



PERSONNEL AND
READINESS

UNDER SECRETARY OF DEFENSE
4000 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-4000

APR 16 2020

The Honorable Adam Smith
Chairman
Committee on Armed Services
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

The enclosed report is in response to section 742 of the National Defense Authorization Act (NDAA) of Fiscal Year (FY) 2020 (Public Law 116-92), that requires the Secretary of Defense to submit an annual status report on the Longitudinal Medical Study on Blast Pressure Exposure of Members of the Armed Forces (required by section 734 of the NDAA for FY 2018 (Public Law 115-91)).

The goal of section 734 of the NDAA for FY 2018, now referred to as the Blast Overpressure Study (BOS), is to improve the Department's understanding of the impact of blast pressure exposure from weapon systems to the Service member's brain health and better inform policy for risk mitigation, unit readiness, and health care decisions. The scope of the BOS includes a series of studies and assessments to achieve the goal rather than a single longitudinal study. The BOS has an established Program Structure, which includes five Lines of Inquiry (LOIs): Surveillance (LOI 1), Weapons Systems (LOI 2), Exposure Environment (LOI 3), Blast Characterization (LOI 4), and Health and Performance (LOI 5), to address the congressional requirements. For the purposes of this annual status update, progress across each of the LOIs is reported.

Thank you for your continued support of the health and well-being of our Service members, veterans, and their families. I am sending an identical letter to the Senate Armed Services Committee.

Sincerely,

A handwritten signature in cursive script that reads "Matthew P. Donovan".

Matthew P. Donovan

Enclosure:
As stated



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APR 16 2020

The Honorable William M. "Mac" Thornberry
Ranking Member
Committee on Armed Services
U.S. House of Representatives
Washington, DC 20515

Dear Representative Thornberry:

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The Honorable James M. Inhofe
Chairman
Committee on Armed Services
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

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APR 16 2020

The Honorable Jack Reed
Ranking Member
Committee on Armed Services
United States Senate
Washington, DC 20510

Dear Senator Reed:

The enclosed report is in response to section 742 of the National Defense Authorization Act (NDAA) of Fiscal Year (FY) 2020 (Public Law 116-92), that requires the Secretary of Defense to submit an annual status report on the Longitudinal Medical Study on Blast Pressure Exposure of Members of the Armed Forces (required by section 734 of the NDAA for FY 2018 (Public Law 115-91)).

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Report to Congressional Armed Services Committees



Section 742 of the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116-92): “Modification of Requirements for Longitudinal Medical Study on Blast Pressure Exposure of Members of the Armed Forces”

**Annual Status Update
April 2020**

The estimated cost of this report or study for the Department of Defense (DoD) is approximately \$662,000 for the 2020 Fiscal Year. This includes \$641,000 in expenses and \$21,000 in DoD labor.

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Introduction

Section 742 of the National Defense Authorization Act (NDAA) for Fiscal Year (FY) 2020, “Modification of Requirements for Longitudinal Medical Study on Blast Pressure Exposure of Members of the Armed Forces and Collection of Exposure Information,” requires an annual status report on the longitudinal medical study on blast pressure exposure (section 734 of the NDAA for FY 2018 (Public Law 115–91)). An initial report providing the study methods and action plan as requested in section 734 of the NDAA for FY 2018 was submitted on April 11, 2019 (Appendix A).

The goal of section 734, now referred to as the Blast Overpressure Study (BOS), is to improve the Department’s understanding of the impact of blast pressure exposure from weapon systems to the Service member’s brain health and better inform policy for risk mitigation, unit readiness, and health care decisions. The scope of the BOS will include a series of studies and assessments to achieve the goal rather than a single longitudinal study. The multiple study methodology will be used in an effort to capture answers to multiple lines of inquiry (LOIs) that would prove challenging to accomplish with one large and unwieldy study, as well as enable more opportunities for success.

The BOS has an established Program Structure, which includes the following five LOIs: Surveillance (LOI 1), Weapons Systems (LOI 2), Exposure Environment (LOI 3), Blast Characterization (LOI 4), and Health and Performance (LOI 5), to address the congressional language. For the purposes of this annual status update, progress across each of the LOIs is reported.

