the meta-analyses of these kinds of approaches for pain management because I'm intrigued that racemic ketamine is available in the United States but the single isomer is available in Europe. So that tells me that the patent has expired and that there is a company looking for expanding market for this drug.

The third question I have is it's not widely used but I thought that was -- I mean, this drug actually has an interesting history because it came from the University of Michigan and Ed Dominel and it looks like its primary goal of treatment is going to be -- it seems to be the most effective antidepressant that's out there because -- and the reason this is interesting both from a scientific and a clinical standpoint was the developer of ketamine asked all of his patients who were abusing ketamine why they abused ketamine and their response was it made my depression go away. So I'm a little confused here
by this approach with ketamine, whether its primary indication is going to be for acute pain management, chronic pain management, acute depression or treatment of depression, what the FDA guidelines and approvals are for before they're incorporated in our guidelines which may be at variance with what the FDA has recommended.

So several quick questions.

DR. GANDY: So for what we're recommending it's approved by the FDA for analgesia and sedation. All the way up to anesthesia. It's not -- I don't think it's approved for the five day coma or depression or chronic pain that people are using it for. And I don't think, you know, anything outside of analgesia and anesthesia hasn't been approved although they are doing more and more studies on that as you eluded to currently. You know, and I think we're well within the guidelines of -- that these dosages of what it's approved for for clinical practice.

DR. DICKEY: Quick clarification. We,
"who" are recommending?

DR. GANDY: We, oh, sorry. It hasn't been through the TCCC Committee yet. So I. Me.

DR. DICKEY: Just for transcript purposes. I want to make sure who "we" is.

DR. GANDY: I am recommending. Sorry.

DR. DICKEY: Are there other questions?

Jay.

DR. JOHANNIGMAN: Two questions. One is a personal anecdote. Last year I saw ketamine in theater for the first time as an adult practicing trauma surgeon and it was dramatic, the effectiveness of that. And as CCAT transport docs we've used ketamine to ablate memory for our transport troops and I've had the opportunity to go back and we would use a prep dose and go back and ask the warriors whether they remember any adverse things about their whole trip out of theater and the answer was uniformly no. So I think there are roles for that.

But when you reviewed the literature was there ever -- to your knowledge has there been a
trial of using the combination of a narcotic analgesic with ketamine in a fixed ratio since there's a suggestion they work synergistically?

DR. GANDY: Not at a -- there are several studies that were done where they were using a fixed dose of ketamine in addition to post-operative analgesia to see who would reduce the amount of opioid that was used and in several of them it was the amount of opioid needed was reduced. And but most of the studies, they described their pain levels as being similar between the opioid only and the opioid ketamine but when you ask them -- when you dug into it a little more and ask them about their experience, you know, they said the people who had the ketamine onboard as well heading back to the depression piece. But they had a much better experience when they dug into it just on the raw scores. You can give enough opioid to get the pain level down but with opioid and ketamine combined you had to use less opioid.

DR. JOHANNIGMAN: The second question is
you gave a nice presentation and I guess tomorrow we'll have a chance to go over the TCCC but the dose is one per kilo but you're recommending a very much more conservative dose of that at 20 IV push in your proposed protocol.

DR. GANDY: One per kilo IM.

DR. JOHANNIGMAN: Yeah. Or I thought it was one per kilo IV as well.

DR. GANDY: It starts at -- I think it starts at --

DR. JOHANNIGMAN: It will start at one.

DR. GANDY: 0.1 and 0.2 IV.

DR. JOHANNIGMAN: Okay.

DR. GANDY: So one per kilo IM and 0.1 to 0.2 IV. Now, like I say, for procedural sedation in the ER, if I'm putting somebody's shoulder in I'm starting with 0.1 mg per kg IV.

DR. JOHANNIGMAN: Because your slides -- maybe we have to look at those because they say 1 mg per kg to 2 mg per kg IV for surgical induction.

DR. GANDY: Right. That's for surgical
induction.

DR. JOHANNIGMAN: And procedural sedation.

DR. GANDY: Yeah. So derm 1A.

DR. JOHANNIGMAN: Yeah. So you're looking at an analgesic dose.

DR. GANDY: Analgesic dose. Right?

DR. JOHANNIGMAN: Got it.

DR. GANDY: So, yeah, you're exactly right for procedural sedation we're starting at 1 mg per kg IV and go titrating up from there as needed.

DR. DICKEY: Dr. Jenkins.

DR. JENKINS: Thank you, John, for that presentation. Just a couple of things for you.

One, do you know does Tripp have data based on our recent experience from this morning that we may use to help us make the keys to show the benefit of the use of ketamine in the en route pain management for combat casualties, safety, efficacy, etcetera, because that's something that might exist in the JTTR or in Tripp’s own database.
DR. GANDY: Yeah. I hadn't talked to him in probably a month and a half but -- you're talking about -- you said Tripp. Is that who you --

DR. JENKINS: Yeah. So yeah, I hadn't talked to him in about a month and a half about that but I have been asking for actual data from his studies that he's done.

DR. JOHANNIGMAN: I think based on our most recent experience we might need to provide that.

DR. JENKINS: And then like many of the TCCC guidelines, I'm a big fan of, you know, when you're putting together the kids' toys on Christmas Eve where you get down to step six and it says now don't complete steps one through five until you've done six. (Laughter)

DR. GANDY: So put the recommendation -- your warning ahead?

DR. JENKINS: Yeah, your last statement at the bottom should be the one at the top.

DR. GANDY: Yeah. Right up there.
Yeah. Okay. I'm tracking with you, Don.

DR. DICKEY: Dr. Bullock.

SPEAKER: It won't cut any femoral artery.

DR. DICKEY: Dr. Bullock.

DR. BULLOCK: I enjoyed your presentation but I just want to emphasize, you know, Dr. Jenkins' point there about the head injuries because it's not just a theoretical concern about head injury. There are a number of animal studies to show that the NMDA agonist effect synergizes with and creates much more brain damage. And that could possibly also have relevance for patients with cerebral vascular injuries, you know, somebody who had a carotid dissection, maybe that would be a good group. So, you know, I think that would be an important thing to put that in capitals and bring it up to the top there.

DR. GANDY: And I was just a little confused because I read some papers where they're using it as an induction agent during craniectomy
and a few people that said they weren't really
concerned about it because they thought most of
its effects were through increased cerebral blood
flow. So, I mean, there was some contradictory
information there but I elected to leave it in
there as a “let's just don't do that.”

DR. BULLOCK: Right. I think most
people who have used it in surgery for craniectomy
make the point that it's okay as long as you're
having the patient on controlled ventilation and
you lower that PACO2 down to very low levels. But
probably not good in this context.

DR. GANDY: All right. We'll move it
up.

DR. DICKEY: Dr. Higginbotham.

DR. HIGGINBOTHAM: Thank you for your
presentation. In using my ophthalmological lens and
considering the occult nature of some of the eye
injuries that may occur in the theater, certainly
I think it would be on the conservative side to
recommend any suspected eye injury because you
ordinarily would not find an ophthalmologist in
the field. And the effects of ketamine on an open
globe can be devastating. And certainly just
putting a fox shield on the eye and just ensuring
that the person gets an eye exam before ketamine
is actually administered is important to
highlight.

DR. DICKEY: Good comments. Any other
questions or comments for Dr. Gandy?

Thank you very much for an interesting
presentation.

DR. GANDY: I'll leave now.

DR. DICKEY: And we will -- no, we won't
let you leave now. Sorry. That's -- and I should
have done my homework because I'm likely to
butcher this next name. Our next briefing is
going to be given by Lieutenant Colonel Steven
Cersovsky. Or is it a hard C, Cersovsky?

LIEUTENANT COLONEL CERSOVSKY: It's
actually Cersovky.

DR. DICKEY: All right. Close. The
Lieutenant Colonel currently serves -- I'm not
going to try a second time -- as the director of
epidemiology and disease surveillance at the U.S.
Army Public Health Command. He's led numerous
communicable disease outbreak investigations
across the Department of Defense and has authored
more than a dozen peer-reviewed articles and
technical reports. Additionally, he has recently
founded the Uniformed Services Academy of Preventive
Medicine, a component society of the American
College of Preventive Medicine. He's going to
present an informational brief regarding rabies.
Board members may find his slides under tab 7 of
your meeting binders.

Lieutenant, I'm sorry, Colonel.

LIEUTENANT COLONEL CEROSKY: Thank
you, ma'am. Thanks for the invitation to present
to this group on what is in some ways a very
classic public health response. But to a very
interesting and rare disease, certainly in humans
and unfortunately, prompted by a death of a
Service member that occurred in August from a bite
that was sustained.

So I'd like to cover between now and, I
guess, lunch, since I'm in the way of lunch, a brief synopsis of the index case that launched the response. A quick refresher on rabies since it's not a disease that we see in humans very much in this country, although it contributes to somewhere upwards of 55,000 deaths worldwide.

I'll describe briefly our ConOps or concept of operations going into this public health response, of which it is broken into phases. And I will talk about some of the major actions in each of the phases. The progress we've made to date, we're still in the midst of this. It started around Labor Day. Some preliminary data, very preliminary data, we haven't had much time to do a lot of data analysis since we've been primarily engaged in contacting individuals. There have been some policy responses through Health Affairs. Dr. Craig Postlewaite has been instrumental in this area and just some brief steps in our way ahead.

So back at the end of August we had a 24-year-old specialist, Specialist Kevin Shumaker,
who was assigned to Afghanistan from May 2010 to
May 2011. He was a cook with the 615th Military
Police Company. He was also an avid dog lover and
had adopted several dogs while downrange,
stationed at a fairly remote forward operating
base. Actually, several over the course of his
deployment. Had some exposures to dogs over that
time, some rather benign exposures or perceived to
be benign exposures and some actual bites,
sustained both from the animals that he was caring
for, as well as some feral animals that had come
into the AO and would engage in fights with his
animals.

It is believed that he sustained the
bite around January of this year. It was probably
the one that was responsible for his infection.
In May, he redeployed to Grafenwoehr, Germany,
where his unit was located. He was doing fine.
Then it came time to PCS in August. He was PCSing
to Fort Drum. And en route, on the aircraft, he
became symptomatic. And like most cases of rabies
it started as a very non-specific flu-like
illness. He did develop some localized pain and
numbness and tingling in the extremity. He was
bit on his right hand. He was seen outside of
Fort Drum. He hadn't been processed yet, was
staying at a bed and breakfast. Was seen a couple
of times in the ER for his non-specific symptoms.
Eventually, he developed kind of a classic signs
of hydrophobia, at which time a retired military
physician in the ER made a presumptive diagnosis
of rabies, ordered the testing, transferred him to
the intensive care unit at Upstate Medical Center
in Syracuse where he also happened to be cared for
by some retired military docs in the ICU there.
And clinical tests confirmed, in fact, that he had
rabies. He was placed into a medically induced
coma. He was on ketamine interestingly enough.
And was placed on the Milwaukie protocol, which,
if you will remember, was the protocol developed
and used in Wisconsin that led to the survival of
the young female from a bat bite or bat exposure.
As I mentioned before, his diagnosis was
confirmed. Unfortunately, he had to be placed on
ECMO over the course of his illness, which was something unusual and novel for treatment of rabies. Developed an intracranial hemorrhage and passed away on August 31st of this year. Initially, a case contact investigation was launched. Although there's never been a documented case of human-to-human transmission of rabies, there's obviously theoretical risk that the virus could be excreted in the saliva of a human just as it is in saliva of animals, and anyone who may have had close contact with him in the form of sharing body fluids or sharing saliva could potentially become infected.

So the contact investigation targeted his unit back in Germany. It was found, of course, as he was PCSing to Fort Drum there had been the usual celebrations and the sharing of drinks and cigars and so forth. That was potential contacts. There were also health care workers that were exposed. There were some good Samaritans who responded when he had episodes of nausea and vomiting early in his symptom onset.
And so ultimately, 24 individuals were identified and placed on post-exposure prophylaxis.

This contact investigation involved Public Health Commands in Europe, which took the lead for the Germany piece. There were two international flights involved, so of course CDC got involved and their quarantine service. The New York State Department of health, the local county Department of Health, lots of agencies involved in the case contact investigation.

During that case contact investigation, it was determined or discovered that members of his unit had also reported animal contacts for which they had not sought care. And so this started to develop some concern about what other exposures may have taken place downrange and that there may be other individuals who could have potentially been exposed to rabid animals as well. And I'll talk more about that in just a minute.

Just a quick refresher on rabies. It is a virus. It's a Lyssavirus that only infects mammals, primarily larger mammals. Although it
can infect all, most of the smaller mammals don't
live long enough to transmit it. It's not viable
outside the host so it's a fairly weak virus in
the environment. Although in this country we
worry about bats and wildlife, worldwide dogs are
by far the number one carrier and that tends to be
part of the educational challenge when we deploy
troops. We're used to having a very safe pet
population in this country and yet downrange where
there are feral dogs and cats and so forth running
around there's a fairly good chance that a lot of
them will carry rabies.

In humans, the incubation period is
typically one to three months. There are rare
cases that occur a year after the bite. In this
case, if we believe his exposure was in January,
that puts his incubation period at about seven
months, which is outside that kind of normal frame
which becomes important in a minute. There have
been cases, I believe, the longest case that's
been documented in the U.S. Was a six-year
incubation period reported by CDC. So it is
Communicability is up to 10-14 days prior to clinical signs and symptoms, so going back to the contact investigation. That's where we drew the boundaries on potential contacts to be prophylaxed. The only documented person-to-person transmission cases have been an Oregon transplant case, of course, which was not in play here.

Diagnosis is usually by a biopsy, usually a nuchal biopsy, back of the neck. You can also find antibodies in blood but that's usually late and then you can isolate the virus from the CSF. And death usually occurs by cardiac insufficiency and multi-organ failure. The most important thing about rabies for us, of course, is that it's preventable, the keys being, obviously, seeking medical care, proper wound care, cleaning of the wound, and then, of course, receiving vaccine and immunoglobulin if you've not been previously vaccinated.

So the concept of operations for the response was, again, when we noticed that there
were other soldiers in the units who had potential
exposures who either did not seek care or sought
care and had inadequate treatment, the Army
Surgeon General certainly got concerned. And over
the Labor Day weekend we had a series of
teleconferences deciding how we were going to
approach this. Ultimately, we found in his
company 10 members who were placed on
post-exposure prophylaxis who had exposure
significant enough to warrant post-exposure
prophylaxis. So that's 10 out of the military
police company of a few hundred.

I'll just mention that there are some
actually concluded now investigations that took
place, one in theater in Afghanistan. The 15-6
investigation was completed in mid-October. U.S.
Forces Command has one that's wrapping up and that
was designed to look at care that took place in
Germany and Fort Drum. And then Northern Regional
Medical Command did a QA review looking at care
that was delivered right at Fort Drum. And that's
also been concluded.
So the Army Surgeon General directed a broader public health response to conduct both active case finding and passive case finding to determine if other Service members had been exposed, to notify them, to evaluate them, and if necessary, to treat them. Now, he drew the timeline going back 18 months to March 1, 2010. A lot of people ask why did we do that? If the normal incubation period is only one to three months, although I mentioned that if we believe the exposure of our service member who died, he essentially had a seven months incubation period. If you talk to CDC -- and we did and have many times -- the kind of gestalt was, well, maybe 12 months would be a reasonable time. You're not going to catch everybody because I mentioned there are some with several year incubation periods but from a public health perspective at some point you've got to weigh, you know, the risk of missing some folk with the resources it would take to go back that far and the likelihood you would find anyone. So the Surgeon General said, well, if CDC
says 12 months, then let's put a little buffer in there and let's go back 18 months. So we have.

We're approaching this from a phased execution. I mentioned the active and passive case finding. We think of it in terms of phase one being that case contact investigation which was completed initially and identified those 24 individuals. Phase two, which is kind of the active case findings. So those individuals for which we can find data indicating they may have had an animal exposure primarily from the Post-Deployment Health Assessment to Post-Deployment Health Reassessments. And then phase three, which is the folks we were most concerned about frankly, which are those who had unreported or undocumented exposures and that's, of course, what we call passive case finding that requires a broad outreach to try to communicate to those individuals the need to come in and seek care.

So I mentioned phase one already. Phase two, both the Post-Deployment Health Assessment
and the Health Reassessment have questions related to animal bites. They're not explicit. They tend to be kind of part of a checklist of potential exposures. They also tend to be as we've found interpreted to include everything from the concerning exposure to the dog to insect bites. And so it's kind of broadly interpreted by service members. So we used those.

We also queried the Theater Medical Data Store. This, of course, is the system -- the electronic system that documents care in theater.

MODs, Task Force Afghanistan and U.S. Forces Iraq all did queries for us of those databases as well as others they had locally. We developed provider training packets. Essentially, they were guidelines that explained the situation and explained the need to do the evaluation. It included an evaluation of treatment algorithm, how to code. It included a questionnaire to assess risk. All that. And those are provided actually on our website. We shared those with the VA as well, who did a parallel outreach and have been
disseminating those packets. We created AHLTA and
MC4 templates to help guide providers. And then
we had to make a large central purchase of rabies
immune globulin and vaccine. Normally, again, we
don't see a lot of this stateside and so a lot of
pharmacies don't stock that much. In this case,
trying to kind of make an educated guess from our
eyearly efforts, we made a centralized purchase
through the Defense Logistics Agency for all
Services for 800 doses, each of RIG of the 1 cc and
10 cc vials and then we ended up getting somewhere
around 3,700 doses of vaccine to augment the
stocks already at the pharmacies and the MTFs.

And then we had a big piece to
coordinate access to care. We had individuals, of
course, who had retired who had ETSed, guardsmen
and reservists who had returned to civilian life
and so had to work to establish eligibility and
provide support and access to care for them. We
also have worked very closely with the VA on
making VA facilities available to all the Service
members and they have initiated in tandem with us
an outreach program through the veterans' channels
to reach these individuals to have them come in
and seek care.

With regard to that outreach, we've
developed a series of posters which Public Health
Command is very good at doing. And actually,
these ended up getting some of the most traction in
the blogosphere. They tend to, someone said, go
viral, which I think is kind of a bad joke but
that's what they do. And there have been lots of
comments on the way they kind of -- they grab the
Service members' attention and they convey the
idea. We've been engaged in print, radio, and
television interviews to try to get the word out.
We've utilized the Wounded Soldier and Family
Hotline for all Services. When we send out
letters, if we can't contact folks through
telephone and e-mail, we provide the hotline phone
number in the letter and we see upticks in its
use. The hotline is -- the first time we've used
it it's been a tremendous resource. We provide
them with a script, with a questionnaire that
guides them through assessing the soldier, the Service member, and then they e-mail that to us to a generic e-mail address and we make follow-up contact to provide definitive care.

FORSCOM initiated an order to do 100 percent accountability within all FORSCOM units to assess Service members or soldiers in this case for potential exposures and we targeted all the soldier readiness processing sites so as the soldiers redeployed, animal bites were actually specifically asked about and followed up on. We produced numerous fact sheets, updated medical print briefings, provided lots of material on our website for use by providers and units.

So this just gives you a snapshot as to where we are now. This is about a week old. This is basically just a very simple table broken into phases. The rows with the phases. Gives you some idea of the numbers we're talking about. In phase two, 8,500 individuals that we're tracking down. Phase three is that kind of passive case finding and we're right around 200 individuals who have
self-identified. And as you can see, the majority, even within phase two now, are cleared. We're finding that a lot of those can be cleared because the exposure was not significant. So again, it was either insect bites or it wasn't a mammal. We've had some very interesting stories but things that can be cleared without much treatment.

Now, the yellow is undergoing evaluation or treatment. So those are individuals who are receiving post-exposure prophylaxis. Of course, once they complete that they move into the green category so those aren't cumulative totals. And then we have a category for administratively closed. And these are individuals that we either can't reach or by the time we send out letters and so forth we either get the letter returned to us with a bad address and we can't find a good address through DMDC or other data sources and so they become kind of lost to follow up and then we have to rely on phase three outreach to contact them.
So right now we're, again, phase one is complete. Phase two. Phase three is almost complete unless other individuals present. Phase two, we're about two-thirds of the way done. You'll see in the next slide, and the numbers are probably small, but this gives you some idea of the breakdown by service and other groups. So the Army has about 6,000 of those individuals. Again, this is just phase two, which represents about 70 percent of the population. Of that number, about 60 percent are Active Duty. And if you look at that last line at the bottom, the percent complete by column you'll find that right now the most difficult chunk is the Guard and Reserve, so hovering around 35, 40 percent. Active Duty is getting close to complete. You'll also see there's Air Force, Navy, Marine Corps, Cost Guard had a few individuals. Civilians and contactors, we had six NATO soldiers. We've had some local nationals, 15 detainees, all of which turned out to having been bitten by military working dogs which are vaccinated. And then we have some
categories for others and unknown. There have been a couple FBI agents and Department of State individuals.

Just some quick preliminary data. This just shows you based on the Post-Deployment Health Assessment and Reassessment records who's basically reporting bites or animal contacts. It's kind of reflective of the deployed force and what you would expect. It's your lower to mid-enlisted. Among officers it tends to be the lieutenants and captains, 02s and 03s in the Army. If you look by species, again, we were concerned downrange mostly with dogs, some with cats. This is just looking at a subset of those soldiers who have been cleared, 3,400. I mentioned a majority, the vast majority had no rabies exposure. Either they had no contact and just misreported or they had insect bites or rodent bites which we're not concerned with.

Of those that did have exposure we're concerned with, a small group had military working dog bites. Again, those are considered to be
safe. The majority were feral dogs. And then
you'll see some cats and then some others
sprinkled in there.

One area of big concern are the monkey
bites because, of course, they carry the risk of
simeon herpes B as well. They tend to be a
favored mascot of some special forces' soldiers.
And so that's when we've had to reach out to them.

So post-exposure management. This just
gives you some idea of the numbers we're talking
who are requiring post- exposure prophylaxis. So
about five percent of the population we've
contacted are requiring treatment in the form of
rabies immunoglobulin and four or five doses of
vaccine. Of those, of the 254 service members we
looked at just quickly, 209 had their
post-exposure prophylaxis initiated upon
redeployment. So this tells you that a lot of
them are not seeking care and being evaluated
downrange. So there's a big educational piece
that we're undertaking to get them to do so.

And then this talks about the other
post-exposure management. Sometimes we were able
to observe the animal. Sometimes the animal can
be captured and euthanized and the head sent to
Vet Lab Europe, where it can be examined for
rabies. We're finding that of those specimens
submitted from Afghanistan, approximately 10
percent are positive for rabies.

