TOXIC EXPOSURES RESEARCH PROGRAM

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Toxic exposures are known and unknown potentially harmful substances that Service Members are exposed to as part of their military service. While many exposures Service Members encounter may be unique to their duties, location, and assignments, some exposures are more ubiquitous and also impact the American public.

VISION
Minimize and mitigate the impact of military-relevant toxic exposures and improve the quality of life of those affected

MISSION
Support innovative and impactful research aimed at identifying and understanding the pathological mechanisms, outcomes and comorbidities associated with toxic exposures in order to facilitate the prevention, diagnosis and treatment of the invisible and visible diseases and symptoms that are associated with toxic effects impacting Service Members, Veterans and the American public.

PROGRAM HISTORY

The Toxic Exposures Research Program (TERP) was initiated in fiscal year 2022 (FY22) to establish a new, broad program dedicated to improving the scientific understanding of the pathobiology of toxic exposures, more efficiently assessing comorbidities, and speeding the development of treatments, cures, and preventions. Congress has appropriated $60 million (M) for the TERP to support military-relevant toxic exposure research across four major topic areas: Neurotoxin Exposure, Gulf War Illness (GWI) and Its Treatment, Airborne Hazards and Burn Pits and Other Military Service-Related Toxic Exposures in General, Including Prophylactic Medications, Pesticides, Organophosphates, Toxic Industrial Chemicals, Materials, Metals, and Minerals.

Prior to FY22, the CDMRP received congressional support for other programs, with research areas aimed at providing health care solutions for some of the diseases/conditions associated with toxic exposures, including the Gulf War Illness Research Program (GWIRP), the Peer Reviewed Medical Research Program (PRMRP) Burn Pits and Metals Toxicology Topic Areas, and the Neurotoxin Exposure Treatment Parkinson’s Research Program (NETP).

MILITARY RELEVANCE

Over 3.7 million U.S. Service Members have participated in operations in the Southwest Asia Theater of Military Operations and Afghanistan since 1990, and individuals who served in that region were likely exposed to a number of toxic agents including, but not limited to, emissions from open burn pits, dust and sand particles suspended in the air, industrial pollution, sarin, pyridostigmine bromide, oil-well fire smoke, and vehicle exhaust. While many exposures are associated with deployment environments, other exposures such as paints, fuels, exhausts, and contaminated water also occur in non-deployment settings.

Neither the short- nor long-term effects of toxic exposures are well-defined and, in many cases, identifying a particular exposure can be challenging. Moreover, correlating diseases, conditions, and symptoms to a particular operational environment, exposure, combination or series of exposures poses additional challenges. While many toxic exposures have been identified, there are likely unknown exposures or mixtures of exposures that have not been identified yet and, the relationship of these exposures to health outcomes such as GWI, respiratory, neurologic, and cardiac diseases and conditions, sleep disturbances, cancers, and other symptoms remain poorly understood.

The TERP aims to support research that will have a significant impact on the field of toxic exposure research and/or patient care, with the intent to provide solutions for Service Members, Veterans, and/or the American public who have been or could potentially be impacted by toxic exposures. The TERP coordinates with similar activities in the Department of Veterans Affairs (VA) and encourages collaborations between military and VA institutions with non-military/non-VA institutions.

TERP PROGRAM GOALS
To advance solutions for Service Members, Veterans, and the American public, the TERP established four equally important overarching program goals in FY22.

1. **ELUCIDATE MECHANISMS OF HOW TOXIC EXPOSURES RESULT IN ADVERSE EFFECTS**, including, but not limited to, toxicities, malignancies, neurologic and respiratory disorders, cardiac complications, sleep disorders, immune system dysfunction, gastrointestinal issues, etc.

2. **DIAGNOSE THE EFFECTS OF TOXIC EXPOSURES**, understand the phenotypic/genotypic and clinical outcomes associated with short-term and long-term exposures and predict disease progression.

3. **PREDICT AND PREVENT TOXIC EXPOSURES** by identifying strategies that can anticipate, identify, monitor and prevent Service Members and the American public from adverse effects of exposures to toxic substances.

4. **DEVELOP THERAPEUTICS, TREATMENTS AND STRATEGIES** to minimize symptoms and disease progression associated with toxic exposures.

The TERP focuses on these four major Topic Areas:

- **Neurotoxin Exposure**
- **Gulf War Illness and Its Treatment**
- **Airborne Hazards and Burn Pits**
- **Other Military Service-Related Toxic Exposures in General**, including Prophylactic Medications, Pesticides, Organophosphates, Toxic Industrial Chemicals, Materials, Metals, and Minerals