



# Military Operational Medicine Research Program Overview



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**31 May 2018**

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# Military Operational Medicine Research Program

## US ARMY MEDICAL RESEARCH AND MATERIEL COMMAND

*Science to  
Service Member*



### MISSION



Responsively and responsibly create, develop, deliver, and sustain medical capabilities for the Warfighter

### VISION



Lead the advancement of military medicine

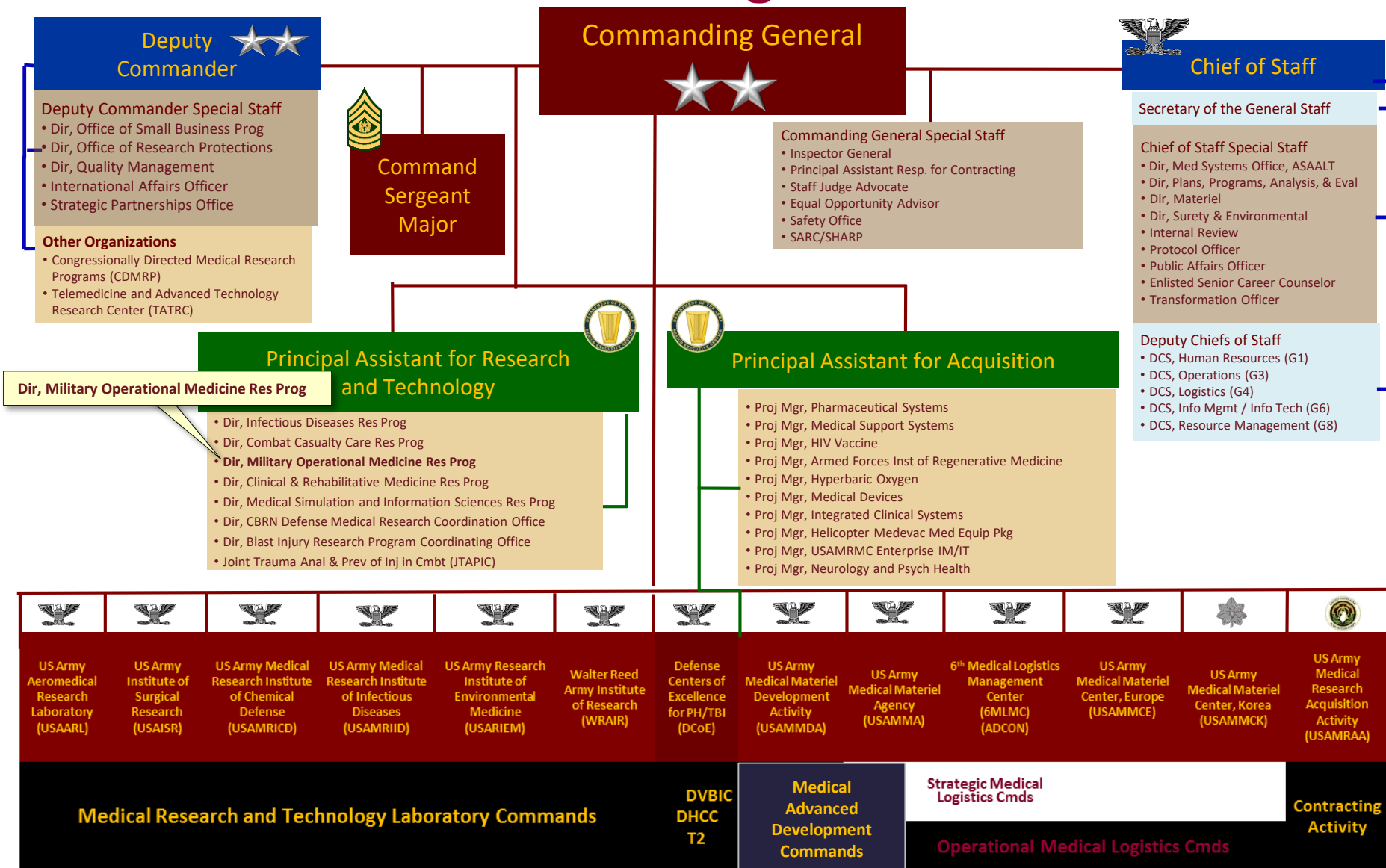


# Military Operational Medicine Research Program

## US ARMY MEDICAL RESEARCH AND MATERIEL COMMAND

Science to Service Member

# USAMRMC Organization





## Overview of MOMRP

MOMRP is an extremely diverse program

- Supports operational health, readiness and performance of the Joint Warfighter across the range of military operations and Service member life-cycle
- Manages R&D to understand novel mechanisms and develop focused solutions at the group and individual level for Precision Operational Medicine
- ~90% of MOMRP projects are linked to knowledge products



## MOMRP Mission and Focus Areas

*Develop effective medical countermeasures against operational stressors and to prevent physical and psychological injuries during training and operations in order to maximize the health, readiness and performance of Service members and their Families, in support of the Army Human Performance Optimization (HPO), Human Dimension (HD), Multi-Domain Battle (MDB), and the DoD Total Force Fitness (TFF) concepts.*

### Science

#### ENVIRO

Environmental Health and Protection

##### THREATS

Heat/Humidity Stress  
Dehydration  
Dust and Air Pollution  
Toxic Industrial Chemicals and Toxic Industrial Materials (TICs and TIMs)  
Water Contaminants  
Cold Stress  
Altitude/Hypoxia

#### INJURY

Injury Prevention and Reduction

##### THREATS

Musculoskeletal Injury  
Blast Overpressure  
Blunt Head/Body Trauma  
Face/Eye/Spinal Injury  
Acoustic Trauma  
Laser Eye/Directed Energy Injury  
Degraded Visual Environment