Policy responses. Health Affairs fairly
early on established the Army as the lead service
and so we've worked with our other service points
of contact to conduct this outreach. They put out
DoD-wide guidance in the form of memorandums from
Dr. Woodson reminding individuals, providers, how
to evaluate and treat. Re-emphasized pre-
exposure prophylaxis policy. There's also been
emphasis by Central Command on Rabies Advisory
Committees, so certainly back on CONUS or when we
were in Garrison we had Rabies Advisory Boards
that seemed to be made up of preventive medicine
physicians, veterinarians, IB docs, whomever, who
evaluate the cases post facto and make sure that
the proper care was delivered. Try to do
something similar in theater and that's been working. Health Affairs also provided some comments on one of the STANAGs, 2559, for rabies post-exposure prophylaxis. And we are undergoing a revision to the Post-Deployment Health Assessment and Health Reassessments to have a specific question that asks about animal bite exposures.

So at this point we're just continuing to conclude hopefully shortly phases two and three. Again, that's the outreach to try to contact anyone who has been exposed and provide proper care. We'll then move into -- and we've already started this -- kind of an after action review looking at a DOTMLPF approach to animal bite management downrange. We're looking to automate the animal bite report. That's a DD form that's used by both providers and by veterinaries, and incorporating that into reportable medical event systems. There's some draft white papers in the works looking at rabies management and deployed settings, kind of trying to think outside
the box. Maybe there are some other ways we could
approach the feral animal population while
downrange instead of just issuing a general order
and telling folks not to do it, which doesn't seem
to work that well or vaccinating the entire force.
Perhaps there are ways to actually vaccinate
animal populations and control those that are in
and around our operating bases.

And then we've been working, as I
mentioned, closely with CDC. We're getting ready
to embark with them on some research protocols.
One area in the current guidelines that is without
much of a scientific base but is included because
it's just kind of the conservative thing to do is
the need for a fifth dose post-exposure if you're
on anti-malarials. Well, of course, most of our
folk downrange are on malaria pills and there's
little evidence to support that other than a few
studies looking at individuals on chloroquine.
And so we're looking at -- working with CDC on a
project using, I believe, Fort Bragg. We'll look
at the actual antibody levels associated with
providing rabies vaccine to individuals on various 
anti-malaria medications.

And there's another one of our 
(inaudible). There's also a series of posters on 
(inaudible).

Okay? So that's all I had. I 
appreciate the time and the opportunity.

COURT REPORTER: Last thing for the 
record, I'm sorry, the last thing you said into 
the record.

DR. DICKEY: There's also a series of 
posters that have cats.

LIEUTENANT COLONEL CERSOVSKY: Oh, 
right. Yes. We also have a series of posters 
targeting the kittens.

DR. DICKEY: Just in case somebody out 
there likes felines instead of canines. Right?

Dr. Jenkins.

DR. JENKINS: I'd just like to 
congratulate Colonel Cersovsky and his group of 
folks. Obviously, in a very short amount of time 
covered a lot of ground. High penetrance, great
agility on the part of the Army to have the
response that they've had here. It gives me hope
that other endeavors that will affect even more
lives we can accomplish the same. Well done.

DR. DICKEY: Thank you very much.

DR. GANDY: I was just going to say I
remember when I was in residency in Texas and we
had a rabies problem and they were airdropping
some sort of pellets -- I don't know if you all
had talked about doing that -- that had rabies
vaccines in them for the feral animals. But just
a thought.

LIEUTENANT COLONEL CERSOVSKY: It's
actually been very effective in this country for
wildlife. They use a lot for raccoons and foxes.
That's something that we've considered, too. I
think downrange if we could do that around some of
our FOBs. That's part of what's going into some
of these white papers is some thoughts about
efforts we could use downrange to target the
animal population.

The problem now is if you use things
like kinetic means, in other words, you kill the animals, other packs of dogs will just move into that void. So you're not eliminating the problem, you're just substituting it for a new one. And so if you could actually control the disease within your population there around your base, not only would it protect the soldiers but it would also reduce rabies rates in the local national population. That, of course, has strategic implications, medical diplomacy, all of that. So.

DR. DICKEY: Other comments or questions for Colonel Cersovsky?

DR. BULLOCK: Just one point. How effective is the pre-exposure vaccine? Is that 100 percent effective at eliminating rabies?

LIEUTENANT COLONEL CERSOVSKY: Well, of course, nothing is 100 percent. But it's very effective and it's safe. It's a three dose series but it doesn't eliminate the need for treatment post-exposure. So you still require two doses post-exposure. What it does is reduce the number of post-exposure vaccine doses and removes the

That's something that was considered very early on. Should we look at force-wide pre-deployment pre-exposure prophylaxis? I think it's something we will still consider but we've got to remember a couple of things I guess. One, that the Army Surgeon General pointed out which is, of course, quite obvious, I guess. This is our first case in a human since 1967, since Vietnam. And so whereas the relative risk is certainly higher downrange compared to Iowa, for instance, the absolute risk is still very, very small. So if we were to embark on some large scale pre-exposure prophylaxis policy we'd have to take into account the cost both in dollars but also in terms of adverse effects from the vaccine. We would potentially see, you know, and all the logistics would go with that.

Rabies vaccine, I don't know exactly what the current inventory is from the manufacturers but that's something we'd also have
to look at. It's one of those things that supply
tends to wax and wane a bit, too. I know there
was some concern when we embarked on this effort
if we would deplete some supplies of RIG or
vaccine it would be needed for more acute
exposures. And when DLA went to the manufacturers
they assured us that we would be okay but they're
not willing to share their manufacturing capacity
or their inventory stock levels. I guess it's a
guarded secret. So it's been somewhat difficult.
But that's something that would just be another
fact we'd have to consider.

DR. DICKEY: Dr. Higginbotham.

DR. HIGGINBOTHAM: Thank you for your
presentation. I think we've all seen stories of
Servicemen that adopt animals and bring them home.
To what extent can you actually change that policy
or activity? Because I just wonder to what extent
the exposure is even greater than what we realize.
And I'm just fearful that we may be
underestimating what's going on.

LIEUTENANT COLONEL CERSOVSKY: Yes,
ma'am. There are many, many organizations out there now, you probably see them in the papers, who advertise and seek financial support to help Service members bring their adopted pets home. There are actually at least two congressmen who have endorsed that practice. I don't know if there's an easy answer to that. We were kind of walking that fine line. We don't want to make it look like we're necessarily declaring war on animals, so there are some sensitivities there. But we recognize that as an issue. I don't know how we're going to address it or at what level but it's definitely something.

I think, you know, you can control what you can control and so if we can make policy within our own organization and we can educate and train Service members and providers, that might be the easier route than to try to take these groups on publicly.

DR. DICKEY: Other comments or questions? It's remarkable the issues that are raised when we go spend long periods of time in a
country, isn't it?

Thank you very much for an interesting presentation, Colonel. And we will continue to watch and see what recommendations come forward on that.

I believe that has concluded the morning's program. We are now going to break for a working lunch in the Potomac Room. That lunch includes Board members, Federal Agency Liaisons, Service Liaison Officers, DHB staff, distinguished guests and speakers. And I believe Ms. Bader had outlined a number of opportunities for those who are not invited to the lunch. We will resume here at 1:00 to take back the program.

(Recess)

DR. DICKEY: If we can call the group back to order please. Welcome back. Hopefully all of you enjoyed your lunch. We want to welcome the Honorable Secretary Togo West with us this afternoon. I'm sure the briefings this afternoon, Secretary, will be of great interest and I'm delighted to have you join us.
This afternoon we're going to start our presentations with Captain Hibbeln. Dr. Carmona, would you like to make the introduction?

DR. CARMONA: Certainly, Dr. Dickey. Joe Hibbeln is an extraordinary thought leader at the U.S. Public Health Service. He's a captain and has run metabolic research for many, many years up there. He is one of the leaders as I said internationally in the field of nutritional metabolism and the work he's doing came to my attention a number of years ago when I was still Surgeon General. But more recently I was asked to convene and be part of a meeting of all the Services and thought leaders in the world around the concepts of nutrition for the warrior. And Joe called me and said -- this was about two years ago -- he said we'd like you to give the keynote and frame these issues. And the name of the conference is Nutritional Armor for the Warrior, which really resonated with me. But when you see the science that he has been working both for the prevention side and how omega-3, omega-6 levels
relate to ultimately inflammatory processes, how they can work in prevention and equally important now some of the data that's emerging as far as therapeutic value for some of these nutritional elements, we thought it would be important for Joe to come before us and share his research with us so that the Defense Health Board can proactively be involved in determining how much we should move forward on this, how aggressively as it will benefit our warriors.

So we're fortunate to have Dr. Hibbeln with us today. Joe, thank you for being with us and your willingness to share the information that will ultimately help our warriors.

DR. HIBBELN: Dr. Carmona, Dr. Chairman, it is a privilege and an honor to fulfill my duty to give you this informational brief on omega-3 fatty acids.

The NIH director indicates that I should say that this presentation does not represent any policy or position of the U.S. Federal Government. It is only my scientific opinion. That being said, I would
like to introduce the order of my talk as
presented by the former director of the NIH,
Bernadine Healy in describing back in 2008 the
important emergency and recognition of omega-3
fatty acids, that no nutrient is more important
for decreasing cardiovascular death than omega-3s.
And we have failed to take seriously the
significant nutritional fat deficiency that
afflicts most Americans. We have two little
omega-3s, the kind found from oily fish.
The deficiency significantly increases
the risk of heart attack and sudden cardiac death,
but mounting evidence suggests that omega-3
storages contribute to problems as disparate as
premature birth, neurological disorders, mental
disorders, autoimmune disease, obesity, and
certain cancers. This is no fish story. Raising
omega-3s could be as important to public health as
lowering cholesterol. Then she goes on to the
next paragraph and says, “That’s right. You heard
me. This is more important than cholesterol.
Wake up.” I'm not going to describe so much about
the vascular system but I'll describe about neurological disorders and mental health and some of the rest of these.

The best introduction is to show you worldwide the impact of these nutrients on levels of risk of disease. Here are data from 63 different countries. The omega-3s eaten in those countries and here the risk of death before the age of 75 years old if you're a man. If you're sufficient, it's about 1,000 per 100,000. Deficient, your risk of death is doubled. For women to die before the age of 75 it's almost triple the risk in low fish consumption for all causes of death. So if you don't want to die before the age of 75 you might pay attention.

Here is stroke mortality. We'll discuss that some more. That's the heart. Here are some indicators of brain risk and function. Deficiencies in omega-3 fatty acids and increased risks of homicide, bipolar or manic-depressive illness, major depression, postpartum. That's the big epidemiological overview.
Here's the bottom line for the heart.

The American Heart Association recommends eating fish two to three times a week or one gram a day of omega-3 fatty acids. Why? Because after four decades of work and 90,000 basic science publications, we know that the omega-3 fatty acids prevent the development of atherosclerotic plaques. They prevent the plaques from bursting and prevent the clotting and choking off of the vessel after that has burst. And it stops that from happening.

Now, our friend here is not dead yet. His heart has been choked off from its blood supply but what kills him is the arrhythmia that follows that. We know the specific biophysical mechanisms for omega-3 fatty acids in the heart stopping the calcium flow and potassium flow and eliminating the arrhythmia completely. Old guys in Japan don't die of arrhythmias after they have a heart attack.

Here is also an organ very close to me, not close to my heart but three feet above, the
brain. And an illustration in an animal model of middle cerebral artery ischemia where the artery is choked off. So here you can see that the brain is largely dead after 30 minutes of ischemia. And here are those same animals given intravenous DHA, which is selectively concentrated in the brain, preventing necrosis up to five hours after the middle cerebral artery. You can see that there's a difference between this one untreated and this section treated. And the infarct sizes are perhaps 50 percent less and we now know some of the specific molecular mechanisms of DHA preventing the neural cascade of apoptosis and edema. And there is emerging work that omega-3 fatty acids may not only protect the brain from ischemic injury but from traumatic injury. And the animal data is coming up very well that there is going to be a significant role in treatment or depression. So you might be able to decide whether you want your brain to look like this after a traumatic event or whether you want your brain or your solders' brains to look like that.
Now, you may ask if there's a danger in surgeries or traumatic incidence to giving omega-3 fatty acids. And exactly the opposite is true. Here are surgical recommendations from the Society of Critical Care Medicine in Aspen indicating that for the most severe patients, immune enhancing formulas, including omega-3 fatty acids, should be given for major elective surgeries, trauma, abdominal index scores greater than 20, burns greater than 30 percent, and critically ill patients on a ventilator. And the level of science behind the recommendations are grade A. A lot of this has to do with quieting down the lung inflammation after intubation or injury so lungs don't fill up with water because they've been provoked by intubation, et cetera.

So now that I may have gotten your attention, a little bit on how omega-3 fatty acids may be useful, we'll get down to the granularity of the biochemistry and the whole picture of this thing. So, for at least 250 million years of the development of nervous systems, the diets that
nervous systems ate were rich in n-3 or omega-3 fatty acids. In contrast with the latter half of the 20th century where the main dietary source of fat is seed oils. This is the parent omega-3 fatty acid. That's the parent omega-6 fatty acid. We can't make these precursors and we cannot make these products. All of these fatty acids, all of these polyunsaturates must be consumed in the diet. We don't grow our own. We've got to import them from our diet. So what you eat, what foods you choose for lunch and dinner become your heart, become your immune system, and become your brain.

I didn't make it up that these are marine oils, and we can get into jokes about oiling marines and, you know, all that sort of stuff, but they are highly concentrated in the marine food supply. These are the long chain or highly unsaturated omega-3s. This is what comes into the diet and this is what membranes look like. If you're eating an antique diet, an ancient diet and evolution, your diets are full of blue omega-3s and modern diets full of red
omega-6s. When the cell gets stimulated, and this is just one of the inflammatory mechanisms through the COX enzymes, if the derivatives are omega-3 fatty acids you get a nice burst of inflammatory response that quiets down like it should. If you instead overload the system with omega-6s, you get a prolonged, severe concentrated inflammatory response that perpetuates cytokine storms in the lungs that impairs wound healing and causes excessive thrombosis, headache, and pain. I saw Tylenol being used here. Well, that knocks out the COX enzymes.

Other critical derivatives with this overloaded omega-6 is now also the recognition of marijuana-like molecules that are really derived from diet, flooding our brains with marijuana-like molecules that like marijuana impairs satiety. And there are increasing implications in substance use and suicide risk. I won't discuss substance use today.

Here's the evidence that the U.S. food supply and the U.S. military supply has been
flooded with omega-6 fatty acids. These are data from 1909-1999, indicating the disappearance of 227 different foods over time. You can see right here after World War II when Wesson figured out how to squeeze oils and troops came back wanting beef, we grew the soybeans and grew the corn to feed the beef, to feed the returning soldiers. We then had oils squeezed out which are high calorie, easy to transport. They started to flood the food supply. So soybean oil, which did not exist virtually in the human food supply in the U.S. in 1900 now makes up 20 percent of all calories. Sanjay Gupta didn't believe me so he went off in the grocery store and he got embarrassed by looking at the different foods that are available.

So how might we apply this to issues and concerns in a military setting? This slide was given to me by the Health Promotion Risk Reduction Task Force indicating Army population here and suicides there. And indicating that if you want to prevent suicides, you prevent the impulsive, high-risk behaviors that precede suicides --
prescription drug use, criminal offenses, alcohol use, other things. They discuss here what health maintenance -- and you discuss what health maintenance issues should be addressed to the whole population. Well, I will comment that it's not too much of going out on a limb to follow the scientific and governmental advisories of more than 30 international and scientific bodies that indicate that omega-3 fatty acids should be increased in the food supply. This is based -- and even the USDA in 2010, they used some of my data and helped to make these guidelines for cardiovascular, stroke, immunological and surgical survival issues. This is based on 90,000 basic science publications, 9,000 human study publications, and about 2,000 human clinical trials.

So, for those endpoints. Now, how about for the brain? Will omega-3 polyunsaturates also reduce high risk behavior -- major depression, substance abuse, violence, and suicidal behavior? That's still a question mark. I'm going to alert
you to some of those data.

Now, why should they? I described to you or at least I failed to describe to you that that omega-3 fatty acid, that DHA, that marine oil, that is selectively concentrated in neuronal membranes. It makes up synapse. If you want to build a new synapse, it's like building a new house. You've got to order concrete in. If you don't have DHA you can't build a new synapse. And here are animal neurons with adequate DHA or deficient DHA. There's the cell body. There's the sprouting arms and those little red dots are all the synapses.

Now, if you're going to remember in process any of the information from today, you're growing new synapses and this fundamental unit of the nervous system is rearranging itself. Here's a neuron without DHA. Fewer arms, fewer connections, 50 percent fewer synapses. How many synapses do you want your soldiers to go into battle with? Twice as many synapses or half as many synapses? That's your choice.
So what about omega-3s and high risk behaviors? What do we know when we look at the data? Well, I've been looking at omega-3 fatty acids in depression for 20 years now. I originated the field. There's now 54 different epidemiological and ecological trials. Case controlled trials, about 16. Randomized placebo control trials, 34; meta-analyses, 5. My read of the literature is that, yes, these unequivocally show a positive benefit compared to placebo and the effect size is similar to pharmacologically used anti-depressants currently.

For ADHD, 6 epidemiological trials; 10 controlled trials, 1 meta-analysis which indicates that yes, it's effective. However, it is not as good as psychostimulants. Aggression and violence we'll talk a little bit about. I'll just show you this trial and the reduction of 35 percent felony violence. Anxiety, there's a little bit of emerging data. Alcohol and substance abuse, a bit of emerging data, and suicide a bit of emerging data. So I labeled them as
hopeful as opposed to yes.

So here's an indication of a trial done in children with severe depression. Ten in each group. In four weeks and six weeks time we see a significant reduction in depressive scores in children using omega-3s compared to placebo. This also indicates if it's safe enough for kids, it's safe enough for the rest of us. But here's a meta-analysis that we've conducted looking at omega-3 fatty acid trials and this ridiculously complex slide shows a red line here of equal value. On the right it favors placebo. Very few do. When we have -- using EPA and DHA together we have a clinical effective size about 0.5, which is similar to anti-depressants.

Here's the meta-analysis of trails on ADHD. And here again is equal in this chart, favoring omega-3s are on the right. The author indicated that they are effective for reducing ADHD. Moderate effect size and low heterogeneity among the trials.

What about anger and violence? Well, as
Aristotle said, "Anybody can become angry. That's easy. But to be angry with the right person to the right degree at the right time and for the right purpose and in the right way, that is not within everyone's power. And that is not easy."

Describe selective use of force and impulsivity. You would like to have soldiers that are aggressive but thoughtful, who are not impulsive and violent, who have good cortical control. We know from studies in suicide and impulsivity and violence that the core regulator of that control is the serotonergic nervous system in the frontal or executive cortex. And if your serotonin is active and well, you can repress and regulate and modulate your limbic system.

So low serotonergic function is a common mechanism for high impulsive disorders. And here is a representative of the animal trials indicating that piglets given omega-3 fatty acids for 18 days of life double the levels of serotonin in their frontal cortex and double their dopamine -- I'm saying that for Pete Delaney who recognizes
the importance of dopamine in addictive disorders
-- and their metabolites.

Here is a population of people who
cannot regulate their violence and impulsivity
well. Young, impulsive, violent offenders in a
British prison cited by evidence-based medicine
and evidenced-based mental health because of its
statistical rigor. Baseline assessments for nine
months of their aggression and violence. Compared
to baseline there was a 37 percent reduction in
new convictions for felony level violent offenses.
New convictions for felony level violence offenses
in the prison. And no difference in placebo.
This has now been replicated by three different
trials. But because it's a U.K. trial, you know,
it doesn't -- it won't work here in the U.S.
Right? We're too different.

So let's talk a little bit about another
impulsive and deregulated behavior of concern to
military populations which would be suicide. So
right off the bat before we go any further I want
to tell you that we only have one double blind
randomized placebo controlled trial of omega-3 fatty acids and suicidal behavior. And we did this in Ireland on 49 subjects recruited from a Dublin emergency room given Japanese levels of omega-3 fatty acids for 12 weeks and who saw no other therapy. We saw a 50 percent reduction in depressive symptoms, 45 percent reduction in suicidal thinking, 33 percent reduction in stress, and a 30 percent improvement in happiness. I know. I'd like to have, you know, funds to replicate a moral pill. That would be cool.

So what about U.S. military populations? This was a study funded by DARPA. We looked at as many U.S. active military suicide deaths as we could collect from 2002-2008. Eight hundred military deaths. Eight hundred controls matched by age, gender, rank, etcetera, from the serum repository. I put them through my tri-through put GC robotic analysis which we developed in our lab. We confirmed that they were suicides and collected these data. This study was done for about $40,000.
The first thing we noticed right off the bat is the U.S. military population represented by the 1,600 people has frightfully low levels of omega-3 fatty acids. Here for comparison is a population I work with in England of English 7-year-olds and you can see that only the bottom tail of the 7-year-olds are the mean of the omega-3 fatty acid levels for U.S. personnel.

Arguably, recommendations are over here. In this study, from the highest octile of omega-3 fatty acid levels from the blood in the U.S. military, we see about a 75-percent increased risk of suicide death. And that's in a very low, narrow range of levels. For comparison, we tried to extrapolate as best we could to other world populations.

So here's a population of Chinese people. Four hundred subjects, suicide risk or not. This is the bottom quartile of the Chinese population and they -- the bottom quartile was higher than the top of the U.S. population, so much so that they didn't -- almost didn't overlap.
And here, increasing blood levels from omega-3s from 0.7 to 7 further decreased risk of suicide by about an odds ratio of 5. So if we compare to where we could be in the world to the lowest levels now, it may be a five- to six-fold difference in risk of suicide.

So these issues came forth in this conference that Dr. Carmona so kindly described on Nutritional Armor for the War Fighter. Dominant themes that emerged from that conference were the following. This is an obligation I have to you from the omega-3 scientists at that conference. They said, "Joe, if you ever get the chance, you tell them, immediately educate senior military personnel on the omega-3 heart benefits. And Joe, we want you to do that because this is key man or key woman, Dr. Chairman, insurance. We want, as scientists, U.S. scientists, to protect your hearts because by protecting your hearts, we're protecting your brains. And by protecting your brains, you best protect us. So it's a very selfish dictum to you."
So, in addition, we should conduct large suicide prevention and mental health care outcome studies in applicable military populations. We should consider doing the following. It's not change the diet or do the research. Figure out a way to do it both at the same time. It takes a long time to implement dietary changes. Start down that road. We have enough data. We have 90,000 publications in this area. You're not going to do any harm. Change the diet, do the research at the same time, and then trust but verify. That is, institute programs to measure omega-3 fatty acid blood levels.

So what will that do for you? Well, here's one description from a commercial lab. If you're at 70 percent optimal health, that's like an old guy in Japan or Iceland. Seventy percent omega-3s, 30 percent omega-6s. Now, maybe you don't want to go for optimal. Maybe you want to go for a Mediterranean level. That's still pretty healthy. Whoops. Where did we go? That's still pretty healthy. About 50/50. You don't want to
be down here and take urgent remedial action. You
don't want to be down there. That would be bad
for you. Guess what? That's where everybody is
in the U.S. Military, except about 2, 3, 4, 5
percent. Very low levels.

