

## **Understand:**

1. **Understand:** Research will address knowledge gaps in foundational science, epidemiology, and etiology of psychological health conditions and/or traumatic brain injuries (TBIs).
  - a. Understanding of risk, protective, and biological factors contributing to an individual's vulnerability to, response to, and long-term outcomes of psychological health conditions and/or TBI. Studies with a biomarker component are allowed. Research of interest includes, but is not limited to:
    - Psychological health trajectories associated with trauma and suicidality that incorporate internal and external factors. For example, factors could include time course, demographic characteristics, career course, history of trauma exposure, and community and cultural factors.
    - Understanding the approach to psychiatric diagnosis in the military and the association of psychiatric diagnosis with occupational impairment and military separation.
    - The role of genetics, endophenotypes, health demographics, previous injuries or repetitive exposures, psychological health conditions, pathophysiology, and environmental factors (e.g., extreme temperatures/pressures) on TBI.
    - Computational models from clinical data to forecast the long-term and/or late effects of brain exposures, such as TBI, and co-occurring conditions.
    - Contribution of pre- and post-injury patient, family<sup>1</sup> and caregiver education, as well as cultural, demographic, stigma, and bias factors that may relate to treatment-seeking and adherence.
    - Communication and tools/technology adoption that would facilitate clinical translation and identification of risk factors, educational barriers, social determinates of health, and other factors that may impede clinical translation.
  - b. Understanding sexual harassment and assault prevention, perpetration, victimization, and response. Methodologies that ensure anonymity for participants are encouraged. Research of interest includes, but is not limited to:
    - Understanding processes of shame, stigma, and institutional betrayal among sexual assault victims and their units/teams and evaluation of approaches to mitigate these experiences. Experiences of marginalized groups, male victims, and victims of intimate partner and family<sup>1</sup> violence are of particular interest.
    - Understanding how organizational-level factors influence interpersonal and individual conditions, choices, and behaviors as they relate to sexual assault and harassment prevention, perpetration, and response. Measurement and analysis of organizational-level factors, such as culture and climate, beyond aggregating individual perceptions are encouraged. Research could include the progression from sexual harassment to sexual assault and factors influencing sexual harassment.
    - Understanding barriers to reporting sexual assault and factors that contribute to retaliation within units/teams and evaluation of approaches to mitigate barriers and prevent retaliation. Research could include data from influencers, bystanders, and

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<sup>1</sup>"Family" should be broadly defined to include not just spouses, but also parents, significant others/fiancés/partners, children, caregivers, or close friends.

- perpetrators, as well as environmental, structural, and demographic factors (e.g., workplace culture, climate, senior leader diversity, age, gender).
- Understanding the physical and psychological consequences of intimate partner and family violence.

### **Prevent and Assess:**

2. **Prevent and Assess:** Research will address the prevention or progression of psychological health conditions and/or TBI through population, selective, and indicated prevention approaches. Efforts that focus on primary prevention (including protection), screening, diagnosis, and prognosis are within scope.
  - a. Identification and validation of biomarkers or other objective markers for diagnosis, prognosis, or monitoring of psychological health conditions and/or TBI, repetitive exposures, and associated sequelae (e.g., chronic migraine, dizziness, neurocognitive symptoms, sleep, post-traumatic headache, secondary complications). When appropriate, the use of U.S. Food and Drug Administration-cleared/approved products is encouraged.
  - b. Approaches or tools to prevent or reduce risk of psychological health and/or TBI conditions. Research of interest includes, but is not limited to:
    - Translation of environmental sensor outputs to conditions within the brain.
    - Development of innovative materials and technologies that can prevent or reduce risk of TBI.
    - Generation of physiological evidence regarding the safety, efficacy, and utility of candidate neuroprotective measures. Animal models, if used, should be validated and well justified within the literature and should demonstrate clear alignment to clinical populations.
    - Validation of objective tools/methods for assessing and real-time health status monitoring of psychological health conditions and/or TBI.
    - Development of clinical decision-making frameworks or tools that incorporate objective assessments and long-term outcomes to return to activity/duty decisions.
  - c. Development of injury thresholds and exposure standards.
  - d. Development, evaluation, and implementation of cross-cutting prevention approaches targeting upstream factors or leveraging communities and peers to address multiple adverse outcomes such as suicide, multiple forms of violence, and alcohol and substance misuse. Examples of upstream factors could include social connectedness, inclusiveness, culture, problem-solving, emotional regulation, communication, underlying health disparities, financial stability, geographical isolation, rural challenges, and environmental extremes. Research of interest may include, but is not limited to:
    - Optimized messaging for successful dissemination and implementation.
    - Inclusion of families and evaluation of impacts thereon.
    - Culturally acceptable approaches to reducing access to lethal means and promoting means safety for suicide and violence prevention.
  - e. Solutions to increase readiness and resilience in individuals, small teams, families, and communities to ameliorate the potential negative impacts of specific military and life stressors. Research of interest includes, but is not limited to:

- Effective pharmacologic or non-pharmacologic prevention interventions. Solutions for prevention of ASRs and PTSD may be proposed.
  - Preparation of Service Members and units for missions and to help reset between deployments within the Sustainable Readiness Model<sup>2</sup>.
  - Effective solutions to support relationships and parenting, prepare families for potential secondary trauma exposure, and empower families to access tailored support and resources.
- f. Solutions to address aspects of workplace culture and climate (e.g., leadership attitudes, group characteristics, group identification factors) that are associated with increases in harmful behaviors. Research of interest includes, but is not limited to, solutions to provide and incentivize positive options and substitutes for alcohol and substance use and promote pro-social behavioral norms.

**Treat:**

3. **Treat:** Research will address immediate and long-term treatments and improvements in systems of care, including access to and delivery of healthcare services. Treatment topics may include novel treatments and interventions, personalized medicine approaches, length and durability of treatment, rehabilitation, relapse, and relapse prevention.
- a. Interventions that promote sustained functional recovery, including interventions administered acutely, during the post-acute phase, or during the chronic phase of injury. Research of interest includes, but is not limited to:
- Rapid assessments and treatments for psychological health conditions. Interventions addressing AdjDs, ASRs, and PTSD may be proposed.
  - Interventions focused on sensory and motor dysfunction after brain injury.
  - Interventions that address neurodegenerative processes associated with TBI.
  - Interventions that restore cognitive reserve and functioning.
  - Novel therapeutic candidates based on evolving changes of pathophysiology and/or theoretical mechanisms of psychological health and/or TBI.
  - Interventions and/or the delivery of healthcare services to improve the ability to treat co-occurring TBI and PH conditions.
  - Personalized medicine approaches to treatment that may include tailoring treatment to the biological and endophenotypic elements present. Studies may consider how TBI, PTSD, depression, or other psychological health conditions are interrelated.
  - Considerations for sequencing and optimal combinations of pharmacologic and non-pharmacologic interventions.
  - Effective, early interventions for delivery in rural or other resource-limited environments (e.g., far-forward military environments), and/or by non-clinicians (e.g., peers, teams, first responders/medics).
- b. Validated individual-, peer-/unit-/team-, leader-, family-, caregiver-, community-, and enterprise-level methods for reducing barriers to care for psychological health and/or TBI challenges (e.g., PTSD, suicidal ideation or behaviors, alcohol and substance use,

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<sup>2</sup> [https://armypubs.army.mil/epubs/DR\\_pubs/DR\\_a/pdf/web/ARN9412\\_AR525\\_29\\_FINAL.pdf](https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/ARN9412_AR525_29_FINAL.pdf)

anxiety, depression) and understanding mechanisms of change in help-seeking behavior.

- c. Implementation, follow-up, and services research to increase provider adoption and availability of evidence-based treatments, as well as treatment engagement, follow-up care, and understanding of long-term outcomes. Research of interest includes, but is not limited to:
  - Clinical effectiveness studies comparing new/novel capabilities to existing evidence-based treatments and/or the standard of care.
  - Identification and evaluation of methods for successful dissemination and implementation of interventions.
- d. Effective community-level postvention strategies to address social connectedness during reintegration of individuals into workplace teams or the community following a sexual assault, suicide event, or other severe trauma. Proposed research should also consider preventing subsequent suicides or other counterproductive behaviors among individuals and community members.