Biomedical Performance Enhancement  
Wearables for Health, Readiness and Performance  
Medical Aspects of Manned/Unmanned Teaming

#### PHYSIO

Physiological Health and Performance

##### THREATS

Disaggregated/Continuous Operations  
Sleep Deficit and Circadian Desynchrony  
Sustained Fatiguing Work (Physical/Mental)  
Malnutrition  
Dietary Supplements Misuse

#### PSYCH

Psychological Health (PH) and Resilience

##### THREATS

PTSD/Other PH Disorders  
Suicide Behavior  
Alcohol/Other Drug Use  
Co-occurring Mental Disorders  
Access/Retention in Behavioral Health Care  
Family Transitions and Well-being

### Service Member



# Clinical Psych Challenges & Priorities

## □ Posttraumatic Stress Disorder (PTSD) and other anxiety disorders

### ▪ Psychotherapeutic Treatments

- Treatment duration, modality, and efficacy can deter service members from seeking healthcare (Accessibility, Treatment Interval, Patient satisfaction, Scheduling, other considerations)
- Psychotherapy challenges (not evidence-based, eclectic, scheduling, patient “fit,” variable and unpredictable outcomes)
- Current evidence-based psychotherapies for PTSD are moderately effective **but only if treatment is completed.**

### ▪ Pharmacologic Interventions

- Only 2 FDA-approved medications for PTSD: sertraline (Zoloft), paroxetine (Paxil)
  - Both have limited efficacy, include significant unwanted side effects, and have compliance issues.
- Off label prescribing: help for the patient, may impede research
- Need for far-forward, immediate treatments
- Veterans and Service members can participate in medication trials
- **PTSD comorbidities also need to be addressed (e.g., depression, substance use, sleep disorders, chronic pain, anxiety disorders...)**



# Clinical Psych Challenges & Priorities

- ❑ **Major Depressive Disorder (MDD) and Suicidality**
  - ❑ MDD is the most frequent behavioral health diagnosis among Service members.
  - ❑ Better antidepressant medications
  - ❑ immediate interventions for risk mitigation (psychotherapeutic and pharmacologic)
- ❑ **Substance Use Disorders**
  - ❑ As either a primary diagnosis or as a comorbidity of PTSD and/or MDD.
  - ❑ Current research focus: Alcohol Abuse, Opioids, Synthetic Cannabis
- ❑ Increased interest in Sleep
  - ❑ Sleep disorders
  - ❑ Sleep cycle perturbations (shift work, sleep disruption)



# Previous PTSD Medication Studies



**Sleep,  
Nightmares**

- prazosin
- risperidone
- nabilone

**Comorbid  
AUD**

- topiramate
- doxazosin
- prazosin
- ???

**SSRI-Resistant**

- ketamine
- quetiapine
- ???

**Global  
Symptoms**

- olanzapine
- venlafaxine
- tramadol
- ???

**Avoidance/  
Numbing**

- venlafaxine
- ???

**Re-  
Experiencing**

- risperidone
- ???

*Which would be best?*





# **PTSD State of the Science Summit (SoSS)**

## **Held June 2017**

- ❑ ~140 participants from government, industry and academia
- ❑ Included knowledge experts in the fields of PTSD pathophysiology, endocrinology, neuroimaging, genomics, and CNS drug development
- ❑ Aim is to shape future medical science and strategy in the development of medications to treat PTSD and its associated symptoms and comorbid disorders
  - ❑ Identify the most promising drug targets
  - ❑ Initiate future Advanced Development partnerships
  - ❑ Desirability of Adaptive Designs in Pharmacologic Research
  - ❑ MTEC program announcement



# Funding Opportunities

## ❑ Broad Agency Announcements (BAAs)

❑ <https://www.arl.army.mil> or <http://grants.gov>:

- e.g., “**Psychological Health and Resilience**: The psychological health research program area is interested in research aimed at increasing resilience and psychological health and decreasing post-traumatic stress disorder (PTSD), suicide, and risk behaviors (e.g., substance abuse, anger/aggression, sexual harassment and assault, and violence within the military). Additional psychological health areas of interest.....” from BAA **W81XWH-17-R-BAA1** at **grants.gov** website.
- Open year round for pre-application (pre-proposals) submissions
- ❑ **Pre-applications** are submitted electronically to the Electronic Biomedical Research Application Portal (eBRAP) <https://ebrap.org>.
- ❑ **Full applications, following an invitation to submit**, are submitted electronically to <http://grants.gov>.

## ❑ Medical Technology Enterprise Consortium (MTEC)

- conduct research and prototyping to support the USAMRMC requirements
- capitalization of private-sector and government opportunities
- provide funding for critical studies that may attract other investors
- commercialization of government intellectual property



## Funding Opportunities cont'd

### Congressionally Directed Medical Research Program (CDMRP) Program Announcements (PAs)

#### Peer Reviewed Medical Research Program (PRMRP)

<http://cdmrp.army.mil/prmrp/>:

- **e.g., Technology/ Therapeutic Development Award** - Translation of promising preclinical findings into clinical applications for prevention, detection, diagnosis, treatment, or quality of life. Product-oriented (e.g., device, drug, clinical guidelines). The product(s) to be developed may be a tangible item such as a pharmacologic agent (drugs or biologics) or device, or a knowledge-based product.

### Topic Specific Program Announcements

- occasionally occur throughout the year and usually have a limited window of time for submissions
- often fairly narrow in terms of research proposal sought, focused to fill a clearly identified capability gap
- regular monitoring of grants.gov ensures opportunities are not missed
- MOMRP does maintain a list-server where we email recipients when a PA of this nature is released. Email Drs. Hoover or Renosky to be added to the list-server (contact information on next page)



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