So, how can we increase omega-3 highly
unsaturated fatty acid levels? Several different
strategies of approach and Steve Montain was there
and others to really help problem solve how this
might be done. Well, you could supplement with
capsules. That's one way. That's easy. Just buy
capsules and deliver them and, well, we'll see who
actually takes them and we'll see if we can
convince them that if, you know, similarly to
before you go to the gym you take your supplements
to rip your body. Get it tough. You take the
omega-3 supplements to rip your brain. Get it
tough. Who knows? I'm not good at this. Public
Health Command is better at advertising than I am.
Fresh seafood is hard. Omega-3 enriched
products are expensive. We're developing a
concept of stealth health and that is to create
super chickens, super eggs, and super pork, that
those foods have high omega-3 and low omega-6
levels so that the chicken you ate for lunch
without any difference of taste could have
delivered you a gram of omega-3 fatty acids
without you knowing it.

So we have a super chicken project
developed in collaboration with the NIH, the
Samueli Institute, the U.S. Army Natick, Wenger
Feeds that produces feeds for most of the chickens
in the mid-Atlantic region and Pioneer Plenish
that has a different soybean oil.

And I'm not going to show you all those
data. They're in your handout. But this is one
example of what we've done right off the bat and
that is to make healthy pork sausage. Now, that
would be a contribution, wouldn't it? Right? So
it's got 200 mgs here. I'm sorry, 20 mgs in
standard sausage and nearly 110 mgs, about a
twentyfold increase in the omega-3 fatty acids by
tinkering with the diets of what we feed the
chickens and the pork and eggs to deliver brain
nutrients through the food supply. And to do this economically. To do this at low cost efficiency.

So then we're going to take these diets. Scientists always like to say about what they're going to do. And we're going to use -- we're going to see -- we're going to take seven days with the current DoD mean garrison menu and use exactly the same menus and swap out all the foods and all the nutrients. So the food looks the same. The current DoD diet with standard chicken, eggs, and pork, high omega-6 soybean oils and a placebo smoothie. Then we're just going to swap the foods and then we're just going to go for broke, swap the foods, add instead of a supplement in a capsule, add a box of smoothie, and then give enriched mayonnaise, chocolate, pasta sauce. Use a 12-week dietary intervention in the metabolic kitchen, middle-aged population. We're going to see if we can do it. We're going to see if people will eat it. We're going to see if we can change their blood levels and change their stressor activity to an immune provocation and change their
mental and mood functioning.

The health promotion, risk production, suicide prevention campaign contacted me to address some of these issues and begin to discuss it and they kindly allowed me to present their slide of their forward action in this area to you recognizing that the Army recognizes that a healthy, balanced diet should include nutrients such as vitamin D and omega-3s, important for promoting health. They're addressing this through a three pronged holistic approach to educate, to provide nutrition, provide appealing foods, and to do more research, and to the behavioral health aspects. And I would like to see these critical mental health research gaps filled. I would like to see a large prospective trial on the prevention of severe suicidal episodes. The trial of 49 subjects suggests that this is feasible and possible. I want to give whopping doses to combat the omega-6s, 4 grams a day of omega-3s compared to a placebo. I want to see a really big trial done in treatment-resistant major depression. I
want to see if we can prevent combat stress
induced PTSD. I want to make Seals and Rangers eat fish
before and after their training. When we
put them through training, see if we can, you
know, increase the graduation rate from 40 percent
to 60 percent by restoring their critical brain
nutrition. And I'd love to see a trial done in
military families to see if we can prevent the
stresses and distress of the families upon return.

So I'd just like to acknowledge my
collaborators and thank you very much for your
attention.

DR. DICKEY: Thank you very much,
Captain Hibbeln. Fascinating, particularly since
there wasn't any fish at lunch out here. We'll
fix that in the future. But I'm sure that the
oils on those salads were omega-3 rich.

Are there comments or questions? Dr.
Carmona.

DR. CARMONA: Thank you, Nancy. Joe,
thanks very much for this insightful and I think
long overdue presentation. I wanted to just
recount an issue to my colleagues. Back in '06 you'll remember when I was still on Active Duty and Surgeon General, I received a call that on one of the Indian reservations -- we had responsibility for the Indian Health Service -- there was an epidemic of suicides in adolescents. And I went out there in Northern Minnesota in one of the most desolate areas you've ever seen and we had had about a dozen adolescent suicides within about a year's time. I don't know the exact time but pretty close. And off the charts as it relates to what you'd expect compared to a normal U.S. adolescent population. And, of course, when I arrived and I was briefed by staff and I looked at the reservation I thought, well, I get it. There's nothing here. It's so desolate. And I remember calling back and saying I think I fixed it. You know, I think I figured this out. It's more about the social determinants of health. That is there is nothing here. There's no food. There's no access. There's no recreation. The suicide rates are high but so are high school
dropout rates, divorce rates, lots of single moms, obesity is rampant. On and on.

And it was Joe Hibbeln who said to me, “Sir, that's only part of the problem.” He's the one that alerted me to it and said, “If you look at the history of this tribe, they were displaced from an area that was further north where they got all their protein just two generations ago from cold water salmon. And every one of them had high omega-3 levels. And as we traced this population we found that not only did the mortality go up from suicide, but the depression rate became astronomical and was directly correlated with nutrition or lack of nutrition in this case. And that's what really opened my eyes to it and his whole career has been dedicated to this. But I think that the scientific information is now overwhelming and compelling enough that we should carefully consider how we might want to move forward that would benefit our troops and their families as Joe has pointed out. Thank you.

DR. DICKEY: Thank you, Dr. Carmona.
There's some pretty compelling evidence here. Comments or questions? So, Captain, you've laid out three or four research gaps. What's preventing you from proceeding down the path of filling those gaps?

DR. HIBBELN: MRMC, in particular Carl Castro, has reached out to us and invited us to submit those critical research proposals. They're in consideration. They're in the works. We want to make sure that they're done to the highest quality. We want to make sure that they're done in an unequivocal manner with the best scientists. It's just an issue of time. It hasn't happened yet because suicide prevention trials are very expensive to conduct and they must be conducted well. And it is the paper showing the low levels of omega-3 fatty acids and increased risk in military suicide and a reporter from USA Today that put some spark to the issue.

DR. DICKEY: Great. Other questions for Dr. Hibbeln? Thank you very much. And please be sure and continue to keep us updated as you gather
information.

DR. HIBBELN: Thank you.

DR. DICKEY: I want to welcome Secretary Woodson-- Doctor, we're delighted to have you with us and hope that you can stay to chair the afternoon. I appreciate your input. Any comments for the group before we move on with briefings? Keep going.

All right.

Our next briefer is -- but you do notice that when the Secretary got here suddenly the temperature in the room became bearable.

(Laughter) The immense power, sir, of you just coming in. It's appreciated by all of us. We thought global warming was not really happening.

Our next briefer is Dr. Scott Montain.

Dr. Montain serves as Deputy Chief of the Military Nutrition Division. Maybe we should have had all of these before lunch, Ms. Bader. I'm not sure it's fair to serve us tiramisu and then talk about nutrition after lunch.

Dr. Montain serves as the Deputy Chief of the Military Nutrition Division at the U.S.
Army Research Institute of Environmental Medicine in Natick, Massachusetts. All right. I don't think we have one of those in Texas. He also serves as a research physiologist and principal investigator. His research includes the broad study of nutritional and environmental factors influencing human exercise performance. Aspects of his work include the study of fluid needs, thermoregulatory and nutritional demands of military operations, physiological modeling, and interventions for improving soldier resilience to operational stress. Dr. Montain is going to provide an informational brief regarding DoD nutritional research activities and for the board members the slides are under tab 9.

Dr. Montain, welcome. We're looking forward to your presentation.

DR. MONTAIN: Thank you very much for the introduction. Can you hear me? All right. As was said, I'm going to give you a brief of what the Military Nutrition Division or what the DoD is doing with the nutrition dollars
that it dedicates into the nutrition field. Hold
on a second.

Before I begin that brief though I have
a couple of things I need to point out. One is
I'm going to focus on what the Army is doing with
the dollars it programs to do nutrition research.
As you can probably all guess, being that you're
clinicians, a lot of people see nutrition as a
tool that can be used to study a certain problem
or to correct things.

So while I'm going to try to give you
the research that's being done in the DoD, I think
you can start off under the premise that it's
probably not complete because I'm just not aware
of what some people are doing outside that program
dollar realm. The other thing is I'm going to
give you a brief of what's going on in the DoD in
terms of nutrition. It can become like a laundry
list and I don't want to put anyone to sleep so
I'll try to keep a good pace and I'll try to
deliver it in a way that you'll enjoy and learn
from. All right?
So I divided the talk into four topic areas. I'm going to first go over who the players are in nutrition research within the Department of Defense. Kind of a who's who and how they fund that research. I'll then talk about three arms of research. I'll spend most of the time on nutritional physiology research because I believe that's probably where the committee wants to gather the information to see how it complements what you just heard. But I'll also spend some time with the Ration Sustainment Program. That's the continuous ration improvement-type efforts. And also work that's been going on in terms of dietary supplements and nutritional supplements.

So who is who in nutrition research? Well, one thing to know is that nutrition is kind of seen as purple-suited, but the person who is the primary executor of dollars dedicated to nutrition, that comes through the Army. And there's two primary players. In terms of ration and building rations, the person that does that is the combat feeding directorate, which is part of
the Natick Research Development Engineering Command or NSRDEC, which is part of Army Material Command. Okay? So if you're thinking about who builds the rations, individual rations that a soldier is going to consume when they're away from a cafeteria or when they're using like unitized group rations that they heat and serve, that's combat feeding directorate. And their primary -- what they're primarily doing with their research dollars is looking at how do I make something that people will consume, package it in a way that it stays the way they want it to be over some period of time, and so it has that necessary preservatives inside there, but also being able to withstand the shelf stability requirements that different rations have to have. For example, a Meals Ready to Eat has to last five years. So that adds some real complexity in terms of the food technology side. So that's primarily what they're doing with the research dollars is working on food technologies.

When you're thinking about what is the
nutrients -- what are our nutrient requirements and how are they working inside of us, that nutritional physiology, the primary player there is the group that I work for which is the nutrition division which is part of the institute I work at, the U.S. Army Research Institute of Environmental Medicine, a big mouthful. So many of you may know us under the acronym, which is USARIEM. And we are, as I'll show you, we are a laboratory that's part of the Army's medical -- MRMC. Okay? So we are the primary person that's executing research dollars in terms of nutritional physiology.

Now, we are not the only ones inside the Army who do nutrition research but we're the two primary players. The Uniformed Services University, particularly Dr. Patty Doyster, she's a real interesting nutritionist. So she'll gather grant money through different sources and she'll do research in nutrition as well. They've also set up an organization called CHAMPS. And CHAMPS' real mission is to gather information and act as a
clearinghouse of that information, and particularly information related to nutrition.

So you can see that as a research arm as well, not so much in terms of biochemistry but in terms of gathering information, filtering through it, and then providing a tool for disseminating that information.

The Special Operations Command also has research dollars and periodically a question or has an interest area that has to do with nutrition. So they will also periodically go off and do a nutrition project. All right?

Now, the way the other way that the DoD funds nutrition is through broad agency announcements. And if you could read the pamphlet or the slide, there are really four players. The Navy, primarily through their Code 30 research arm will do some nutrition projects. Historically, that would be what Roy Stripling used to head up but I believe Roy is out now so probably the point of contact there now is Kelly Rossi. I don't know who took over Roy's position. They're primarily
in that arm of the Navy research, they're interested in the nutritional needs or the research needs of the Marines. Okay? In a preventive arm sort of way. So you can guess if you're thinking about prevention and helping Marines work optimally you can back around to, there might be a place for nutrition. So that's where they'll get into the nutrition arm. It's not their primary thing they're working on.

The Air Force also has a bit of research money that goes into nutrition. Not real consistently but it's for their special operators. So that same group that's going to have high energy requirements. Are we feeding them the best we can? Excuse me.

DARPA, in their life sciences research arm does some nutrition work. You heard Dr. Hibbeln mention that they had received some funding for their omega-3 suicide work. They've also done some work with some different dietary supplements over the last few years. For knowing what they're exactly up to right now the point of
contact would be Chris Macedonia.

In terms of the last one is the organization that's above me. USARIEM is underneath the Military Operational Medicine and Research Program or MOM. They also do broad agency announcements where the money will go either to DoD labs other than ours or to different university-type environments.

So the last place that you might see nutrition research being funded doesn't actually come through dollars that come into the Department of Defense. It actually comes through congressional special interest money. One good example that you sometimes see in the newspaper is the University of Pittsburgh has received quite a bit of money to work with the 101st Airborne. And part of that money that they received as that congressional special interest has gone into defining the nutritional requirements of the nutritional status of the 101st and then they're now involved in some intervention studies to try to help them eat healthier because one of the
observations is they eat very poorly in terms of nutritional quality and they're trying to come up with some ways in improving that.

Another player that gets congressional special interest money who has been very valuable to nutrition research for the DoD is Pennington Biomedical Research Center. For those of you who aren't familiar, they are one of the international leaders in the study of obesity. And that congressional special interest money that they get, they provide to the DoD free biochemistry and staff support for nutrition-related research projects. So when our research team wants to go and do a field study, Pennington will bring people to help support us in terms of staff and whenever we collect blood samples that we need to have analyzed, they will do that for free. This -- when you hear bad things about congressional special interests, this is the exact opposite. This is a real win-win for the DoD because we get a lot of service for no money. When this went away, the congressional special interest became
unpopular and said we're not going to do them anymore. That suddenly put on DoD in the neighborhood of like $2 million that they had to make up and pay them if we're not going to lose that service. That gives you some idea of good value. We were getting like $2 million worth of work for free.

Now, I said that USARIEM is the primary player in nutritional physiology. And the reason that we are there is that when they gave this function of nutritional research to the Army they did it because we were going to work under the Office of the Surgeon General. So the Office of the Surgeon General delegates that responsibility down to MRMC and then they delegate that down to us as we're a component of MRMC.

Now, where is USARIEM? As was mentioned, we're in Natick, Massachusetts, which is about 16 miles directly west of Boston. And this is the campus. We're a part of the Soldier System Center and you can see the USARIEM logo on the building on the left hand side. Now,
co-existing with us is the Combat Feeding
Directorate. And so if you remember, that's the
people who make the food. So co-existing on the
same campus we have the nutritional physiology arm
and we have the people who build the food. So we
have a very nice synergy and complement, which is
why we're co-located -- one of the reasons we're
co-located together.

Now, USARIEM as a mission is preventive
medicine. And we're divided into four groups.
One group deals with environment. So heat, cold,
alitude-type issues. Another one, if our soldier
is going to wear this gear there's a biophysics
issue of heat transfer. So we have a division
that deals with the biophysical components. We
also have the nutrition division, which I belong
to. And then a military performance division.
The performance division is interested in how can
we keep people from getting musculoskeletal
injuries.

Now, in terms of our mission, we have
nine investigators, including the person who is
the division chief. We have six dietitians to get us the nutritional expertise. And we have assorted technicians. Now, one feature that we have in the nutrition division in terms of investigators is that we have quite a diverse group of people. As was mentioned, I'm not a dietitian. I am a physiologist by training but we do have dietitians, physiologists, neuroscientists. So we have quite a range of expertise.

Now, in terms of mission, we're a prevention group so we're viewing nutrition as what does it take to keep the nutritional status at a high level in soldiers regardless if they're on a mission, any stage of their lifecycle in terms of being in the service. Our main responsibility is to support the Army Surgeon General as they serve as the DoD's executive agent for nutritional status. So we try to provide in terms of our research guidance as to one sort of nutrient needs to be raised or lowered when we make recommendations for daily requirements.

In terms of capabilities, we do basic to
applied research. So that spans in terms of experimental models we do cell culture work to small animals, all the way up to human studies. In nutritional physiology it's all in the context of how do you optimize soldier performance in fitness. So you can think about it as a fueling as well as how do I keep your body matrix despite you're working in very harsh environments? We also get money to do ration sustainment and testing, and also some money to do dietary supplement-type work.

In terms of objectives, of our group, it's primarily two. One is, as listed here, is enhanced war fighter health and performance and resilience, using nutrition as our tool. The other, where we spend time, though, is on this idea of recovery. Because when soldiers go out on missions and they carry their own gear, they have high energy expenditures, but they typically under-eat relative to those needs. So they're relying on that recovery period between missions to actually refuel.
So part of our work is trying to study what happens to them when they're under-eating, and then how can we best help them to refuel so they can go back out on their next mission.

So with that as a background, what's going on in terms of nutritional physiology?

Historically, if you're going to build rations, you have to know what requirement you're building to. So, historically, a good deal of the research in this area had to do with what are the requirements we're building to?

We then moved into more of the carbohydrate, in terms of how much carbohydrate would you have to put in a ration in order to provide the fuel for getting people to exercise as hard as they need to for their missions.

More recently, the work has been on protein requirements. And in terms of how much protein should you really be putting into a ration. There's a dietary recommended intake that's about 0.8 grams per kilogram body weight. The question is, should soldiers get that?

Is
that adequate, or should they have more in terms
of their nutrition standards?

So in that realm, those who follow this
area, and exercise, in terms of if you do
resistance exercise what will happen is that
there's a period of time after your exercise where
your protein breakdown goes way up, and your
ability to build protein is not very good. So
you're actually in a catabolic state, where you're
tearing yourself down. Then as you eat, you'll go
into an anabolic state, where you'll build muscle.
And providing protein during that period after
exercise seems to have some benefit.

So one of the projects that we've done
recently was to look at an endurance exercise and
see if the same nutritional practice has a
benefit. And the answer is yes, it does.

So that leads to the question of, if we
provide the higher protein diets during periods
where people are doing this under-feeding, would
they benefit from having more protein?

And to do that, we're doing a
collaborative study with the USDA laboratory that's in Grand Forks, where people go in there and they live in this -- they have a dormitory environment there, where they can have people live for 30 days. And they're being divided into different groups. One group's being fed the regular RDA for protein, or the DRI for protein. One group's getting 1.5 -- instead of getting.8, they're getting 1.5 grams per kilogram, which is about what is recommended for endurance or really active people. And then another group is getting above and beyond that, to see where is the optimal level of protein.

Initially they're in weight-balance status, so it would be just like an exercise-type study you might find in the exercise literature. But for 21 days after that, they go into an energy-restricted state so that they're expending more calories a day than they're taking in, in terms of energy. But the amount of protein they're getting is varied.

And that will give us that answer of
whether there is some benefit to providing more
protein in their diet when they're not eating
enough to maintain their body mass.

Alongside that human study there's also
an animal study. Because there's some evidence
that when you change the amount of protein you get
in the diet, when you're energy restricted, it
changes your bone architecture. So we're studying
that in a rat model to see how changing the
protein changes bone structure and bone
properties.

So that's a background of what's going
on in terms of macronutrients. In micronutrients
we've had some projects over the last few years
that deal with mineral nutrition.

One mineral that we've done several
trials on has to do with iron. And you might say,
well, we know a lot about anemia. Well, what was
happening was that when women were coming into
their initial training, that a number of them were
breaking down as part of that training. And when
you did blood chemistries on them, they were
becoming anemic as part of the basic training.

So the question was, if you provided them a supplement could you prevent that anemia?

And would it have a functional consequence, allowing them to train?

And the answer to that is if you provided it as a pill, yes you could maintain them and prevent them from going into anemia, and it had a functional consequence, in terms of more of them were completing the course. But if you allowed them to not -- if we didn't hand them the pills, compliance went down quite a bit.

So then the question was how could we intervene here in an effective way that they would take the supplement that's provided? So the iron was put into like an energy bar as the strategy. And almost 100 percent compliance if it was provided as food. But, of course, when you provide iron in food, the bioavailability goes down. So now the question is, how can we enhance the bioavailability and provide the supplement?

So that gives you an idea of why that
was going on. The other mineral that was of interest is zinc, because it's involved in so many chemical reactions. And one of the reasons we're interested in it is it's one of the nutrients that if you're relying too much on the MRE, some of these individual field rations, it could become marginal in terms of your dietary status.

So the question is, what would happen to you if you became marginal? And so we did a series of animal studies where we didn't take zinc out of a diet but we just reduced so that you become in a marginal state. And so what were the consequence for growth, bone development, musculoskeletal function? And the answer was, it was dramatic enough to be a concern.

But zinc's also been shown to be very effective in terms of diarrhea treatment in children. So the question was, would it work in adults?

So a few years back we did a study in Kenya, because that happens to be a diarrhea capital of the world. And so we thought, well if
we provide zinc to them, that would be a way of studying whether marginal zinc status and zinc supplementation would be effective. So that was one study.

The answer there was kind of -- unfortunately, we picked a bad year. They didn't have that many cases. So we couldn't really make a definitive conclusion -- other than the people who had co-morbidities who had received the zinc benefitted quite dramatically.

We've also done -- relevant to the issues today with brain -- we've done some work with zinc in terms of TBI -- in this case, TBI being from blunt head trauma, not from blast -- hitting a small rodent in the head, and saying if you're zinc status was marginal to low, how would that affect your ability to tolerate getting hit in the head?

And the answer is, it does. The animals -- I'll show in another slide, so hold onto that thought.

We've also been doing work with sweating
and mineral losses. Because whenever you deal
with nutritional requirements, there's always this
question of how much is going out in your sweat?
And so we've done a series of studies looking at
how much is actually coming out.

The answer is that that's probably
overstated, that concern is over -- people think
too much that too much is coming out, rather than
what actually is coming out. There's actually a
tremendous amount of contamination in the samples
that were collected in the historical literature.

One other area of nutritional physiology
that I wanted to bring up before I switch is we've
done some work with phytonutrients -- particularly
how they would -- if people were to take them --
well, like one example is -- you might be familiar
with this -- curcumin. There's some thought that
that can act positively towards your health. And
we've been studying it in a cell-culture model to
see where its toxicity levels are, and whether it
might -- once we know that, then whether it might
be protective when you're getting into
environmental insults.

But back to the zinc and head injury --
so we did a study in conjunction with
investigators at Florida State, where we hit
animals in the head, and they either had adequate
zinc, or they were marginally low in zinc, and
then looked at how well they could cope with
getting hit in the head.

And the animals that -- so here's the
sham animals. And this is an elevated water maze.
So this is a test of anxiety. So here's the
normal score. These are the zinc-adequate animals
who got hit in the head. So they didn't really
have any change in that score. But if they were
marginally deficient and then were hit in the
head, they had a much greater anxiety when they
were hit. So just having low zinc somehow
affected their ability to tolerate just getting
this mild hit in the head.

From that work, it's interesting -- the
DoD has an interest in head injuries. And so
we've continued to develop some brain-injury
models, and also to look at other strategies we
might use in terms of nutritional interventions.

Dr. Hibbeln mentioned this idea of
omega-3 fatty acids. But to do that, we actually
hosted a panel, through the Institute of Medicine,
to get their opinions on where we should best
target our research into what nutrients would be
the best sources. From that, there's actually a
book that's available. And that book -- the
information from that book will be used for
different nutritional intervention studies.

We had done some work, or some work in
the DoD has been done in probiotics, particularly
for improving gut health, and then getting the
passive immunity, the potential passive immunity
that might come from that.

The initial work was to develop a
shelf-stable form that we could put into
operational rations, and then showing that it
would colonize. At that point, we were ready to
do some interventions and see if it actually had
any impact. But around the same time, the FDA
decided that probiotics, if you were going to do research, would be treated like a drug, in the sense that you had to do everything under good manufacturing practice.

Given our budget, we basically took a pause and said the financial requirements and personnel requirements to do that would be more than we could economically do. So that work has actually stopped at this point -- not that we won't pick it up, it's just that at that point in time we had to take a stop.

In terms of vitamin D, that's been in the public health -- it's been of interest in the public health realm because of the observation that a number of people in the United States and around the world have low vitamin D levels. When we were doing the iron work with the women, we were actually taking some of that blood and looking at what their vitamin D levels were. So we have a good idea, at least in that population of several hundred, what the incidence rate is. And it's quite large, where you might be
We've also done some work with an epidemiology study, because one of the risk factors for your vitamin D status is how much UV you get exposed to. Because UV exposure is what helps you synthesize vitamin D if you're not getting it through your diet. So if that's the case, then you might guess that people that live in areas in the north, where UV light intensity would be lower -- and particularly if you're Black, and so you have a hard time synthesizing when UV intensity is not high -- that those people would have more risk of bone injuries if they have low vitamin D.

So we did an epidemiology study to see if there was any relationship between home-of-record -- which would be your light intensity -- and the incidence of stress fractures and frank fractures during initial military training. And we gathered the data from the Armed Services repository of data for 15 years -- so we have all the data from every person who joined the
military for 15 years -- and looked at what happened to them during their basic training period of time in terms of injuries.

The answer to that, if you want to know -- do you want to know? -- is that there's absolutely none. In fact, the people that came from the north, who had the lowest UV intensities, had lower incidence of stress fracture than the people that were in the highest solar loads, or in the moderate solar load conditions -- because we divided it into thirds. Which is completely contrary to what the people who developed these risk factors would predict.

And I can’t give you the answer as to why. I have some ideas. But suffice it to say that we could not find that home-of-record is predictive of anything in terms of stress fractures.

Now the last one I wanted to talk about vitamin D is an ongoing project, or one that's about to begin. And this is actually a multi-service effort that has to do with vitamin
D. And it has to do with -- what they'll be doing is supplementing women, as they go through basic training, with vitamin D and calcium. And it's a follow-on to a project that was done, I guess it would be the Coast Guard or the Navy -- which one trains out of the Great Lakes? So the women who were going through that training for several years were followed. And they did a dietary intervention with that group, and they found that when they intervened with vitamin D and calcium that they were able to reduce the incidence of stress fractures.

So we're following that up to see if, in a larger population, if we can reproduce that observation. But along the way we're also looking at how it's affecting bone architecture, and also whether there's different phenotypes that would predict who's going to be sensitive to the vitamin D and the calcium. So who are your responders and who are your non-responders. And this is being done with players from the Air Force, Army, and then university investigators.
So -- but what brought us here today was this idea of essential fatty acids. And you're probably already wondering if the DoD was doing any work to complement what Dr. Hibbeln was talking about.

And the answer is, we actually hadn't done very much in the way of research other than what Dr. Hibbeln stated. So, in terms of our program dollars, we've been mostly observing what was going on, but not taking any active role.

We, as part of the injuries that I talked about with using zinc, the plan was to do -- and still is -- is to do some intervention trials using essential fatty acids. So there is a plan to do some small-animal work using, instead of using a blunt-injury model, you actually use a blast model.

We're also involved with Dr. Hibbeln directly with the super chicken study that he briefed you on. And we're involved in a couple ways. One is, we're the -- the Army is the primary funder for that project. So we're the
payer. The other way that we're involved is, if you're going to make that dietary intervention, it makes sense to ask, did it matter? Because you're going to switch them from where they are now to over here, hopefully. Then you should -- it doesn't make economic sense, if you've spent all this time to move them, why don't you test to see if it did anything functional?

So in that we have got some -- took advantage of some money that was available through the Army, the Materiel Command has an effort to lighten the load, because soldiers carry so much weight, and it causes musculoskeletal injuries. So we're leveraging some dollars that they had available to see if, when we change the diet in the super-chicken study, if it helps then tolerate and recover from a fatiguing load-carriage task so it has practical relevance to our population.

I told you this would get to be a laundry list, so I apologize. In terms of another area of stress physiology has to do with a little different tack,
and that is resilience of cognitive function. And we have work ongoing with the different schools that provide SEER training, or the survival, evade, escape, where you become a prisoner of war, since that's very psychologically stressful.

And one of the projects that we're doing there is that we've had some ongoing efforts with a dietary supplement called tyrosine. And tyrosine acts as the precursor for catecholamines. So the idea is if you're under sustained stress, that you could get to the point where you can't make enough to maintain your norepinephrine and epinephrine levels. But if you could provide tyrosine, the person could continue to synthesize, and they could withstand stress.

And in small-animal models, it seems to work very well. In human trials, where we've done it in cold exposure it seems to work. And now we're applying it in the SEER environment to see if it provides an advantage for the soldiers to tolerate that psychological stress.

But then I want to leave that and talk
about something completely different. Because
another area that the Department of Defense has
spent time on is healthy eating. And they've done
it in a couple different ways.

One is that you've got people that
become overweight. And so if -- you're going to
put them in these groups, or these classes where
you're going to help them manage their weight.
There's been dollars that have been spent to make
sure that those programs work. Or are there
better ways or tools you could use to help them
lose weight so they can stay in the service?
There's not much going on in that area today. But
over the last years there had been.

Where the dollars are being spent today
are in trying to -- many of you may have heard of
the Soldier Fueling Initiative, or some of these
other initiatives where they're trying to change
the garrison dining facilities to make them more
healthy eating environments, and try to change
people's eating behaviors and to make them more
healthy eaters.
The other, where there's been dollars spent, has been in the better understanding of how your -- when you eat a meal, when your food is being digested, there's a number of hormones that get secreted as you digest that meal. And they have been thought to help provide feedback to your brain that, in terms of, you've eaten enough. So they're clues into fullness -- when you stop eating, but then also that feeling of sustained fullness that lasts between meals.

So we've been studying what those hormones are doing in creating that environment. And if we manipulate them, how is that affecting eating behavior?

And you might say, well, why do we care? Well, if you've got an overweight population, you would like to be able to find ways to help them so they wouldn't eat too much. But then you've got the population that we have that are infantry type, who are burning lots of calories and having a hard time eating enough when they're on their missions, but we want them to refuel between
missions. So if we can build foods that encourage or facilitate eating, then they would better refuel. Okay? So we have two kind of -- two interests there, populations of interest there. So now I'll finish up by spending some time with what's going on in ration sustainment. So that's a little bit different. So it's not research to better understand nutritional requirements, but to build rations that people would want to consume.

One of the areas where dollars have been spent over the last five or so years was the development of a new ration. Historically, the Meal Ready to Eat was the standard ration during when soldiers were relying on individual field rations. But it's kind of big, kind of heavy. Not too easy to eat on the go. So it's not, probably, ideal for all -- certain population groups.

So together with the Combat Feeding Directorate, we thought about what could we do to make a ration that better works in an environment
where you struggle to eat enough, and don't want
to carry so much food. And the first-strike
ration is the answer to that. Because it's
smaller, it's lighter, it's all eat-on-the-go type
of concept.

We've also, in collaboration with Combat
Feeding, have worked on different ways of novel
delivery systems, so they can get food different
ways. And one of the common products we know s
very effective in the field environment is
caffeine -- so different ways of delivering
caffeine, or inserting them into the ration
products.

Another area in ration sustainment has
been that we provide food to the service members
but, historically, when we do so, when they put
the nutrient label that says how many calories, or
what the vitamin content is, they're relying on a
USDA data base. And some of those nutrients were
actually, haven't been chemically analyzed for 20
years.

You heard what Dr. Hibbeln said -- our
food supply has changed considerably. So the
nutrient quality of some of the food components in
their data base are in error.

So we've been spending money -- the DoD
has been spending money -- in collaboration -- to
kind of correct some of these issues. And so
we've been chemically analyzing all the MRE food
components, as well as the components in the
first-strike ration, so that we have the actual
chemical composition, and we can look at what
happens as they sit through shelf-stability so we
have an idea of what's actually happening to the
ration over time.

Now, why does the Army care? Well, one
is that you have accurate labeling. The other is
that you can hold the contractors that we have
that make the food, hold them to standard, so that
we can actually see if they're complying with the
contract that they're writing -- which they
actually enjoy, because everything is accurate
then. And I can't think what the third one is.

So I'm going do a Rick Perry and say, oops.
And in terms of -- then the last thing that we do in ration sustainment, which is quite an effort that goes on annually, is there's a continuous ration improvement program. And as part of that, research dollars are spent in taking the rations out to the field and getting customer feedback as to whether this product or that is better than the old product, and the like.

Now, the last topic area I'll go, and then I'll finish up, is in terms of dietary supplements. And the Department of Health Affairs -- I think I have that right. Yeah -- Health Promotion, so DHP -- became interested in the idea of dietary supplements and thought it should be part of the component of research dollars.

So historically, when money would come down through MEDCOM into MRMC, then down to us, the idea would be that we would do some dietary supplement work. But that is actually very expensive, because everyone under the sun wants you to try their nutrient. And we did not want to become this clearinghouse of studying these
dietary supplements.

Well, with the aid of this money that comes out of the Health Affairs Office -- do I have that correct? -- it's DHP money -- they provided funding to set up a DoD Center Alliance, where investigators at USARIEM, in collaboration with investigators at the Uniformed Services University are working to jointly to better understand what's going on in the world of dietary supplements in our DoD personnel.

Now what are they doing? Well part of the effort is to survey to find out what is being used so that they can get an idea of what the background is, in terms of use. To look at -- if there are some that are standing out as being really prevalent. And to find an opportunity here to look for side effects that aren't -- can't -- currently capturing, when people are maybe taking too much of something.

Now, so part of it is to look at use, and then another is to look at health safety. So that's this idea of looking for problems. And
then if there are some that come out in saying,
this is one that we should probably be looking at,
that's where we would then come back and do
research to say, does this actually work? Okay?
Does that make sense?

In terms of roles, USARIEM's primary
role is in the area of surveillance activities,
and then doing some dietary supplement studies of
ones that we think -- candidates that we think
might have some efficacy. The Uniformed Services
role in this is to serve as that person that's
gathering the information, setting up that library
or repository of information, and then having the
ability to send it out to people who want to
inquire. So it will become that one-stop shop, in
terms of dietary supplement information.

So, with that, that gives you the
background of what's going on in nutrition
research. And I'm glad to answer any of your
questions -- or try to.

DR. DICKEY: Thank you very much, Dr.
Montain. Dr. Jenkins?
DR. JENKINS: Well, it's a fascinating body of work that you and Captain Hibbeln have presented here.

The question I have for you is something pretty practical -- having spent almost 20 years at Lackland Air Force Base, wearing a uniform, became pretty aware of what goes on with the Airman basic personnel. So kids come off the streets of America and being turned into airmen in six or seven weeks at Lackland.

And episodically, we would end up caring for some of these kids, you know, at the hospital -- with unbelievable, you know, diseases. Dying from adenovirus, and adenovirus outbreaks. And the typical airmen losing 25, 30 pounds during this basic training period. You could always spot somebody who was in their third week of training because they were at their nadir, and they couldn't look you in the eye, and they walk around with their head down, and just looking emaciated as the breakdown process was finishing and the buildup was about to start. And I've seen kids
die of necrotizing fasciitis from arthropod assault, or folliculitis, as there's some immunocompromise that strikes these kids in that setting.

This would seem to me to be a prime proving ground for this nutritional research to actually make an impact, that you should be able to get better, smarter, faster -- or, you know, better, smarter airmen faster with less disease impact, to be able to plot that against historical norms and even cohort, you know, group against group.

Is that something that you guys do? Or should be looking at?

DR. MONTAIN: Yes, if we think about it historically, we spent quite a bit of time in the 1990s working with the Rangers and Special Operations Command, when different -- when soldiers were going through those two training scenarios, and studying the impact of how they were fed, on their nutritional -- or their immune responsiveness. So we would actually -- one was
just characterized, and we could see that immune
function was changing. And then we did dietary
interventions to see if we could attenuate any of
that through the way that they were eating.

So, in fact, we've done the type of work
that you've described.

Now, are we doing it in a basic training
environment? The way we're doing it now in the
basic training environment is primarily through --
was the iron study I described, and now with the
vitamin D and calcium.

The Soldier Fueling Initiative, where
they're changing how the basic trainees eat, that
unfortunately got initiated before they could
collect the background information. So we don't
have a good "where were they?" but we're
collecting where they are now, just the way you
described. So that's ongoing.

Does that make sense? So, one challenge
we have in working this type of study that you
were describing is getting access and getting
command support to intervene in some of those
environments.

DR. JENKINS: I don't know, but I think maybe the Deputy Surgeon General of the United States Air Force might have something to say about that access.

DR. DICKEY: Dr. Anderson.

MAJ GEN (Ret.) ANDERSON: Yes, thank you for both of these talks. Omega-3s were presented as a deficiency problem. This is a really broad question. But how is your level of understanding of the nutritional status of military members in various military occupations? And I'm thinking, you know, of human performance, but also trying to understand the baseline in the first place?

DR. MONTAIN: Yeah -- in terms of where we are in terms of total nutritional status? Usually, when you survey blood chemistries as a marker of nutritional status -- which has its own problems and limitations -- it's hard to see nutritional, gross nutritional deficiencies in our personnel.

But if you look at, in terms of their
behaviors, and when they self-report, or we observe them in terms of what their eating practices are, they don't come close to meeting what we would say a healthy diet is.

Like in the Survey of Health Behaviors that comes out every few years, where they look at the way people drive and the like, they included questions about dietary practices. And only about 10 to 15 percent would have been eating the recommended amounts of fruits and vegetables, dairy, whole grains. I mean, it's just -- and when you start to combine them, it gets even worse.

So we aren't very good -- if those are true indicators of nutritional adequacy as we look at behavior, we aren't very good.

If we look at blood chemistries, it's hard to say that anyone is nutritionally deficient. But blood chemistries don't tell you much about what's going on inside the cells.

MAJ GEN (Ret.) ANDERSON: You know, your answer is really what I suspected it would be. And I
think maybe this is a, you know, a two-talk dive into nutritional science. But really understanding the status of nutrition in the military is a much bigger area, and probably very important.

Your probably aware of the emerging lifestyle medicine approach now, which really calls for prescriptions for diet, essentially, and is part of individualized health care. And if you take that into the occupational medicine and clinical preventive services arena, we've got a long ways to go. No doubt that the nutritional needs of Army infantry troops is quite different than you might find in the Air Force or shipboard Navy or submarine force.

So I think you've got a lot of work ahead of you. And maybe this is something for the Defense Health Board to think about at sort of the grander scale, as well.

DR. DICKEY: Dr. Carmona?

DR. CARMONA: Thank you very much for your very informative presentation.
You know, I think there's a body of literature out there that's very complementary to what we want to do. Because when I look at our warriors, they're really tactical athletes. And we step across the line and we look at Olympic athletes and the testing centers, and the pressures that are put upon them -- really, it's not identical, but the stresses, the move to enhance performance, and all of the different disciplines that are that athletes are, isn't a lot difference than enhancing performance in our warriors.

Now, as you well know, many years ago, in Special Operations, we started looking at this. It's been over two decades, now, when we first look at Seals and Army Special Forces guys when I was still on Active Duty. And, in fact, there was a lot of telling information there, too. And at that point, our operators were just eating randomly, but yet they were expected to perform at extraordinarily high levels. And we recognized that the fuel we put into those bodies really made
a difference as to how they could perform.

So I would suggest that, as we look at our warriors and we move forward, in fact they are tactical athletes. And to optimize their performance, we must optimize their nutrition.

DR. MONTAIN: And there are active efforts, in terms of -- to get them to eat well, they have to be educated. And historically we've not done a very good job on that educational arm, of getting people to eat right. A lot of these kids, we make the assumption they came out of high school, they should know how to eat. The reality is they are poorly educated in terms of nutritional knowledge.

Each of the -- I won't say each of the Services, but I will say that the Marine Corps has taken on an activity that has an insertion of education to it. And I'll go into what that is. But the Army, with their Soldier Fueling Initiative, is doing the same.

Now, the Air Force and the Navy might be doing something, I'm just not aware.
In the Marine Corps, what they're doing is they're changing the dining hall -- or that was the plan, at least, as of a year ago. I haven't heard if they actually rolled it out. They were going to change the dining hall. And the way it was going to work is, the soldier would have to -- or the Marine would have to walk through and grab their food and then come out to the cash register. The cash register was rigged up so that it was keeping track of their inventory. So that gave them the data base to know exactly what they took. Not what they consumed, but what they took.

And before they got to the dining hall, they were going to be told that, based upon certain criteria that they had in place, which diet was going to be the best diet for them. So, let's call it Red, Green, and Yellow. So you knew you were a Red, and the food that they were going to go buy was going to give them clues as to which is a Red food and which is a Green food and which is a Yellow food. So they were supposed to find things that would map out, that over the course of
the day they would eat a Red diet. Or you might
get the Green diet.

And then when they would go through the
inventory, now they would have it. And they would
actually have feedback that they could provide
that marine's leader as to whether they were
complying or not. And then they could use that as
a training tool to get them to eat appropriately.

Now, what were the Red, Green, and
Yellows for? One dealt with a diet that was
really a heavy-calorie, energy-dense diet. One
would be more of an in-between. And the other
would be something very light, low energy-dense
food, so you could eat quite a bit, but you
wouldn't get very many calories.

And they were going to use it as a
strategy to help them understand which foods have
calories, and then also which foods are the ones
you want to pick, in terms of fruits, vegetables
and the like.

DR. CARMONA: I think your points are
very well taken. A couple of comments on that.
In highly motivated troops, who want to become a marine, or become a seal, or become a Special Forces operator, it's easy for them to change their culture. But for the masses, it's very difficult. And really, what we have is a challenge in the nation of acculturation. You know, I'm not blaming fast-food, but part of fast-food, people don't eat, they graze, they grab whatever they can. They're not thinking about the quality and the quantity of fuel that they're putting into their system.

So the failure is really in society, because that's our cohort where we get our operators, where we get our warriors from. They come from society, and they come in with the bad habits.

It's unreasonable, I think, for us to think that we are going to change 18 or 20 years of bad habits as we bring these folks in. The issue is really one of health literacy of the nation, where this nation is fairly health illiterate in just about everything -- and
especially nutrition: how to buy food, how to cook
food, appropriate portion sizes, and the quality
and quantity of fuel you need to do whatever your
core competency is.

So I want to, I guess, make the comment
that I don't see this as a Department of Defense
responsibility. It really is a national
responsibility, where the pipeline begins in
childhood, before those young men and women become
soldiers, sailors, airmen and so on.

We're fortunate that we have converted
some -- as you've pointed out. But highly
motivated troops who have a goal in mind, it's a
little easier for them to switch, because they
want to be a marine, they want to be a seal, they
want to be a Green Beret, et cetera. But that's
really a small part of it.

So I personally appreciate all the work
you're doing in identifying the variables that are
involved. But I think this is a bigger problem
that we're going to have to deal with as a nation,
as it relates to the unusual disease and economic
burden that is largely preventable in our society today.

DR. MONTAIN: Oh, I agree completely.

HON. WEST: I don't. I don't agree completely with that. We've been changing acculturations and developed-habits in the Department of Defense for as long as we've had one, for as long as we've had the Services. What we think we do best is to bring people in -- especially the youngsters -- and given them a new reason, and a new way of looking at themselves and what they do. What is it? We make them part of something larger than themselves.

It may be that over time we have begun to do it differently. But we believe we know how to change habits. It's what we base our military discipline on, and our belief that we're going to succeed.

One of the things we used to do is we did tell them what to eat, because they all ate in the mess hall. We have a different situation now. And I agree that it's a societal problem. But
let's not let the Department of Defense off the hook. We have a role to play here, and we can play it.

DR. CARMONA: I would agree with you, Mr. Secretary, that we're not letting the Department of Defense off the hook. What I was suggesting was that the Department of Defense cannot bear all the responsibility for a nation that's gone astray as it relates to its nutritional requirements.

HON. WEST: As long as their ours, we can bear all the responsibility. When they're not, that's different.

DR. DICKEY: We have a comment in the back. Please identify yourself as you come to the microphone.

CAPT HIBBELN: This is Joe Hibbeln. The super-chicken project is our first development to answer this call as to how to economically and efficiently change the health through stealth, to bypass the education, so that if we can -- we can start with Omega-3 fatty acids in chickens by
changing their diet. Therefore we hope to provide fried chicken, fried in the right oils, eating the right foods, that is going to reduce cardiovascular health and improve the athletics of the soldier's brain -- not only of their body. And we are trying to answer your call, as to how to do this economically and efficiently. Because we also know that it has to be done at a low cost, high throughput system. If we can successfully develop these chickens, these eggs, these pork to deliver these nutrients, and the DoD supports this effort, it is a gift that the DoD can give to the rest of society and to the rest of health.

DR. DICKEY: Thank you. Other comments? It seems to me that the project you were describing in the marine mess hall -- is that right --

DR. MONTAIN: Mm-hmm.

DR. DICKEY: -- that may have significant application. I can see that applied in the school cafeteria, for example, where we can
give feedback to students -- although much like
your people who are on Active Duty, they no longer
all eat in the cafeteria. They bring their food,
or they put their nickels in the Coke machine.
But, thank you. Lots of insights, and
lots of potential follow-up that we can do here,
as well.

DR. MONTAIN: And I have to say that
whether the Marine Corps ever did this, I don't
know. This is what they were discussing doing
about a year ago. And they were planning to do a
first roll-out of it to see if it would work
around last February. But I'm not aware -- and
maybe someone else is -- if they ever did it. So
don't take it as they actually did it. It's just
the concept, what they were going to do.

DR. DICKEY: Very detailed concept for
not going forward, don't they. Okay.

Other comments or questions. Thank you
very much, Dr. Montain.

DR. MONTAIN: Thank you.

DR. DICKEY: I think we're scheduled for
a short break. Let's see, it is 2:45. We'll
resume here at three o'clock.

(Recess)

DR. DICKEY: Now, this particular
meeting is just chockablock full of information.
And so as we pack your brains, keep in mind that
we're move to action items at a future meeting,
and you'll have to recall all of this. So
hopefully it's a fish restaurant tonight, right?
I come from Texas. Beef's for -- you notice he
talked about super-chicken, and super-pork. He
didn't say anything about super-beef. (Laughter.)
I guess they won't eat the soybeans.

Our next presentation will be delivered
by Vice Admiral John Mateczun. Admiral Mateczun
is the Commander of the Joint Task Force National
Capital Region Medical, which completed the
largest and most complex base realignment and
closure project in the history of the DoD, merging
the National Naval Medical Center and Walter Reed
Army Medical Center into the Walter Reed National
Military Medical Center, the nation's largest
military hospital -- which we, of course, heard about through the process.

Admiral Mateczun has a medical degree from the University of New Mexico, a Master of Public Health degree from the University of California-Berkeley, and a law degree from Georgetown University Law Center.

He's going to present an update for us regarding the National Capital Region Medical, and the integration of health services. His slides are in Tab 10 of your meeting binders.

Admiral Mateczun.

VADM MATECZUN: Thank you, Madam President. Good afternoon, everybody.

I'm here to tell -- you know, when I was enlisted in the Army and I ended up as a Staff Sergeant, I survived two tours in Vietnam, and did get honorably discharged. But I still remember going to basic training, and they taught me how to be an instructor. And they said, okay. Here's the way it goes. Tell them what you're going to tell them. Tell them. And then tell them what
you told them. And, hey, I tell you, it's worked out for me as a lecturer and all kinds of things.

So over the past three years I've been here telling you what we were going to do. I told you what we did just before we finished up the BRAC, and I'm here to finish up and tell you, you know, what we did, so that I can finish the instruction cycle, and maintain adherence to doctrine in terms of education.

Slide. So I'm going to give you the background, talk about the BRAC -- summary, the hospital projects. And then you asked for some words on the way ahead. And I'm going to talk about two things: the Comprehensive Master Plan, which we've discussed here previously, and the integrated delivery system that's going to happen in the NCR.

Slide. So BRAC. Back in 2003, 2004, Joint Cross-Service Working Group started when General Meyer was still over as the Chairman. And everybody got together and said, you know, four in-patient hospitals in the National Capital
Region just doesn't make much sense from a business perspective. And so we're going to combine them into two. And so that was the basic underlying assumption of what was going to happen during the BRAC processes.

So the idea was that we would close the Walter Reed Army Medical Center, Close Malcolm Grove Medical Center as an in-patient facility, and then expand the in-patient capabilities at Bethesda into Walter Reed National Military Medical Center, and at Fort Belvoir, at Fort Belvoir Community Hospital.

So after all of the estimates, it ended up costing $2.8 billion to do the construction, the outfitting, and all the other associated pieces of what we had to do. We built 3 million square feet of new and renovated construction -- 2-1/2 million new, and 500,000 renovated. Moved over 4,200 people. And moved 224 wounded warriors and their families.

So the JTF part of that was -- in September 2007 we were established. And this was
after the February 2007 articles in The Washington Post on Walter Reed, and the Dole-Shelala Commission. And I see Secretary West -- Secretary West, who headed up the Independent Review Group, you know, as well -- made their recommendations to the Department, looked hard at what was going on in the hospitals in the NCR, and said you have to have some authority, some organizational entity that can bring these things together in the National Capital Region.

So in September of 2007 JTF CAPMED was established to do those things, and to do a couple of other things, as well. That's not our only mission. I'm responsible for the health care delivery within the National Capital Region.

But we did, in terms of the BRAC activities, execute all the medical BRAC actions, execute a guaranteed placement program that was put into place to keep Walter Reed civilian personnel, in particular, working while we continued to fight the war, so that they didn't leave Walter Read without the staff that
it needed to take care of that mission.

And they formed the nucleus of the staff that we had to put together to run these two new hospitals. And so we established a single civilian personnel workforce. And so we have roughly 4,400 people now, in a single DoD workforce, where we had Army and Navy civilian human resources before.

Slide. Okay, I'm here to, honestly, brag a little bit. This is something that nobody ever did in the history of the Department. And it was actually a lot harder than we anticipated. And there were a certainly a lot of predictions that we would not make it. And we just had Secretary Lynn out, just as he was leaving the Department, and he remembered really starting to pay attention to this about 18 months out from the actual execution of the transitions, which we did in August. He said, you know, we told him that we were on time, and that we thought we could make it. And his thoughts were, as he remembered, nobody's ever made a project like this in the
Department on time before. And so he started thinking about fallback plans right away.

Nevertheless, through the next 18 months we stuck with it. We didn't have much changed, and we were able to execute these projects that you see here.

So 1.6 million new square feet, about 500,000 renovated square feet, 6,100 new parking spots, and about 600 new spaces for Wounded Warriors to lodge in. The Wounded Warrior lodging was one of the biggest adaptations that we had to make, because the mission changed in this war.

Our mission prior to this was making a determination about whether people would be able to return to active duty or not. If not, sending them to the VA for rehabilitation.

In this war, that's all changed. And so we now have, at the direction of the Service Secretaries and the Chairman, a substantial rehabilitation program that returns the most severely injured, occasionally, to Active Duty.

And that requires that we have the lodging to
support them in intermediate rehabilitation -- ADA compliance, and able to return them to the activities of daily living and daily duty.

In terms of outfitting, we had extraordinary success with an outfitting contract at an Army hospital at the time, and a Navy hospital -- so they would have been going under two different outfitting and transition contracts. You've got to think that there's some economy of scale between those two.

And additionally, if you start looking to the future, there's no way to really combine maintenance contracts for radiology equipment, nuclear medicine and all of the other gear that we have, unless you've got one set of items. And it makes it a lot easier to move from hospital to hospital if you're going to be working with the same operating room sets, as an example.

So there's an independent government cost estimate that that was going to cost right at $400 million, 390-some. By consolidating the contracts, we achieved the bit savings of $77
million against that independent government cost estimate.

And then -- and then -- in execution, we saved another 9.5 percent on that contract, $32 million, because of the incentivizing for putting together equipment. And the contractor shared with us on that savings. And so they looked for the lowest price and best equipment that met the requirements that we had.

So we reused almost 11,000 equipment items at Walter Reed, about $114 million -- and that's still growing, we just moved some more additional equipment last week -- 158,000 line items, stock items of equipment. That's a lot of stock items. I will tell you, we've got now, I think, the most current what-does-it-take-to-outfit-a-medical-center and what-does-it-take-to-outfit-a-community hospital list in the world.

And we had to invent a new way to do it. Because you can't just order 156,000 line items at one time. So we invented an ATP, or Authority to
Proceed, and we ended up with 46 of those as we proceeded. As we completed one part of the equipment, we started consolidating in between the hospitals, we would release those lists, give an authority to proceed, and we prioritized, started out with the long-lead equipment first, and then were able to continue that up to the end. So a new way of hospital outfitting that worked really well.

Patient reassignment. We had to move 34,000 enrollees from Walter Reed to other NCR or MTFs. And we were able to do that in a way that accommodated all patient preferences. To date, we haven't had to tell anybody no.

And, in fact, we had to accommodate 10,000 new patients, roughly, in terms of people moving into the NCR because of BRAC moves. So we did that all within existing resources, and able to accommodate all patient preferences. Truly an accomplishment -- 38,000 people is a lot of people. And I have gotten letters now, we're still getting letters from folks that realize that
Walter Reed closed, and they've either driven by and they weren't able to get in the gate, or they called up and they weren't able to get an appointment there anymore. And so we're still getting some letters from them, even though we did send out 34,000 letters.

Additionally, we've got now a single appointing number for what we call an IRMAC -- Integrated Referral, Management, and Appointing Center. So they're handling the appointing for all of those appointments that go on. They get roughly, right now, 4,000 calls a week. And so it's busy. It's actually busier than it was -- than all the centers that existed before at each of the hospitals were individually.

But the big payoff here is going to be the referral management. And so we'll be able to consolidate all those referrals, and we anticipate being able to call people proactively and set up appointments for them, rather than waiting for them to do it themselves and (inaudible) or not getting the consult that they were given.
Slide. Transition -- boy, that's a lot of people moving, I'll tell you. You know, we really tried to look at this as what we call reception staging and onward movement and integration -- RSO&I. And that worked for us.

So, really, almost 9,000 people ended up moving, either from office to office, inside Bethesda, for instance, across the street, as they did from DeWitt to the Fort Belvoir Community Hospital, or from Walter Reed to both of those places. So over the last six months we had a lot of people moving. But it was really all of the people from Walter Reed that had to move in August of this year.

And so we got all of them moved -- moved 750,000 cubic feet. That's a lot of cubes, for those of you that do logistics. And 168 in-patients, and a lot of out-patient wounded warriors.

And I used to, when I gave my reports to Secretary Lynn, he'd say, So, let me see if I got this right. It's really a tight schedule, but we
can make it unless there is an act of God in August, like a hurricane. And I'd say, Yes, Secretary Lynn, that's correct. Yes, sir. So, in August we had an earthquake, a hurricane. In terms of plague and pestilence, you might be asking, So what happened? Well, we did find West Nile virus on the Bethesda campus in mosquitoes. But we didn't get any frogs falling from the sky. Everything else, we had.

Manpower and personnel, we had the guaranteed placement program that I talked about, that's the largest guaranteed placement program in the history of the Department. We did convert, do a successful conversion of 4,400 service civilians, also never done before in the Department. And we had to develop the workforce mapping and migration for all of those employees. So in all of that process, we were able to manage, for the vast majority of people, the site of -- the employment site of their preference. And a lot of Active Duty orders had to, of course, accompany those people.
IMIT -- we're executing a joint medical network which will provide a common desktop, a standardized suite of IT tools for providers across the NCR. And actually, what it will do -- and General Green and I -- Bruce Green, the Surgeon General of the Air Force, used to talk about this periodically. And I said, I can drive an x-ray around the beltway quicker than I can move it in our current IT systems. And he said, No, that can't be true. And I challenged him. I said, Okay, let's go sit out at the ER at Andrews, and we'll see.

And he hasn't taken me up on it yet. We've still got a couple of months before we get it done, where I can prove it.

But it is literally true. You cannot move an image around here from network to network. And I asked my guys to prove it to me, because I didn't believe it, either.

So here's what it takes. So I'm at Andrews Air Force Base. I'm a Wounded Warrior. I just got seen at Bethesda, or discharged from
Bethesda earlier that day. I'm in the emergency department. I want the x-ray.

Okay, I've got to call over to Bethesda. First, I've got to find out where the x-ray is, if I can do that. But if I know they took one at Bethesda, then I call over there. And the radiology department -- this is on a weekend maybe, maybe not -- has to call in a system administrator. The system administrator has to put that x-ray into the system. It then has to bump across the Navy fire-walls to get out into the NIPRNet. In the NIPRNet, it competes for broadband, and so it goes out in these little packs in the NIPRNet. And eventually it ends up over at, you know, the Air Force fire-walls at Andrews. And then it bumps across those. Finally gets into Malcolm Grove. And then you've got to get a system administrator in the Malcolm Grove to pull it out. And then they've got to take it from there to the ER.

And literally -- so, literally -- I can drive an x-ray right now around the beltway if
you're not on the same part of the network. This
will take care of that problem. It will allow us
to move that -- not just that data, but all
patient data, you know, around amongst the clinics
and hospitals here in the NCR in an effective way.

It will also reduce sustainment costs in
the facilities, because we're coming into one
medical network. I'm a provider, I'm able to log
in anywhere that's on that network and have the
same desktop, and access to the same information
that I've got anywhere else.

And so it's, I think, the way ahead for
medical networks in the Military Health System.

Slide. All right, that's a little bit
of the kind of numbers, the facts of what we did.
I'll give you a couple of other comparisons.

The footprint now of the hospital at
Bethesda -- which is there on the top. That's the
Medical Center -- the footprint of that Medical
Center is the footprint of the Mall of the
Americas. And so although we don't have an
amusement part in the center, we have the same
way-finding and parking problems that they do.
The footprint of the Fort Belvoir Community hospital is the footprint of the Springfield Mall.

So these are very, very large facilities. Just as an item of interest, that's created some difficulties. You can't rely on the Code Team to get over from way on the far right, which is where the in-patients are, to way over on the far left, where the out-patient building is, in any kind of timely manner. And so we think we've worked that one.

But here's one that everybody's struggling with. So, if somebody's in the Medical Center, you know, how do they call for help if they fall down in one of those vast spaces in between there?

A lot of people have a lot of different solutions, but we used to have a lot of telephones on walls in hospitals. And they don't exist anymore. There aren't even pay phones.

And so we're working through, right now, trying to figure out if somebody calls 911 on
their cell phone, where does it go? Can we
intercept that, and can we do some other things
to take care of it? But it's not a trivial
problem when you've got a footprint of the Mall of
the Americas.

Slide. Okay, these are some of the BRAC
renovations. You know, we started out and we were
going to mostly just renovate these double-patient
rooms. But Congress then came back and said, hey,
you said you're going to world-class, so prove it.
And they had the group that sat here on the NCR
that took a look at world-class, and that group
reported back out to the Department and said, No,
'world- class' is single-patient rooms. And so one
of the things the Department did was to move ahead
and say, well, we're going to enhance and
accelerate part of those renovations. And so all
but about 50 rooms now are renovated into
single-patient rooms at Bethesda. And to meet
that world-class standard, we still have to go
back and renovate those other 66 single-patient
rooms.
Slide. This is the intermediate rehab lodging. It's what it looks like. It's ADA compliant. ADA is not one-size-fits-all. And so, for Wounded Warriors, for instance, you'll see some of the -- in that upper left-hand corner, where it says Warrior Suite -- that upper left picture is one of the bedrooms.

Well, the Wounded Warriors have different requirements. If they have prosthetics, they want a wider bed, they want a double bed, so that they can put on their prosthetic as they lay there. A single bed is not enough room for them to do that. If they've got a lot of hardware on because they're in limb-salvage, you know, sometimes it provides enough room, sometimes not. And so we compromised and we put bigger beds into the rooms where they need them.

We're also able to accommodate spouses and non-medical attendants here. So if they have a spouse, the spouse is able to stay in a room with them. In fact, we've got some families living in these suites. They're built in terms of
suite. And so we have 153 suites there. And
we're getting ready to start building another
hundred on the Bethesda campus this fall. That
will start well.

So you've got to be able to do this,
really, if you want to do rehabilitation. You've
got to have something that accommodates their
needs after they're out of the hospital.

Slide. Comprehensive Master Plan is the
Department's response to how are we going to get
to that world-class standard. And so you see here
the numbers that have gone over to the Hill.
These numbers were in the President's budget last
year. And they get us to that world-class
standard.

There were a couple of things that are
not in this plan we're already working on. The
operating rooms, the panel said, You've got to
have operating rooms that are of a size that you
accommodate complex equipment coming in there.
And so we're finishing that up. We've renovated,
while the BRAC was going on, 10 of those operating
rooms. And now we've got another eight to go.

And so we just started on the first of November doing that.

In August we had to make sure that we had enough operating room capacity to take care of the amputees, in particular, that were coming back. And so we had a lot of debates in the Department about how to model that. But we had ample space in the operating rooms to be able to make sure that during the height of the fighting season we could take care of those Wounded Warriors coming back.

The Wounded Warriors now coming back are, the majority are multiple amputees -- which is unlike Iraq. And so there are single amputees. Everybody else has either two, three or -- in three cases -- four amputations of limbs, that's in rehabilitation. So it's a great thing to see, honestly, when they get out of the in-patient side.

The in-patient requirements have almost tripled, in terms of operating room time and
length of stay. So it used to be that we'd have people in for three or four weeks. Now the average length of stay is six. And our average OR time is more than 700 hours for each of those patients. And it's over a six-week period. So you really use up ORs. You chew up OR time with multiple amputees.

In fact, we are now seeing the sickest patients in the world, with the highest survival rate. This is an extraordinary capability for the military. And nobody is handling this complexity of trauma care and rehabilitation in the world today -- certainly at this volume. In fact, most hospitals would be overwhelmed with three or four of these cases, I think.

Slide. So, this is basically the solution to the space problems at Bethesda. This is kind of in back of the tower. The tower is in the bottom center, there, with the out-patient building on the left, and most of the in-patient capabilities on the right.

And so there's a bunch of smaller
buildings that are in there that don't really match up with the requirements. We found out, as we opened up the current walls for renovation, that renovation is not a good solution to rebuilding medical facilities. You actually end up with less space than you started with, because you've got to close in walls, and you've got to get everything -- once you open up one of those walls, you've got to get everything back up to current code and standards. And that was an expensive part of the renovations, the 500,000 feet of renovations that we did on this campus.

So the solution right now is a new clinical building that goes back in there behind the tower, you know, to rationalize what's going to go on back there. And provide a -- right now, we put an ambulatory surgery center, women's health, a simulation center. And one of the elements of world-class is to have space for patients to do other things -- so, basically, a small patient mall.

Slide. The other thing that we were
charged with is putting together an integrated
delivery system, anchored by these hospitals -- a
community hospital in the south, and a medical
center in the north. I will not say this is
without debate in the Department. I will say that
competing medical centers, dueling medical
centers, is not an efficient answer -- from the
perspective of an integrated delivery system. So
the exact reason that we underwent the BRAC was to
move away from dueling medical centers, and
recreating them is probably not optimal.

Nevertheless, Fort Belvoir -- as you see
on the right -- has an extraordinary amount of new
capabilities. It's at three times the size of the
staff that it used to have. It now has a lot of
ICU. And so we moved in a lot of secondary
specialty services.

As part of the BRAC law, we had to go
through and make sure that community hospitals
across America delivered this kind of service.
And so we generally stopped at interventional
stuff -- interventional radiology, interventional
cardiology. But cardiac caths are well established in community hospitals across America -- as is nuclear medicine, we found out.

So this provides a site for delivery of services to our patient population, which is drifting south to some degree. Actually, it's kind of always been south, it's drifting there a little bit more.

Bethesda, staff is about 6,000 there. And it has new capabilities, in addition to what we had that was world class at both Walter Reed and Bethesda before.

So you see Vision Centers of Excellence, which is just getting ready to open up, the NICO, which is open, 2-B Nursery, level-one trauma care capability. Consolidated Cancer Center is probably one of the most forward-looking initiatives. We're trying to put together all of the Centers of Excellence that existed, mostly because they're Congressional mandates, into a comprehensive cancer center for patients, so that they will be able to come in and have one-stop
shopping. But we'll be able to consolidate cosmetic services, for example, counseling services, and provide a comprehensive cancer center that's NCI-designated, as many are across the country. And we will -- it's our intent to meet those standards.

Slide. So, what does an integrated delivery system do? We had to struggle with this in a report back to Congress. And so you'll see the objectives there. We certainly have to think about quality and cost. We also have to think about patient responsiveness and community benefit, so I don't think this will be any surprise to most of you that are sitting out there.

It is hard to do, in our system, for two reasons. One is that we don't have a single system in the military health system. And the other is that I've found over the last four years that we are extraordinarily facility-centric. We can talk regions, and we can talk everything else, but everything that we do is focused on a
hospital or a clinic.

So each of those commanders or COs tries to optimize what they do, and ends up sub-optimizing the overall regional system to some degree, no matter how good their intent.

Slide. So, the Defense Health Board panel that took a look at world-class says, you know, you've got to have a singular organizational budgetary authority to get to world-class. And so, over the last two years we've consolidated those authorities so that right now these hospitals are under the authority of the JTF CAPMED.

You can see the staff and the workload that's there. This is not a trivial budget or workload. Our operations and maintenance budget is $1.3 billion for next year. That's 40 percent of the size of the entire Air Force medical system, just as an example.

And so people often draw comparisons. We've got to make the right comparisons, I think, in order to figure out what the (inaudible) needs
to be. We have 63 GME programs, and that's about half of all of the Army's programs. And a third of the Navy programs are based here in the National Capital Region.

And so we have to make sure, as we take a look at the beneficiaries, that we're also able to keep those GME programs operational. And Dr. Woodson has convened a group to look specially at this.

You know, here, I think, in the NCR, we have -- if we can't do anything here in the NCR with the patients that we have, then we're going to have difficulty anywhere else in the military health system.

Slide. So this is what the IRMAC is doing. And you'll see that we're getting up our call volumes. This was an interesting problem in execution, because everything was local before -- Bethesda, Fort Belvoir, Walter Reed, DeWitt all had their own independent appointing centers. And so a lot of the people didn't want to move into the new call center. So we've been hiring 15 call
appointing clerks. And so by the end of this month we'll be certainly well within the range that is our target. But it has taken us a little while to get there.

But here, this is the solution we believe -- to leakage -- to private sector care.

Slide. So, what's it look like? You know, how should these beds be distributed? Are they in the right place? And, you know, where are we going to be?

We've invested heavily in modeling capabilities, to look ahead, particularly partnered with the people who did a lot of modeling out at UCLA Medical Center. They had a background.

And so you can see, in terms of tertiary care -- and this is about Bethesda, and what's the occupancy rate going to be out there -- we have this 350, 360-bed occupancy. And right now we're running 65 percent. And what we're modeling is that we're going to get to 84 percent, probably within the next 18 months. And so the beds that
we think that are distributed there for tertiary
care are appropriately placed.

Slide. This is the same modeling for
the Fort Belvoir Community Hospital. And you can
see we're going to grow to 57 percent, you know,
out there over the next couple of years.

And so we think there's certainly
adequate in-patient capacity in the south part of
the NCR, and that the beds at the new Medical
Center are going to be busy, indeed.

Slide. On the primary care side -- you
know, we occasionally get criticized for not
having integrated primary care into the system.
From our perspective that's not correct. We're
bringing all the patients at our Medical Home
models in -- the Air Force, the Army and the Navy
do have different Patient-Centered Medical Home
models.

And so we're trying to make sure that
we've allowed for that experimentation. But to
make sure that we have metrics that ensure that
they're all working to the same level for our
beneficiaries here in the NCR. And so we've got a
lot of metrics that we've set out, about how we're
going to do that.

Right now, we have about 500,000
beneficiaries in the NCR, and about 300,000 of
them are enrolled to TRICARE Prime.

Slide. Here is the golden road to
efficiencies in the system. You know, when I was
a medical center commander I took a look at our
budget, and we did an analysis. So, you know,
two-thirds of my budget went to people, and
another 17 percent went to pharmacy. And so,
anything else that you're looking, in terms of
efficiencies, unless you can find efficiencies in
people or the pharmacy, you're working on a pretty
small margin, in order to try to find
efficiencies.

This actually works in that area. So
how can we do it? Well, shared services. And so,
do we need to do things with civilian human
resources, IMITs? Supply chain? Kind of planning
for the future?
No, we don't. We don't need to have two systems. In fact, they work against each other -- inevitably. And we've shown it time after time. And so we've moved ahead to the -- we've consolidated the call center. We've consolidated budgeting and execution. We're consolidating -- we've consolidated civilian human resources. We're moving ahead to IMIT. And then we'll start on the supply chain side.

There's a lot of people involved here. And so as we took a look at our rosters, people didn't plan ahead and say, You know what? We're going to be able to find efficiencies as we move to this new system. So everybody kept pretty much what they've got. And now it's all in place at Walter Reed and Fort Belvoir, and we've got to go down and reach in and say, you know, we've got to find efficiencies in here. It's the right thing to do.

Slide. This is kind of the doctrine slide, I learned in the Joint staff, on the Joint staff, and as we've worked things. Unity of
effort means everything. If you can't
achieve unity of effort you will never get to
direct care, private sector care, shared services
or finances. It takes unity of effort. And
doctrinally, in the military, if you wear a
uniform, the road to unity of effort is through
unity of command.

So you'll excuse me if I say, I wear a
uniform. I'm pretty proud of wearing it. I've
been wearing it for a long time. And I am a
believer in unity of command as the road to unity
of effort.

I think it has the kind of --
command-and-control model has inherent advantages.
I'm not alone. Defense Health Board sub-panel
said the same thing, in terms of arriving at an
integrated delivery system.

Slide. So, that completes my -- I told
you what we did, and I told you what I said. And
now I'm open for any questions that you might
have.

DR. DICKEY: Thank you very much for
that excellent update, Dr. Mateczun.

Dr. O'Leary? DR. O'LEARY: Thank you very much, Admiral Mateczun.

That was your usual comprehensive report. And congratulations on a stupendous effort. I listened carefully, and some of the things that you have accomplished were mountains that we thought might be impossible to climb.

And, you know, you got over them.

You still have a few outstanding things to do -- things like, you know, the single-patient rooms, the clinical center, the lodging issue and the operating rooms.

What's the time frame for getting those completed? And the prospects for funding to support that?

VADM MATECZUN: They were both in the President's budget last year. And the plan goes out through Fiscal Year '16.

And there are more than just the clinical building. There are a lot of renovations that have to be done on the compound, as well.
We've got to upgrade the power sources, find new cooling, and make sure everything's up to date. So, it's in the President's budget up through '16.

DR. DICKEY: Doctor?

DR. WOODSON: I just wanted to take a moment to really acknowledge Admiral Mateczun's part in this publically. I had the opportunity to sit in on a number of those meetings and briefings after I took this seat, going up -- marching up to the date. And there were a lot of moving parts, there's no doubt about it.

But I think it was a successful operation, in large measure, to Admiral Mateczun's steady hand.

I agree with him 100 percent on sort of where we need to go in MHS, in terms of unity of effort, to achieve the efficiencies going forward. Even as we try and maintain and nurture the individuality of the Services and what they bring to innovation in national medical defense, as it were.
But I couldn't let this opportunity go without publically thanking Admiral Mateczun on a superb job, and a job well done. And I think he deserves a round of applause. (Applause.)

VADM MATECZUN: Thank you. I would just say that I think the quality of people we have in the Military Health System today is extraordinary -- both on the service and the civilian side. And it's really a testament to them, and their resilience, that we were able to do this. Because time after time there was ample opportunity to fail.

DR. DICKEY: Thank you. Additional comments or questions? Dr. Higginbotham.

DR. HIGGINBOTHAM: Yes. Excellent job. And I certainly hope you actually memorialize this effort in some monograph. Because those of us who are involved in administration of academic medical centers certainly can learn from your efforts.

Just one -- a couple of brief questions. The IT system that you have, is that going to be compatible with the VA, since we do have Wounded
Warriors who may migrate to surrounding VA hospitals?

And the second question is, besides rehab medicine and cancer, what are some other clinical services that have been enhanced by this consolidation?

VADM MATECZUN: Thank you.

Memorialization -- yes, we're working right now. Actually, we're working with the Harvard Kennedy School and Harvard Business School to put together a monograph and case study about it. They're very interested in it, as well.

In terms of the -- sorry, what was your second question? There were three --

DR. HIGGINBOTHAM: Compatibility of the IT system with the VA system.

VADM MATECZUN: Ultimately -- but that it is -- you know, we are part of the Military Health System IT system right now. And so as that grooves into compatibility with the VA, yes. But we're not ahead of that. We're just trying to put together our -- you know, the system under the
current DoD rules right now. Secretary Shinseki
and Secretary Panetta, and Secretary Gates before,
have taken a very active role in making sure that
we achieve that compatibility as soon as we can.

But I think that this is evidence for
the rest of America that if you diverge quickly on
systems, and don't have standards set up between
the two of them, then it's very hard to achieve a
record which can move from spot to spot
efficiently.

DR. DICKEY: I think as Dr. Woodson and
Dr. Green both implied, we may have great use for
you out in the community, where many of us are not
finding it quite so successful to fold systems
together.

VADM MATECZUN: I will say -- and let me
-- there is an interesting thing. I spent two
years, the first two years of this, talking about
culture with people. And the most common reason
for failure in mergers and acquisitions, in
business and in health care, is cited as being
culture.
And so they said, well how are you going to Army people and Navy people, the Air Force people, together? And at the end of the day, it has been much more about business rules than it has been about any unique aspect of service culture. What's really hard is telling people, You can't have your own IM IT people anymore -- whether they be Army or Navy.

So that's the secret to kind of bringing things together, finding a way to find an umbrella for putting together the institutions that you're trying to bring together.

DR. DICKEY: Other comments or questions? (No response.) Thank you so much for your leadership and your presentation, sir.

VADM MATECZUN: Thank you.

DR. DICKEY: We are moving into our last briefing prior to the Administrative Remarks.

Dr. Rotondo serves as Professor and Chair of the Department of Surgery at the Brody School of Medicine and East Carolina University. He distinguished himself early in his career
through his energy, enthusiasm, and proclivity for
the management of complex injury -- helping
produce the seminal work on damage-control
surgery.

Dr. Rotondo's skills in clinical surgery
and administration led to important contributions
in the development of the Trauma Center at the
University of Pennsylvania, an internationally
renowned academic level-one trauma center.
Additionally, he established the Center of
Excellence for Trauma and Surgical Critical Care,
where he has brought world-class trauma and
critical care to the vastly underserved region of
eastern North Carolina, drawing attention
nationally and dramatically by improving clinical
outcomes for the citizens.

He serves as Chair of the American
College of Surgeons' Committee on Trauma. And in
this capacity he recently deemed Landstuhl
Regional Medical Center as a level-one trauma
center, and has just returned from a two-week tour
of Role 3 surgical hospitals in Afghanistan.
He's going to present us an informational brief detailing the findings from this tour. And his slides for the board are under Tab 11.

Dr. Rotondo, welcome. We're delighted to have you.

DR. ROTONDO: Thank you, Dr. Dickey. I appreciate that introduction, and I certainly appreciate being here with all of you, Dr. Woodson and members of the Defense Health Board.

I must say, this is a very humbling moment, and somewhat intimidating, to stand before you as a civilian to share our observations as a team, after having been asked to take a look at the system of care that's in place in theater right now in Afghanistan, and look at the Joint Trauma System overall.

You heard briefly in that introduction a couple of threads there: 10 years of work that I did in an urban environment at the University of Pennsylvania, now 13 years -- almost 13 years in a rural environment. And certainly, seeing the
system of care that's in place right now at the
time of war, that third strain -- it's at the
intersection of all three of those things, I
think, that we have the most to learn.

What can we learn out of urban systems?
What can we learn out of rural systems? And what
can we learn when we study what's happening in
theater of war right now?

I'm going to start out by just telling
you a little about the American College of
Surgeons, since this is a total non sequitur, so
you can sort of see where, from whence really, I
have come.

The College of Surgeons was founded by
Franklin Mertin, who you can see here, around the
turn of the last century. And the College itself
has been rooted in quality from its very first
days. The first Chairman of the Committee on
Trauma, the post that I currently hold right now,
was Charles Scudder who, in 1922, after noting the
horrible outcomes with fractures, decided to study
fractures and tried to establish standards of care
for fracture management.

He was asked -- he went to the Board of Regents of the College which had been in existence for a couple of decades by about that time -- asked for this to be studied in a course. Because of his great suggestion, he was put in charge of the Committee. That Committee was called the Committee on Fractures. That Committee on Fractures evolved to the Committee on Trauma.

By 1923 they had published several seminal works on fractures. They had established standards of care for those fractures. And that's the beginning of our history, which goes right to this day, where even as a committee we continue to do the things that we know how to do to engage our profession and other entities -- both professional, public, and governmental -- really on behalf of trauma prevention and trauma care.

That vision has been carried on now -- I guess I am now the 18th chair, and our mission here is to develop meaningful programs in local, regional, national, and international arenas on
behalf of injury care. So we do a lot of things
related to those things, to achieve these
objectives -- to demonstrate leadership of
development of standards of trauma care.

We're obviously very focused on trauma
education, developing and benchmarking and
measurement tools for trauma for hospital and
inter-hospital comparisons, and in-depth study of
trauma systems -- which is particularly germane to
this engagement. And foster and develop trauma
prevention programs, and develop trauma group
relations -- another important piece here.

Because our relationship to the Committee on
Trauma in the United States Military is
extraordinarily strong, and has been for decades
now.

We exist with a leadership component and
an infrastructure -- I mean, information
technology. And we focus on three main areas: on
education, quality, and advocacy. And out of
those three main areas, all of our work now is
done. That's a recent reorganization that has
occurred since the time that I have been Chair, based on a strategic planning effort that went on in 2009, where we pulled all of our educational efforts into one educational pillar -- you could say ATLS. Norm McSwain is here for PHTLS, his relationship with the TCCC.

You can see our rural trauma team
development core, disaster management, and so on down the line.

In quality, we took six committees and we put them together into one pillar -- very, very important, because you can see pretty quickly that the Systems Committee, the Verification and Review Committee, which verifies trauma centers or medical treatment facilities in this particular instance. EMS, Rural Disaster Prevention -- those are all elements of a system. It made sense for us to integrate them into at least one committee structure focused on quality -- the quality and the patient, the patient being at the center of the work that they do.

And a new advocacy arm. We have a
building here on F Street in Washington, D.C. The College has become very interested in appropriation of funds, of course. So, for a whole variety of reasons, the legislation and health care policy all together.

You can see that this information engine that drives this piece, we've just changed the name of that committee to the Quality and Data Resources Committee, that information management drives each of them. We're trying to determine what best practice is so we can teach it. Trying to develop benchmarks, so we understand what quality is all about. And trying to produce useable sound-bites, based on data, so we can advocate for our positions.

So information management is the center of what we do. And that's very, very important. And this is an important set-up, so you can at least see the direction from which we've approached the task at hand, in evaluating the system, the JTTS and the JTS.

Here's just a few examples of our
tangible work products. These are just the covers
of ATLS of the Advanced Trauma Operative
Management course, the Surgical Skills course. We
actually produce things. The Committee on Trauma
doesn't just talk about it, we try to get it done.
And that's a really important piece. We are
action oriented.

And I'm hoping that today's presentation
will evoke action -- if not tangible action, then
real debate on the topic that's at hand.

And this book, probably one of the most
important contributions to surgical care, about
the history of surgery, really a standards
document that talks about structure and process of
care. And we are steadily marching towards a way
that we can, in an objective way, evaluate the
outcomes of care. So, structure, process, and
outcome.

I spent three years as chair of the
Trauma Systems Planning and Evaluation Committee.
Over that three-year period, visited either 20
states or regions of the country, evaluating their
system of care. The first thing we had to do, of course, is to go to school to understand how systems work, what really makes sense in a functional system. What should a system really try to achieve. And it's interesting that we just heard from Admiral Mateczun that so much of it has to do with integration of that system, and how those pieces work together. And if you just keep in mind some of the final messages that he gave to us in that previous presentation, you're going to see some of those themes echo again when we talk about the integration of the system of care that exists in Afghanistan today.

What should a system do? Well, in 2007 we re-wrote, for the College of Surgeons, our Systems Planning Guide, talking about what the optimal elements are. What I'd like you to try to keep in mind, that there are three main things that a system really should accomplish if it's going to be an effective, well integrated system.

It has to be able to assess its activity with regular and systematic data collection, and
analyze that data, and determine the status and need for intervention.

From there, it should be able to develop policy or guidelines, so that that policy can be put in place across the system, and there can be a uniformity of approach where appropriate.

And the last is to assure that those goals are being achieved, by measuring performance against agreed-upon benchmarks for that performance.

So, three things have to happen.

Assessment, policy development, and assurance.

And as you can imagine, in order for there to be unity of effort, there has to be unity of command -- a lead agency in some way ought to direct that effort. This is just straight out of sort of a classic public health approach to injury care. It takes leadership, and leadership is very, very important.

And when we go to states and visit states, we're spending time with the lead agency in the office of EMS, or visiting Department of
Health, depending on where it's situated in that particular state government -- working with their leaders on those three principles. And looking at the infrastructure support to see if they have what they need to accomplish those three things on behalf of the citizens that they serve.

So the Committee on Trauma has been doing that work for a good long time. And I am pleased to be a part of it. And you can already begin to see at least some of my own individual biases. And I think you'll see how that really flavors what the team has come up with here, in terms of our impressions as to what's happening, and maybe what should happen in the future.

It was mentioned in the introduction that I had the opportunity to present the level-one verification certificate at Landstuhl. I had been at Landstuhl in 2008 as a senior visiting surgeon, was back, sort of on the way through to down-range, and had an opportunity to address their staff. There probably were 200 or so, 250 people in the room. I met Jeff Clark, and
it was really a very, very meaningful moment for me.

At the time, Kathy Martin, who was one of the members of the team, the trauma manager at Landstuhl was there. Kathy and I first met in 1989. It was her first job as a trauma coordinator, and my first job as a trauma fellow. And at the same time the current trauma chief at Landstuhl is an Air Force major named Dave Zonies. Dave Zonies was an undergraduate student at the University of Pennsylvania who wandered into my office in '92 or '93, asking to do research. He then went on to medical school at Jefferson, did his surgical training at Wilford Hall, did his fellowship at Harvard U, and was there that day, as well. So two people who I've been involved with for over 20 years.

And I met Jeff Clark, who is a family medicine physician, who is the commander at Landstuhl, who happened to be an ECU graduate, from so many years ago. Jeff asked me if I would accompany him at a Purple Heart ceremony, and go
with him to the intensive care unit shortly
following our little soiree, and watch the
proceedings and be with him.

And I can tell you that it's an
experience that I won't soon forget. This young
Marine who was soon to be declared brain dead, the
family had arrived, the fiancee had arrived,
members of his unit were there. And you can
imagine, as I listened to Jeff Clark's hushed
tones, explaining the importance of this
particular military honor, and thank that family
for their sacrifice, how it became very clear to
me how important this engagement really was.

And though I've given many addresses now
over 20-some years, now I know that today is
extraordinarily important. Because it's the
difference between pinning a Purple Heart on a
brain-dead warrior, or pinning a Purple Heart on a
warrior that's going to return to duty, or even
return -- and return functionally back to society.
A really important moment. And I hope you don't
mind me sharing that with you.
So what was our job? This presentation today is about an engagement to assess the Military Joint Trauma System that we were invited -- commissioned, if you will -- by the U.S. Central Command Surgeon. It was also sponsored by the Air Force Central Command. It was conspired, in a way, by Warren Dorlac, coordinated by Jeff Bailey, who's the JTS Director incumbent, and coordinated, as well, by Eric Kuncir, who is the JTTS Theater Director.

And we had to develop the sense of really what we were dealing with. All of us on the team -- and I'll introduce them to you shortly -- because of our now going on longstanding relationship with the United States Military, our active engagement, has a good sense of what the Joint Trauma System was.

This came right off a document, one of our briefing documents, that the vision of the Joint Trauma System is that every soldier, marine, sailor or airman injured on any battlefield, or in any theater of operations, has the optimal chance
for survival, and maximal potential for functional recovery -- a pretty tall order, given the complexity of the battle space.

What does it look like? Well it sort of looks like this. This has good to be an image that is familiar to all of you, I would think, by now. Many of you created this system that stands before you -- had a hand in either drawing it on the paper, putting it in place, a vision of adapting a civilian system to the battlefield.

And I like this in particular, this -- again, I'll give Jeff Bailey credit for this -- this chain of survival and recovery. But I really want you to take a look at that, the "continuum of care."

Look at all the interfaces that are there. Look at how complex a system that really is. It's about definitive care facilities, or medical treatment facilities. It's about a variety of ways of moving patients from point A to point B. These patients are the ones, certainly, that the Admiral was talking about, the very same
patients -- the sickest, the most complex
management problems that there are.

It's about delivering care on the move
that most of us can't even deliver when we're
standing still -- across these echelons of care.

Think about the challenges that exist there in
getting that to actually work. And I can tell you
with firm conviction that all of us know that the
people who are working in each of those elements
are doing everything they can to make sure that
their element works correctly. Just hold that
thought for a minute.

So our job was to try to take a look at
this, and understand how well it was functioning
on the basis of what we understand, and what we
know about high-functioning trauma systems. They
have to assess. They have to develop policy.

They have to assure that those policies are being
carried out. And, of course, all on behalf of the
patient -- in this case, our wounded warriors.

So a team of “trauma system experts”, if
you can call us that -- visited theater to conduct
a trauma system review and participate in an
in-theater trauma conference which was in
Kandahar. That just happened to work out. We
could be there for a couple of days, listen to
presentations, participate, teach as well. That
happened right in the middle of our excursion. It
was at the invitation of U.S. CENTCOM Surgeon
General. And you can see the other important
facets that were involved.

We visited Role 2, Role 3 medical
treatment facilities and evacuation units through
about 2 through 12 October 2011. And our job was
to provide a report of those findings and
recommendations to the US CENTCOM Surgeon General.

Busy slide -- this was the team. I was
on that team. A good friend and colleague named
Tom Scalea, who is the Francis X Kelly Professor
of Trauma, University of Maryland School of
Medicine, and Physician in Chief at the R Adams
Cowley Shock Trauma Center. Tom, for years now,
has been training military personnel through the
CCCAT program. Everywhere you went in theater
with Tom Scalea, it was like traveling with the Pope, you know. Everybody knew Tom, Tom knew everybody. He's really been very, very committed and involved. He's also been a senior visiting surgeon in Landstuhl, as well.

Lieutenant Colonel Anne Rizzo, who is a reservist who, as you can see, is Associate Professor of Surgery at VCU, and also Vice Chair of the Department of Surgery and Associate Surgical Residency Program Director at Fairfax Hospital, and also does training at Uniformed Services. Anne was a great asset to have on this trip, with her understanding of pre-deployment training, and as someone who is part of this system.

Kathy Martin -- I mentioned her earlier -- who is the trauma nurse director at Landstuhl Regional Medical Center in Germany, and has been responsible for so much of the development that went on in Landstuhl, and in communication down-range as well as up-range to the VTC, and is an expert in performance improvement.
And Jeff Bailey was along to try to keep us out of trouble, and he did a reasonably good job at that, I would say.

This is the team. This is up -- it happened to be on the day that we presented the verification review certificate. And our plan was to create a strategic report -- a strategic report -- that would provide a tactical platform for future development. It became immediately clear in our briefings beforehand, and my own thought was that it certainly would make no sense if we would be proscriptive [sic] in the process, to try to tell this complex system exactly what they should do, and when they should do it, but rather try to establish beyond a shadow of a doubt what the overarching direction should be for future development and then take it from there.

We wanted to take a look at optimal elements -- what were the -- are the elements there that need to be there? Are those elements appropriately integrated? And how could this system be sustained moving forward -- particularly
if we are looking at, at least, the front side of
the end of the war?

Okay. So, by way of background, all of
you know, of course -- I can tell the context of
the day, and it's hard to know in prospect,
really, where to go with this presentation. But
the JTTS was implemented to structure the trauma
care that is in theater.

And the initial efforts were focused,
really, on in-theater operations, and then it was
expanded out to the continental United States, and
to look at that as part of it, as well. And that
the continuity and guidance for the JTTS would
take place out of the Institute for Surgical
Research in San Antonio, and that that
organization would be designated as the JTS --
very much a research and infrastructure data
management bent to the Joint Trauma System -- with
the JTTS being the deployable element that would
go out first to Operation Iraqi Freedom, then
Operation Enduring Freedom -- and who knows where
it would go next, if it needed to go next.
For all we know, it could go to Louisiana after Katrina, if we were in time of peace. Who knows where it could go next. But it would be a deployable force. Really an interesting and really groundbreaking concept.

Here is what the current structure looks like. I won't take a lot of time to go through this. This is what the Joint Trauma System Directorate in 2011 looks like. It has the Office of the Director and three main divisions: Operations Division, the Support Division, and the Performance Improvement Division. It is very much an infrastructure element, as I read it -- not necessarily a leadership element, as I read it -- by the way it's empowered, or by the way, maybe, that it's not empowered. It sits out there as this entity. Good to know that there's POM, there's funding for it moving forward.

But still, by virtue of how it has evolved to this point, there are clearly some limitations. And let's see if we can bring those into greater focus.
If we take a look at this -- and this was borrowed, again, from the briefing documents, what the JTS and JTTS is all about. Through the data management, the JTS and JTTS, to sense what is going on -- right? It should also then analyze that data. It's doing that. It should evaluate what should happen next. And then disseminate information on the basis of the aggregation and evaluation into special reports, current practice guidelines, and a director's report. That's currently how it's structured.

Well, let's take a look at some of the overarching principles of systems theory. Let's go back out to the theoretical world for just a minute, and think about what this should do.

Well, we know that the elemental components are important, that they have to work well. But it's also the interaction of those components in a system that will determine how well that system is functioning. I think we heard the Admiral say quite effectively -- he said that, you know, the individual people are looking at
their functionality, what it is that they have to do. And they're getting their element to function optimally. But oftentimes, without realizing it, it's at the expense of the entire system, by virtue of the fact that they are functioning in an area that has very tight boundaries. And they may or may not have the awareness to know that for the system to function effectively they have to have knowledge of how the whole system works to get it to work. And that's very basic to system theory.

So you could have wonderful elemental function, but a system that just grinds. And it grinds at the interfaces. That's where it usually grinds. It's at the transitions.

And you saw on that flow that there are lots and lots of transitions.

Well, okay, great. What else about fundamental system policy? Well, this is from the Model Trauma Systems Planning and Evaluation document from HRSA, 2006. The College of Surgeons used this document to create its 2007 document -- and it's going to be difficult to see -- this
wheel that talks about assessment, policy
development, and assurance. Those are the things
that should happen for a system to work
correctly. So that not only the elements function
well, but it functions at a highly integrated
relational system that really optimizes care, with
the patient right at the center of it.

Okay, let's go back to this wheel. We
just showed this a second ago. And now let's
change the words a little bit, so that it seems to
fit with civilian systems. Because I think it
helps bring the functionality into clear view, as
to what is happening, and maybe what isn't
happening.

Okay, here's the first -- well, that's
assessment. Analyze and aggregate, that's a form
of analysis. Evaluate, that's a form of
assurance. And then disseminate is policy
development. Those three functions have to be
right up on the surface, so that everyone knows
exactly what's happening, how it should be happening,
and why it's happening.
So with just slight modification, and clarity, really, of purpose, and clarity of concepts, you could see how the Joint Theater System, the Joint Trauma Theater System, and the Joint Trauma System superimpose quite nicely with the fundamental principles of a public health approach to a trauma system or regional integrated system.

Okay. Well, this is not supposed to sound like what we did on our summer vacation. It's not. But this was the flow of care.

And we started out here -- so we went from Ramstein over to Bagram as our first leg of the journey, and visited some of the facilities there. I'll show you that in a second. Then we went from Bagram to Bastion, and then traveled, sort of at break-neck pace, Bastion to Tarin Kowt. Then from Tarin Kowt over to Kandahar, and spent time in Kandahar, both at the MTF there, as well as in conference for a couple of days, which was very valuable because we heard lots of different individuals of the system presented. And then from
there, headed back to Bagram, and then from there back to Ramstein.

We -- the flow of things, when we had "down time" -- and there wasn't much -- we were either operating, rounding, meeting with care providers, meeting with leaders. When we weren't doing those things, we were preparing this brief. We were discussing what it is that we saw, what are the things that we -- which were transferable from our own experience and knowledge base. What was working well, and what wasn't working well. And we began to try to frame out this report, and decide how we were going to put our recommendations together.

You could see we, while we were at the individual locations, we did max out our experience. So, seeing not just the medical treatment facilities, but also the sort of in-transit units, the MERT units. We saw PEDRO, the Fever-Ops, Weasel-Ops. We really met with a whole host of providers across the system. And short of seeing, really, Role 1 facilities and
being at point-of-injury, which wouldn't have been a good place for us to be, we feel like we got a really good experience in understanding how this system worked.

Nothing is more telling than when you can sit at a picnic table with six or eight care providers and let them just tell you what they think. And it really helps explain, it really helps crystalize what the fundamental issues are.

And I can tell you that if you look down this cascade, it was very hard for us to find much that really truly unified each of these elements -- except for one thing: the patient.

When we talked with people about what they thought was happening down-range, or what they thought was happening up-range, believe it or not, there was a paucity of true knowledge as to what was really going on in these other areas. What they weren't short on was their feeling about what was happening. And it wasn’t always positive. There was, I think a good measure, from point, some acrimony that existed between what,
maybe, was happening at a Role 3 facility and what
happened at the Role 2, and what was going on down
in Landstuhl.

Again, the cohesion and communication
really wasn't what we would have hoped it would
have been -- despite the fact that the people who
were doing this were -- are doing a phenomenal job
at what they do, at every point along the way.
Whereas there maybe was great cause for
celebration at the successes, a lot of the
providers lived in that 10 percent of life that
needs to be improved, as opposed to the 90 percent
which we saw, as outside observers, was phenomenal
as to what they were doing.

And I'll give you some examples of that.
And here it is. I mean, it was obvious that at
the elemental component level, there was committed
leadership -- very committed. Leadership wasn't
always completely informed as to how the whole
system worked, but they were totally committed to
making sure what happened in their zone was
happening exactly as it should happen to optimize
the care.

The clinicians are committed. Totally. Even to the point of sacrificing their own health by virtue of how hard they work on behalf of those patients. We saw a trauma chief, trauma czar at Bagram, who essentially had moved into the hospital. You know, he just decided to billet in the ICU. That's where he was. He responded to every single trauma alert, and his commitment was six months. Every single admission. Am I overstating that? Six months -- right? Every one.

We saw it time and time again. The Role 2 facilities. It doesn't matter, day and night, it might be two surgeons, somebody comes in, they're both going to go to work. Because they care as much about that patient, and more about each other, than they do about themselves. It was phenomenal to see it. The teamwork was incredible.

And you could see, with some of the things -- I need not tell this group some of the
developments that have come out of this. You know, I did my early work in damage control. They've taken the damage control surgery and damage control resuscitation to a whole other level that we're now all emulating in civilian life and civilian care.

Reorganizing the ABCs, to start with catastrophic hemorrhage, the use of tourniquets. I think Jay Johannigman was probably the first one to get tourniquets for his EMS squads in Pennsylvania -- excuse me, in Cincinnati. Probably the first one in the United States.

And, of course, we sat and learned, in awe, this thing about multi-drug resistant microbes, and what's happening with infection control and infection management. It's superb work.

And those are just a few examples. What wasn't obvious to us was that there was a fully integrated infrastructure for the system to support all that work. And we did not see, really, a true lead agency, if you use a public
health approach, that would knit this all
together. That's what clearly isn't -- is there
great leadership at the JTTS level in theater?
Yes. Excellent leadership. Is there the
authority to really implement policy, measure
outcomes, across the system? Not really.

Is the infrastructure for informatics
and data management what it needs to be for every

I'm sure you can think about
conversations that you've had in this room or
rooms like this, where you'd say, Gee, I wish we
had more data on that. How much data do we really
get out of the pre-hospital, the en-route care
people? It's not there. It's not there because
the infrastructure isn't there. The people who
are doing the care have to enter the data. And
they do what's most important. They take care of
the patient.

So, the infrastructure, is it really
what it needs to be? Is there a lead agency that
is really squiring this appropriately? Well,
there's a lead agency probably willing but, again, the structure isn't there to do it.

So, look -- you know, when I created this image, the first thing I put up there -- and it just looked so silly up there I took it down, but I'm going to. The tail will not wag the dog. There are priorities here. We get it. You know, even as a group of civilians, we're smart enough to know that the war fighters really are in control of the battle space, that they really require ultimate flexibility to do what they need to do to win the war. Got it. Understood. Top priority.

But I have to believe that everybody in this room also believes, similarly, that our war fighters deserve absolutely the best that we can give them in terms of a systemized approach to the care.

That means that that approach to care has got to be responsive, it's got to be nimble, it's got to be able to adjust to the tactical situation. It has to overcome distance, time,
geography -- whatever is in its place. Which means it's going to be a complex system that will require resources. Both of those are not mutually exclusive. What they have in common is they both require resources to achieve both of those.

So if we think they're important, and they're both equally important -- or near equal importance, because I know fighting the war is the most important thing -- it's going to require resources to take this system to the next level.

All right. So, out of all that preamble, now we get a little bit to the laundry-list piece. And I'll try to not read these slides but, rather, give you examples as we go through.

We decided to comment on other six areas, not to give this Board, or the Surgeon General a list of 500 recommendations, but rather six areas of focus.

The first is in authority. And you've heard me talk about this. You know, we really realized that the JTS really had no authority to
develop or set policy or standards for trauma
care. They can develop them, they just can't
implement them uniformly across the system,
without a lot of cajoling that goes on. It's a
multinational, multi-service force. Unity of
effort requires unity of command. I don't think
it could have been said better, and I'm glad that
it was said just before I got up here.

There's really no authority to implement
a verification process for the facilities or for
the system itself. Each of the medical treatment
facilities ought to exist on a set of standards.
There's no way to verify that they do or do not.
The American College of Surgeons does that for
civilian centers. We did it at Landstuhl. That's
not to say we're going to do it in theater, but
the United States Military has to think about that
-- what standards should be in place for the Role
facilities, and how can they be verified?

And it's obvious the JTS does not really
function as a DoD asset. It doesn't function up
at that level. And its scope of responsibility,
it would seem, should mandate, in some way or another, or be aligned more appropriately within the DoD, so that it can function more effectively as what I would call a lead agency. And if the JTS was established as a statutory lead agency at the DoD, and it had authority to set policy and enforce standards, conventional wisdom in and around system theory, you would say that the care would even improve further from where we are now. So there should be also DoD-delegated authority to recommend external system review so not only the medical treatment facilities can be reviewed, but the system can be reviewed, as well. And it becomes part of somebody's responsibility to be certain that both the system and the centers, both the medical treatment facilities and the JTTS are functioning along -- at a certain level. So -- recommendation: the JTS should be elevated within the DoD in order to align its position with its joint and global responsibilities.
Now, there may be -- there are probably tons of ways to do that, but I'm not going to begin to understand. But I hope it at least really stimulates a discussion as to what really should be done to unify command and to unify the effort.

All right, what about communication and cohesion? Well, you know, it's interesting -- you know, it's funny -- these military providers, they're actually human beings. They actually want to know what's happened to their patient after they've taken care of them. They want to know what happened when they got back to Landstuhl, what happened when they went to CONUS, what happened when they went to the Role 3 -- they want to know.

It's the same thing for pre-hospital providers -- right? We have pre-hospital providers who bring us patients. They just want to know how the patient did. Communication around the patients and outcomes to providers across the system is critical, and it's not happening. It's
not happening primarily because, you know, there
isn't a good way to do it.

Certainly the medical record doesn't do
it. That's the next bit of the story. I'll get
to that in a minute. The medical record really
doesn't do it. They've resorted to work-arounds,
frequent work-arounds, where they'll use texting,
they'll use e-mail. They'll try to ring somebody
up on a cell phone or a DSN line to find out
what's happening.

And, you know, no news is generally bad
news. No news either means, well, maybe I didn't
do what I needed to do and things didn't go well.
Or no news means that maybe there's something,
some other -- there's got to be communication.
And that should try to lead to cohesion in some
way or another.

And it's interesting, you know, even to
the point where because of a lack of clear
understanding -- let me give you an example. This
is bullet-point number three. Clinicians
encounter resistance when attempting to transfer
patients.

So, in Kandahar at the moment, it's my understanding that there are efforts that are being made to push the civilian health care back to the population -- okay? Back to the civilian population. So that's resorted [sic] in, you know, a shift in the style of care now at Kandahar. So if you have somebody who has a Glasgow coma score less than 8, as opposed to a full-court press -- this is an Afghani national -- as opposed to a full-court press, putting an endotracheal tube, basically those patents are being sent to a civilian hospital.

Well, what happens in Tarin Kowt if, in Tarin Kowt the surgeons there encounter a patient who has a GCS of less than 8? And they're just not quite up to speed that things are shifting. They're going to intubate that patient and call for transfer. And that happens. We saw -- we heard of an example of that -- on both sides, because we got to talk to both parties around it.

Well, actually, you know, both
individuals were doing their job. Totally doing their job. But can you imagine the conflict at the interface? Well, what did you do that for? Why did you intubate? You want to do what? Well, we're not doing that right now. Nope, you're going -- and they're left, at the Role 2, holding the bag. And you can see example after example.

There has to be some unifying thread that comes from somewhere to make sure that everybody is on the same page -- right?

Now, there may be things going on in Tarin Kowt that -- you know, in terms of negotiating with the locals, a little different than it happened at Kandahar. That's the case, as well. So some of the, as you would expect, the unevenness, which is fully justifiable, and sort of in the war effort, balancing, in essence, the politics, the humanitarian mission, the combat mission -- that's going to lead to some of those imbalances.

But you can see how, with better
communication, with clear visibility on where the
different elements are in the system, that a lot
of the issues around communication and cohesion
could be smoothed out.

So we have a couple of recommendations. I mean, clearly, the current in-theater director, Eric Kuncir, has taken efforts to try to work through this by communicating with the trauma chiefs at the various facilities, via e-mail and via conference call. The video teleconferencing and the video trauma conference of ETC has morphed. It's no longer as much of a performance improvement forum as it was when it started -- as to really, now, a communication forum.

And it would be very helpful if there was more healthy exchange of intellectual content across the system. And, again, it's well understood that the mission there is to fight the war and care for the wounded, not to sit around and conference all day. But something has to be done to continue to address the second issue, to improve communication and cohesion.
All right -- informatics. There's no unified, contiguous electronic health record across the military continuum of care. That can't be news to anybody in this room. Can't be.

When I was there in 2008, when I was in Landstuhl in 2008, the old GIPTA, quite frankly, was more functional than what's in theater right now. It's a source of tremendous frustration. So you could be a Role 2 facility, have three patients come in. You could be operating for six to eight hours. Each one of those patients, to get them out of your facility, it's going to be 45 minutes of computer work to get -- that's 45 times three -- to get them out of that facility. And the medical record -- and I saw it -- it's like one big Word document. It is not usable.

So what do they do? Work-arounds. Again. Try to find a way to transmit the information when they can. And the sad part about it is that from time to time people get used to just not having it. Say, I just received the patient at Landstuhl. What happened? Well, we're
not really sure. Well, why not? 'Cause you can't really find out. Tried to call. Didn't get the e-mail. It's gone backwards, not forwards, from where I saw it in 2008. Something should be done to address it.

In addition, if we shifted the medical record to aggregation of data -- I alluded to this earlier -- there's a limited capability for consistent collection of data across the system. There's a lot of sampling that's going on, but there isn't really consistent collection at every step of the way. And that really limits performance improvement. Whereas the performance improvement efforts -- they do exist within the different elements. They're pretty spotty. They're highly variable. And part of the problem is that the information just isn't there.

So this recommendation about developing an EMR, that's obvious. There ought to be additional resources to allow concurrent data collection across the continuum, and that needs to be really brought again as a consistent stream.
through each of the elements. And then the JTTR itself should be enhanced for -- to be capable of real-time performance improvement -- in an ideal setting. And this will require a lot of effort.

The providers on the ground ought to be able to have access to their data so they can see what's happening. At the moment, that capability doesn't exist.

That's a logical transition to performance improvement. As I've mentioned, the performance improvement efforts are there element by element, but pretty spotty. And sometimes pretty rudimentary, as well. Pretty simplistic. Not really as sophisticated as they really could be if these units were resourced up and had the information that they needed to intervene as they needed to intervene, either on a CPG -- which maybe you could consider a (inaudible) management guideline that is JTS- implemented as a non-discretionary guideline because it's implemented by the system. But then each individual element ought to have discretion, too,
to look at the issues that are important to them, or discretionary CPGs that they could develop. So, performance improvement is key.

We've already talked a little bit about the communication piece.

And the last bullet that's up here is incredibly important. At the end of the day, successful performance improvement, in large part, is built on trust. It's also built upon agreed-upon benchmarks. People have to know what the target is so they can hit it. And the targets should be developed in consensus across the system, so it doesn't just come down from on high, but the providers that are involved are helping determine what those benchmarks are.

And we've been at war long enough now that, based on your historical data you could easily determine what appropriate benchmarks should be for whatever it happens to be, whatever the particular element audit-filter is in a performance improvement process.

So what do we do? Well, we would
recommend an overarching PI plan and patient
safety program. Somebody should sit down and
write one. This is what it's going to look like
for the system. Somebody should sit down and say
what they should like for the Role 3 facilities,
for the role 2 facilities, for the fixed-wing
transports, or for the rotor craft transports, and
pull that together into some plan.

And a clear, clear strategy for
system-wide processes. Event identification, ways
to put corrective action plans, and close all
those loops should be put in place.

A lot of activity is going on right now.
There's no question about it. It just isn't
really well coordinated. And, of course, at some
point somebody has to be held accountable for
achieving those benchmarks. And that's as much a
leadership issue as it is anywhere. And maybe
that leadership starts here. I don't know. You'd
have to tell me.

Okay -- clinical investigation. Well,
the amount of research papers that have come out
of this conflict have been prolific. My count is
somewhere in excess of 500. Does anyone know
those numbers? Dr. Rasmussen? In excess of 500?

When I was in theater -- when I was at
Landstuhl in 2008, there were 280-some papers. In
the last two years, there have been another 200.

And I can tell you that this is
happening primarily by brute force. Because
despite the fact that we have an Institute for
Surgical Research, there are other elements in
theater that, in essence, that modulate, if you
will, the IRB process. There are multiple databases.

And there is a fundamental confusion
around what is performance improvement, and what
constitutes performance improvement, and what
constitutes true research.

So, from the time you decide to put a
proposal in for research for approval to the IRB
could be six months, and you could be already, you
know, out of theater by the time the thing comes
back to you.

So this process really needs to be
streamlined. And with the way the hierarchy is set up, as far I can tell, there's no really clear indication that JTS or JTTS really is, at the highest executive level, determining what should go through, in terms of research, and what shouldn't go through -- at least for Wounded Warriors. And it's understood that the research effort is much larger than that.

And so, really, a couple of recommendations. That the performance improvement and research missions and the proposal process somehow must be reconciled so that it allows for much better, much clearer, unencumbered investigation. The whole IRB process really needs to be streamlined significantly. And those requests for clinically important data relative to Wounded Warriors -- again, if you believe in this lead agency concept -- really ought to be vetted and cleared through the Joint Trauma System as the lead agency. At the moment, that's not really the way it works.

And then the last area -- pre-deployment
training. We know that there is clear variability across the system. And there's no question about that, that the training that is in place pre-deployment is largely focused on combat skills and that in an ideal setting, you'd like to have tactical matching that occurs between the clinical expertise and the deployment assignment. And we know that that's not always happening, as well.

So, again, the JTS doesn't really have a lot of influence over that pre-deployment training at the moment. And it would be ideal if JTS did have some authority, for at least the trauma-specific training that takes place.

So -- recommendations? You know, improve that balance in pre-deployment training between combat skills and trauma training. Try to have better specialty alignment, the skills that are needed. Scale the training to combat casualty care and system experience, knowledge, and skill. That's important, as well.

The trauma directors at every Role 3 facility need specific training, not just about
their facility but also about the system so they understand the system more clearly.

And, again, the JTS should have oversight on standards of that pre-deployment trauma component for the training.

Team transition -- again, (inaudible) is also important to each theater of operation as a unique role. Each facility is in the specific area of training.

If you just look at what the Brits do to prepare their surgeons to go to Camp Bastion, their providers to go to Camp Bastion, it's pretty riveting. Their deployments are short -- about two months. They go to Birmingham for six to eight weeks before. In Birmingham they have a facility that's set up exactly like Camp Bastion. And their personnel hit the ground in Lashkar Gah, they can pretty much walk the halls with blindfolds on. A lot different than what we do to, say, a Navy orthopedic surgeon who's finished his residency training six or eight months before, and the only other scary place he's ever been is
when he went away to college. And now he's in Helmand Province.

So there's opportunity, no question -- opportunity to improve the training. And to develop a better information exchange when these people hit the ground.

This first recommendation is about developing a manual or (inaudible) repository of updated institutional information, and that there's some organized hand-off that occurs. And right now, the hand-offs are pretty variable.

So we've hit six main areas, and that talk about the need for strategic and tactical development moving forward, to improve the care or the system, to have it function as a much more highly integrated and sophisticated system.

That is not to say that the care on the ground isn't what it needs to be. I think it's very hard to make those kinds of outcomes assessment in terms of how that care is developed.

There's great opportunity for ongoing development.

So our conclusion? You know, it's that
really support should be rendered across the Uniformed Services, across civilian leadership in the DoD, for some fundamental change in the structure that exists that enables the JTS to really function as a lead agency using a public health model, so that assessment, policy development, and assurance can take place.

And the way to move this forward could well be -- it's going to be to get commitment, and look to transform this system to the next level, and to transform it in a way that it can be sustained.

So here are where the key commitments would be needed. In leadership and communication, in education and training, and performance improvement and clinical excellence and investigation. And all the potential is there. There's no question about it. It's just a matter of whether there's a cultural shift. There's that word again. It came up in the previous talk -- whether that cultural shift can take place to move this forward so that it can be sustained, moving
A redesign of the system, with oversight by the Defense Health Board, with command-and-control with JTS as the lead agency.

A clear culture -- defining that culture -- both in war as well as in peace. Even if this thing is totally ramped up, it's brought right to where it needs to be, what happens in January of 2015? Does it go sit on the shelf and collect dust? Or have we had enough foresight to think about what would have to happen in times of peace, so that this would become a readily deployable asset that would be functional, really at a moment's notice?

Again, still under culture, focus on the joint interdependence. And in terms of the authority, the jointness is going to be very, very important. It's a very important piece when you're dealing with a multinational and a multi-service force.

We, on behalf of the College of Surgeons, are willing to assist in continuing
with developing the appropriate culture, so that
the civilian -- there's ongoing civilian
commitment to this, as well, in whatever way
civilians are needed.

    We've talked about defining the
authority, the role of the JTS director, what the
reporting structure should be in jointness. We
talked about that as one of the principal issues
in need of resolution.

    And there should be investment for the
future. And you can see what some of the factors
are there. And we need to think about how we can
continue to optimize capabilities for current JTS
systems that are in place, and for current JTS
operations, as well.

    The goal, of course, to make sure that
our Wounded Warriors get absolutely the best, and
they end up at the right -- that we get the right
patient to the right place at the right time, and
they get absolutely great care.

    So why should the JTS lead? Why should
JTS take the lead in this? And this is something
I lifted right out of our report -- is that, you know, it's clear that the military medical commanders at all levels are excellent leaders. And they're focusing on their facilities, and they're facilitating the work of the JTS as they know, as best they know.

But they come from a wide variety of backgrounds, and they have a wide skill set.

It's got to be that the JTS, that excels, really, at the current state of trauma care, that should be one part of this organization that always is expert in managing trauma systems. And they should be an enduring force in managing those systems. They've got the corporate memory of all the health care teams that have been deployed and re-deployed. They have the most current and comparative historical trends. They have all the versions of the clinical practice guidelines.

They're perfectly positioned to function as this lead agency, if given the proper authority to do so.
So what next steps would we recommend?

Well, under the leadership of Brian Eastridge, this Joint Trauma System Development Conceptual Framework and Optimal Elements document is near ready for publication. This is a spinoff of a 2007 Optimal Elements document for civilian systems.

We expect to have this completed by January, February of this coming years, and approved by the Board of Regents of the American College of Surgeons. It would come out as an American College of Surgeons document that was created by members of the United States Military with the imprimatur of the College, to help memorialize this great work that has been done. And it's an important piece of work that will hallmark the events that have occurred over the last 10 years -- much of that work done by many of the people in this room.

We would recommend that a JTTS operations field manual be created. Something has to be created that you could have access to,
hopefully, a living, breathing, document that's on
the internet, secure, that would tell somebody in
10 years how to pick up, if necessary. Better
still, there would have been development over the
next 10 years, even if it's in time of peace, and
there would be training, and there would be
drilling that would go on as to how to deploy
these systems.

But that manual which, in essence, would
bring together all of the current, you know -- the
CCAT protocols, the FST set of protocols, the
Role 3 requirements -- they're brought together
into some virtual shoe box so they're all in one
place, and that the appropriate connectors are set
up, at least they're captured. That would be
important, and that hasn't been done yet.

And then we would recommend that if you
believe in the recommendations, the strategic
recommendations in the other areas, that a
tactical implementation plan be created to try to
achieve each of those recommendations over time.
And we've just said, well, you know, how about
something for immediate six months, intermediate
18 months, and 36 months long term, where you look
at those six areas -- and it would make sense to
me that the current JTS structure could create
that plan. They have to be resourced to do that.
They have to be supported to put those tactical
recommendations into place, those tactical steps
into place. But this is the call for action.

At some point, if none of this is new
information to this Board, at some point somebody
has to decide that they're going to move this
forward. And what better time than now?

So, this last bullet to create some sort
of tactical implementation plan to try to carry
this out.

There were a lot of people that worked
hard to pull this together, and they need to be
recognized. And, honestly, it's those individuals
and those units, and the people who work in them
every day, who are the true heroes. It's
breathtaking what they do. And I can't tell you
how the experience of seeing them at work, and
operating with them, and listening to them, how personally life-changing it has been.

And I hope that this work has impact to honor their efforts by moving this system forward.

So, with that, I'll stop. And, hopefully, we've kept everybody awake at the last session of the day. And hopefully, you're stimulated to have many comments and questions and discussion.

Thank you.

DR. DICKEY: Thank you very much for that very complete presentation.

Dr. Carmona? Question?

DR. CARMONA: Thank you. Just a couple of comments. Mike, I'm proud to say that I knew you back in the old days, when you were just a youngster starting out. You have done us an extraordinary job. I think you've elevated the stature of all of us trauma surgeons. Because before you, I think a double-blinded study was just two surgeons trying to do something.

(Laughter.)
And you've done an extraordinary job here. And what I'm really impressed with is the degree of diligence, due diligence, that you've done. I mean, it's easy to just check the boxes -- yes, we know what the Committee on Trauma, as far as a level-one trauma center. But you went far below that, to most granular surfaces of leadership, of the relationships.

And, as you know, I was down there in August just before you, and every one of your comments was spot on. And I think many of us who follow that, understand, as well.

One issue that I didn't hear from, that I saw come up repeatedly is the relationships we have with our allied forces. And I never thought of this until I actually started witnessing it in the M&M conferences -- and the different way that they do certain types of surgery, their damage-control surgery. And some of the challenges of complications that we saw coming up from down-range that were really based on different best practices from our allied surgeons.
So maybe you could comment on that also. Because it's a unique clinical challenge, as well as a diplomatic challenge, to make the appropriate changes.

DR. ROTONDO: In that regard, one thing I learned when I was there was not to rush to judgment.

So we're in Landstuhl at the VTC, and I'm hearing about a patient who has -- he's a triple amputee, and has a horrible perineal injury. And the Brits at Bastion decided to do an exploratory laparotomy, and do bilateral sort of common and -- common iliac artery control. And they actually looped one of them off, and it was, What the heck are they doing? You know what? It didn't make any sense to me at all -- until I got to Bastion. And then I started listening -- well, they don't have angiogram. What would I do in that situation? I'd run the angio -- right? -- try to do something to distally anembolize. They can't do that. They stop the bleeding. It's pretty proximal, it's pretty scary. It's
non-conventional. It's not what we would do. But
you know what? It made sense when you talked to
them.

So I think that's an example of an
aha-moment -- you know, for me -- saying, well,
there's a lot to be learned here. They may be all
wrong, you know, but in the moment, it sounded
right.

So I think it's a matter of
communication and cohesion, and doing better data
collection to determine what the outcomes are.
And to making sure we have an effective
performance improvement system that crosses
cultures. That's going to be very difficult -- so
we can really talk about what it is that's
happening. Not name 'em, shame 'em and blame 'em,
but really talk about what the best way to
approach these injuries.

I think we have a lot to learn from our
international colleagues.

DR. DICKEY: General?

MAJ GEN TRAVIS: I was going to thank
you also. From my perspective as an Air Force Deputy SG, I know my boss would thank you, too. We've read your report. We take it to heart.

I'm sorry Dr. Woodson's not here, but I expect he would say the very same thing.

I think -- excuse me, I'm losing my voice -- I thank the whole team for going, first. Take the time, putting yourselves at some risk to do that, to help us focus on many things we do know, and have known, that are wrong, or that could be done better.

I think the incredible level of success which you witnessed, which we've kind of grown in this conflict, or in this long war, many of those things are happening in spite of --

DR. ROTONDO: Correct.

MAJ GEN TRAVIS: -- what we've set up for folks. And we have to do it better.

Now, I think this is really good timing. You could say, well, gosh, I'd wish we'd known some of this before. We've known some of this before.
But on the other hand, a very thorough, systematic, and systems-level approach you've taken to your review, I think is perfect timing as we do, you know, thankfully and hopefully, start winding down this conflict. Because this is an opportunity, I think, to focus our minds on making it better. And, as you put in your -- and I was glad you did -- sustain it for the future.

And so as this perhaps contracts, as we start bringing folks home -- and we're out of Iraq, effectively, pretty much as of last week. Folks at 332nd Expeditionary Med Group, you know, pulled out their hospital. The last of them left last week -- which was a real, Wow. Exactly. So -- and here we go.

So I met with Tom Scalea up at Baltimore Shock Trauma a few weeks ago -- he spoke with great heart and appreciation for the visit, and the trip, as well -- and heard his comments.

But I would -- the comment I'd made to him that I would make to you -- and I made it to a lot of the folks that are up there in that area --
are: you'd think perhaps some of this just kind of needs to slowly fade away as we come down from this war. I would tell you the exactly opposite. And I know you understand this.

It's at Baltimore Shock Trauma one of our C-STARs platforms where, you know, St. Louis, Cincinnati are the other two where the Air Force does trauma training to get people ready. And, you're right, he knows a lot of folks that he's trained over the years from our team. I think those partnerships, and the kind of efforts you describe actually become more important because you can't predict the next war, or the next opportunity, even if it's not a war, where our skills and our system are going to be needed.

And so I thank you very much for focusing our minds. And I guarantee you have our commitment -- and I'll speak for the Air Force, and I'm sure the other Services agree -- you know, working with the ISR, and working with the JTS, and working with Health Affairs at the right level to try to commit ourselves to improving many of
the things that you've talked about.

   Frankly, we have to do that anyway.

Because the things that we improve for care deployed in that wartime also helps us here.

And so thank you very much, and I do appreciate it.

DR. ROTONDO: Well, I appreciate those comments. You know, one thing I've learned, particularly going and making this visit at this point in the effort, is that people get nervous and anxious when the war starts, and they get nervous and anxious when the war ends. They really do.

There's concern right now as to how the draw-down will occur. On the one hand, Well, how am I going to manage tomorrow? There's that concern. And then there's this concern of how are we going to manage 10 years from now.

So, you know, really taking advantage at this point in time, I think is an outstanding point.

The other thing I'll say is that I
really was concerned that this would just sound like a big call for resources. They just need more money.

I think it's really a time for aligning and integrating. When I listened to Captain Hammer's discussion this morning about neurotrauma, that's just the JTS, as I see it. It's 800 to 959.9, most of the ICD-9 codes for injury. That effort could be superimposed -- with the energy that he's bringing to that, and the expertise and what he's done, from what I could learn today in such a short period of time -- why not be able to bring that in in some integrated fashion.

And I bet you there are 10 other examples that this group would know of, that I would never know of, where forces could be -- greater force could be brought to one point, which is to move this forward now. And capture it -- makes sure it's captured -- capture it for the future. And then sustain it.

It's a time of great opportunity.
DR. DICKEY: Dr. Jenkins.

DR. JENKINS: Mike, thanks a lot to you and the team for a very thorough review, a whirlwind tour, and the really pointed report coming out of it is -- it's got the marks of Rotondo all over it, exactly how things would play out I was sure.

When I sent the note to Dr. Dickey to say, I think you might want to have Mike come and talk about this. I just learned he's going to Afghanistan in a couple of days -- we were at the AAST meeting together when I found that out. I think this is exactly what the group needed to hear about Joint Trauma System.

And I heard an invitation from you that we could take advantage of some of the expertise that exists at the American College of Surgeons, and specifically on the Committee on Trauma, and the systems group.

I would say to you, Dr. Dickey, that the Trauma and Injury Subcommittee, as tiny as it is today, would take on any challenges that come out
of this report, help facilitate some of this work, with your direction, if that's the way we're going to go. I think that the time to strike is now. It means something for Jay and Norm and I -- Jeff Timby, who was pictured in one of Mike's photos up there, et cetera -- if we can get that group together.

So we're looking for a charge.

DR. ROTONDO: And let me just say, Dr. Dickey, that I know I speak for the President of the College of Surgeons, who is Brent Eastman, a trauma surgeon, and one of my mentors, for the Executive Director of the College, who is David Hoyt, a trauma surgeon, and one of my mentors, for the Regents, the Board of Regents, which is appropriately spiked with trauma surgeons -- that the College is totally in.

And the College is in this room, you know. Brian Eastridge is the College, Jeff Bailey is the College, Todd Rasmussen -- we are the College.

And so we will be happy to take whatever
resources we have to put them towards this effort
and any other efforts you call upon us to make, to
assist in moving this forward.

    DR. DICKEY: Well, I thank both of you
for that commitment. And I think some of the
topics that we've heard in your excellent
presentation actually echo some of the
conversation we heard earlier today in an earlier
meeting.

    So we'll certainly take advantage of
that. Yes, sir.

    DR. McSWAIN: Norm McSwain, New Orleans.
In 1980, I was working with the Surgeon General of
the Navy to try to get some trauma education and
trauma-skilled people into the Navy to be involved
when -- if the balloon ever went up. We tried for
about two years, working with some very
intelligent people, and could not achieve that.
He told me, Well, Norman, the only way we can
achieve that is you join the Navy Reserves, and if
the balloon goes up, we'll call.

    It went up in 1991. I went in. And, as
expected, there was nobody that knew anything
about trauma. I was USNS Comfort, and maybe two
people three people, knew anything about trauma,
because that had not been preserved.

It's imperative upon this group: Do not
let all this knowledge that has been achieved,
over the lives of a lot of our Wounded Warriors --
don't let that get lost. Use what Mike has told
you. Memorialize it. Develop systems, develop
policies, develop manuals. Don't let it get lost.

And the College of Surgeons would be
happy to help you with that. And as would the
TCCC Committee.

But don't let it get lost. Please.

DR. DICKEY: Thank you, Dr. McSwain.

Yes, sir -- Admiral?

RADM DELANY: As I was listening, one of
the things is, there's a lot of focus on, you know,
getting it down on paper. And I think we have a
perfectly wonderful opportunity to do some
qualitative research about the structures and the
processes.
I'm also concerned that we're not considering -- while we're considering clinical research and clinical investigation -- we're not considering doing the kind of work that happens about organizational analysis and structural analysis. Because if you're going to ramp up and you're going to ramp down, you've got to have a process for thinking this through, and understanding what kinds of dynamics -- especially as was raised about the idea of a diplomatic mission, as well, in terms of a joint-force structure.

So, in thinking about this, of keeping it on, there has to be kind of an overlaying kind of like the dynamics beyond just getting the thing done. And I'm concerned that that continues to be lost in pretty much the whole discussion today, is that we talk about getting things done, and getting it down on paper. But we don't talk about making sure we understand why what we're doing works.

And if we have problems with these
systems -- we started this morning talking about
the process and the structure. But we're losing
that kind of discussion in this meeting.

DR. Dickey: Thank you.

DR. Rotondo: Yes -- I mean, if what I
heard you say was that this would be an amazing
case study in organizational dynamics, you know,
where you're evolving a system which is highly
complex and, in a lot of ways, cross-cultural,
there's tremendous opportunity there, as well.

RADM Delany: I agree. But I think it
has to be followed up with kind of more very kind
of regimented regular research process to
understand beyond just the kind of qualitative
structures. You want to move that on to really
find out what, when, where, and how.

DR. Dickey: I think, embedded in some
of Mike's slides are the concept of there's the
organizational learning to be done here, and
there's process that needs to be looked at.

DR. Rotondo: Yes, ma'am.

COL Richardson: Hello, I'm Colonel
Katherine Richardson. I'm the British Liaison Officer over here. And thank you very much for your presentation -- actually fantastic. Delighted you were able to get to Bastion as well as the other Role 3s. Having spent some time in Afghanistan, as well, myself -- and I was actually the Deputy RC Southwest Surgeon up until January of this year. I was in Leatherneck, as well.

And my point is, I completely applaud everything you've said. And a lot of it is mirrored -- a lot of things that we found from the UK perspective. And Mike, all the way through, as well, it has been alluded to already, is that the Joint Trauma System is fine, but the added complexity, of course, is you're now operating, more often than not, and probably in the future, as well, on the medical side within that multinational piece, as well. And that's going to add a layer of complexity to whatever you bring to it.

That continuum chain that you showed there, the difficulty that you face is that some
of those links within that chain don't come under U.S. authority. They're not either delivered by U.S. and, as I said, come under specifically U.S. authority, whether it's from a single nation authority, or whether it's NATO authority, or whatever it may be.

And that, I think, is the challenge that we all face on a multinational level.

So my question really is, where do you see the JTS piece kind of fitting into that on a kind of multinational perspective? Or is it just kind of take the first step, and then, you know, take the multinational one as the follow on.

DR. ROTONDO: Yeah. The honest answer is, is I haven't the first damn clue.

It really is the honest answer. Because I think it speaks to a culture and an organizational structure that I don't understand -- how it's unified at a higher level.

I do know one thing -- that from my observation, the issue isn't necessarily multinational as a fundamental problem. It's as
much multi-service as it is anything. That would
be the logical -- and I'm being honest. I don't
think the fundamental problem right now is the
multinational nature of the force. I think that
could be worked through.

But I would love to hear from those who
actually could answer that question, if there is
some sort of structural answer to it.

DR. DICKEY: Jay, you had your hand up.

DR. JOHANNIGMAN: Yes.

DR. DICKEY: Do you have an answer to
the question?

DR. JOHANNIGMAN: No -- well, I don't
have answers. But when I heard that, what I was
thinking, the next place is, once we do these
steps, ATACCC becomes the forum, and it makes it an
easier target for our coalition partners. Right
now, if our coalition partners would want to find
out how we think, they could talk to the guy in
Kandahar and hear one thing, talk to somebody from
Bagram and hear another. And we could send them
all over the map.
So, there is a mechanism for that. We call it ATACCC. That's where we're really clinically focused. But if you go to ATACCC, we -- the U.S. Military Medical Corps -- speak with so many different voices sometimes that, again, this would be the next step of coalescing us to a more coherent voice that then can interact with our partners in a more coherent fashion. And as we develop a system, perhaps challenge them in the same fashion.

DR. DICKEY: I have General Robb, Dr. Jenkins, and then a gentleman in the back.

MAJ GEN ROBB: I can address it a little bit. Again, I want to echo the fact that from an informal, collegial exchange of information, ATACCC has been absolutely what I would call the mecca for the sharing of knowledge amongst the NATO nations.

From a more formal perspective, we are right now probably about six months to less than a year from down-selecting, so to speak, an essential part of the Joint Trauma System, and
that's the Joint Trauma Registry -- which I think
is key to many of the elements that you talked
about.

And so there's a big discussion going on
between, primarily, the U.S. and the UK joint data
trauma registries, of which the agreement will be
that they will be able to talk to each other if,
in fact, we end up with two.

And so I think that is an incredible
accomplishment that has occurred, primarily with
the leadership of Colonel Hubrum down there at the
Center for Excellence (inaudible). So I think
that is key.

From a perspective of a joint trauma
system that is NATO-led, that's something I
believe is probably -- has not been discussed at
the COMEDS level. COMEDS is the Surgeon Generals
for NATO and the participating nations. We've
been talking about the Joint Trauma Registry.
We've been talking about many of the things that
are part of a Joint Trauma System -- the
standards, you know, the platinum 10 minutes, you
know the when do you get to the damage-control
resuscitation and surgery? All these drive
requirements to try to standardize across the
nations.

So, although there's not a talk about a
joint trauma system, there is talk, and continues
to be talk, about standardization through the
STANAGs, which is many of the definitions that
each nation brings to the fight. And they
continue to also talk about increased modularity,
because they realize that nobody's going to bring
the entire continuum to the fight either.

And so I share with you -- because I'm a
half-full kind of guy, instead of a half-empty --
just in my short amount of time that I've been
with NATO, I am extremely pleased with the
advances they have made. And, again, the
transference of information on the informal basis,
and then pockets of more formal coalescence as we
look at a joint trauma system.

And they continue -- again, the
Canadians and the Brits, we have fought side by
side. In each other hospitals, I would argue we
are one and the same, as far as a joint trauma
system. And the Germans, of course, have been up
north kind of by themselves, but have adopted a
(inaudible), but within their own nation.

DR. ROTONDO: Thank you.

DR. DICKEY: Thank you. Dr. Jenkins.

DR. JENKINS: Mike, I think one of the
answers lies in a charge that Todd Rasmussen gave
me, which was to write a chapter for a textbook
that he's editing, named after Norm Rich, on
vascular trauma. And it talks about trauma
systems.

And to achieve that chapter, we had to
coadopt a British author and an American author
so that we could address both things in parallel,
because that is the only answer that there is
today.

When you look at the challenges faced by
NATO, to hear that the trauma registries of the UK
and the United States are actually going to get
together is news -- newsworthy.
When you can't decide -- and through no one's fault -- but when you can't decide on the format in which to record data on an H&P because one country won't allow you to put a certain designated number, or the ethnicity, when one country's belief is: We don't use transfusions. Period. Or another law that says, you know, we can't use tourniquets.

I don't know how you build a system in that, Mike. There's a lot of stuff you have to do in parallel today, until, you know -- I don't know, NATO has another several millennia to meet and decide on some of those issues.

DR. DICK: That's the glass --

DR. ROTONDO: Shall I respond for a second to that?

DR. DICK: Sure.

DR. ROTONDO: When I think of this -- I know this is not insignificant. You know, I understand the importance of it. And I just want to preempt my own comments by saying I was incredibly impressed with what's happening at
Bastion and the people I met there. You know, they are saving lives of our soldiers. It's phenomenal, and we thank you for that.

This group needs to think about what we can do today. Because there's so much of what was up there that, within six months, there's a chunk of it that can be just taken care of.

Now, that's a very complex question, and I don't have the expertise or the organizational knowledge to be able to answer it. But I do know there's an awful lot that was up there that could happen pretty much right away.

It's a matter of making -- I would recommend that's where you start.

DR. DICKEY: It's always more fun to start with a few wins.

Colonel?

COL RASMUSSEN: Well, you know, I don't have a whole lot more to add, other than at the ISR -- my name is Todd Rasmussen, I'm the Deputy Commander of the ISR -- is that Admiral Raffaelli has been to the ISR three times in the last year.
We're working very closely with Karen Brohee and Laura London, who is the system expert as the UK stands up their civilian trauma systems. We're part of the MOST course -- so, their pre-deployment training we go and teach at, we're faculty at, and vice versa. So I'm just echoing what has already been said. I think we see eye to eye.

The most recent studies that are coming out now, looking at the use of tranexamic acid, prehospital blood, are going to be joint JTTS studies -- joint, you know, combining the JTTR of the UK and the JTTR with the U.S. We have to, because they're treating our guys, and we're treating their guys.

So I think it's --

BG GAMBLE: And the Canadians are already on our system.

COL RASMUSSEN: Yes, sir.

BG GAMBLE: -- but they're on our system.

COL RASMUSSEN: Glass half full.
DR. DICKEY: Thank you very much. Dr. Carmona.

DR. CARMONA: Just a closing comment -- to Dr. McSwain's comments.

And Dr. McSwain, either directly or indirectly, is probably responsible, at least partially, for training most of us in this room who practice. So his words should be heeded.

I think back to the work of Drs. Delany and others, who -- the trauma registry that's already -- the Vascular Trauma Registry that's already been spoken of by Norm Rich. And the rich and robust information that came from Vietnam, and a little from Korea before that.

And the irony, or the paradox, was that our nation built the finest EMS and trauma system based on that information after Vietnam.

And yet our military suffered. Because a decade later, when we did go to war again, we didn't have the infrastructure to be able to respond appropriately. And we scurried around. A number of us who were out in the civilian sector...
or in the military were trying to figure out how
we can send people to get trained. And the last
thing you want to do is try and ramp somebody up
at the last minute, and acutely gain critical
information that needs to be memorialized and
institutionalized over time.

So I think Dr. McSwain's point -- we
should learn from the historical mistakes of the
past. As we ramp down, and the wars go away -- as
the General pointed out, and others -- we need to
make sure that these practices are well embedded
within our system. And obviously, when our
military surgeons are not at war, it will take
public-private partnerships, really, to continue
to do that.

But we can't afford to make the mistakes
we made last time, where we were really caught
very, very unprepared, and had to do a lot of
11th-hour planning just to be able to ramp up for
the contingencies that, fortunately, in the first
Gulf War we didn't appreciate.

But some of the numbers were pretty
daunting, and we would have been -- many of you
may remember the GAO report and few reports that
came after the first Gulf War, that said the best
thing that happened that it was fortunate that all
of the predictions never came to be. We had
150-something casualties, I believe. But some of
the original estimates from the commanders were as
high as 20,000. And some of the original burn
casualties were going to be up to 5,000. And we
only had 2,300 burn beds in the whole United
States. And nobody had thought about all of those
things.

As Michael has showed us today, we have
an opportunity now to really take this information
and aggressively move it forward. And as combat
winds down, make sure that it is memorialized and
institutionalized, and continues as we move
forward. Hopefully, we'll never have another war.
But we will be prepared this time.

DR. DICKEY: I think that's perhaps an
excellent place to wind down an excellent
presentation and a very good discussion -- with
the admonition that we continue to have the
discussion until we manage to get some agenda
items and some action forward.

    Thank you. And thank you for an
excellent presentation, Dr. Rotondo. We
appreciate it.

    Ms. Bader, as we close out a very
informative day, would you like to offer any
administrative remarks before the meeting is
adjourned?

    MS. BADER: Certainly. Just a few
administrative remarks.

    For the Board Members, there's a manila
envelope inside your binders. So please put your
briefing materials in the manila envelope and
leave the binder here.

    For those of you who are departing
tonight, there is a shuttle from the hotel
directly to the airport.

    As a reminder for the Board members who
will be attending the CoTCCC meeting tomorrow, we
will have a breakfast in the Potomac room at 7:30
a.m. And the CoTCCC meeting will begin promptly
at eight o'clock in this room.

Additionally, we will have a working
lunch for the Board members. And, again, that
lunch will be in the Potomac room.

For everybody -- for those of you who
are joining us for dinner this evening, please, if
you have not already paid Jen Kleveno, please
provide her with your $35 in cash. And we will be
meeting in the hotel lobby at 6:15 to walk to the
restaurant.

Thank you so much. This concludes
today's meeting of the Defense Health Board.

(Whereupon, at 5:16 p.m., the
PROCEEDINGS were adjourned.)

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CERTIFICATE OF NOTARY PUBLIC

COMMONWEALTH OF VIRGINIA

I, Stephen K. Garland, notary public in
and for the Commonwealth of Virginia, do hereby
certify that the forgoing PROCEEDING was duly
recorded and thereafter reduced to print under my
direction; that the witnesses were sworn to tell
the truth under penalty of perjury; that said
transcript is a true record of the testimony given
by witnesses; that I am neither counsel for,
related to, nor employed by any of the parties to
the action in which this proceeding was called;
and, furthermore, that I am not a relative or
employee of any attorney or counsel employed by the
parties hereto, nor financially or otherwise
interested in the outcome of this action.

(Signature and Seal on File)

Notary Public, in and for the Commonwealth of
Virginia

My Commission Expires: July 31, 2015

Notary Public Number 258192