BOS LOIs

Surveillance (LOI 1)

The Surveillance LOI (LOI 1) is focused on designing, planning, and executing the Blast Surveillance Pilot Program to assess the feasibility of collecting blast overpressure (BOP), decibal levels, and associated common data elements, and capturing these exposures in a Service record.

Progress to Date: LOI 1 has developed a plan for the Blast Surveillance Pilot Program to include the planned data collection and cost estimates. The Blast Surveillance Pilot Program will be executed in two phases with Phase 1 currently underway. In Phase 1, LOI 1 is leveraging data collected by two existing performers, working on the development of blast exposure data fields in the Defense Occupational and Environmental Health Readiness System-Industrial Hygiene (DOEHRS-IH) to demonstrate the feasibility of recording blast exposure, and developing data management and reporting processes.

Weapons System (LOI 2)

The Weapons Systems LOI (LOI 2) is focused on assessing and reviewing the safety precautions surrounding heavy weapons in training to account for emerging research on blast exposure and the effects of such exposure on cognitive performance of members of the Armed Forces.

Progress to Date: LOI 2 has developed a list of Tier 1 weapon systems identified by the Services to include in the BOS. In collaboration with the Exposure Environment LOI (LOI 3), LOI 2 continues to collect information on the Tier 1 weapons to include testing methodologies and weapon system characterization. LOI 2 has identified the Risk Management Toolkit (RMTK), a suite of tools designed to automate range operations, modernization, and safety. The RMTK is an opportunity to potentially develop a blast overpressure tool for use in RMTK to add to the profile of a weapon system.

Exposure Environment (LOI 3)

The Exposure Environment LOI (LOI 3) is focused on reviewing safety precautions for heavy weapons and blast events in different blast environments, features of the environment that may contribute to blast exposure-related changes in health and performance of members of the Armed Forces, and compliance with existing safety precautions and standard operating procedures.

Progress to Date: LOI 3 has completed Phase 1 of the Allowable Number of Rounds data collection. LOI 3 developed a Service Member Occupational Health Assessment report template to capture Risk Assessment Codes (RACs), residual RACs, and a Medical Cost Avoidance Model estimate. In addition, LOI 3 formed a sub-workgroup to assist with determining what factors contribute to how Service members are exposed to BOP and identify, assess, and quantify materiel fielding-related health hazard exposures (e.g., BOP, Impulse Noise) to Service members.

Blast Characterization (LOI 4)

The Blast Characterization LOI (LOI 4) is focused on modeling blast and blast effects relevant to warfighter brain health in training and combat, and identifying technical challenges, knowledge gaps, and considerations for future efforts to monitor, record, and analyze blast pressure exposure.

Progress to Date: LOI 4 hosted key meetings to identify gaps/ performers in blast sensing and modeling efforts. LOI 4 has identified various gaps; some examples include many DoD blast models and tools exist, but are not comparable and the majority of the blast models use a single source to derive dynamics with is problematic for propellant based systems. LOI 4 continues to review sources to determine blast model verification. LOI 4 is developing a plan for intergration of existing models to support BOS, as well as incorporating acoustic monitoring.

Health and Performance (LOI 5)

The Health and Performance LOI (LOI 5) is focused on evaluating the acute, sub-acute, and chronic health and performance outcomes for warfighters exposed to repetitive, low-level, sub-concussive blast with an emphasis on wearable sensor data.

Progress to Date: LOI 5 leveraged existing efforts and identified 25 relevant studies/performers already underway. Of the studies, 7 have completed data collection and 18 have ongoing data collection. LOI 5 released a request for proposals in May 2019. LOI 5 is drafting a report of projected findings and implications for force readiness.

New Blast Pressure Exposure Requirements in the NDAA for FY 2020

The Under Secretary of Defense for Personnel and Readiness has developed a DoD-wide comprehensive strategy and action plan for warfighter brain health as a Departmental initiative developed to address the health effects, including brain health, from blast pressure exposure from the use of kinetic weapons in training and operations. The strategy also addresses promoting and maintaining brain health in support of individual Service member combat lethality. Leveraging efforts already in progress in response to section 734 of the NDAA for FY 2018, work is underway to assess the feasibility and advisability of uploading personnel exposure data into the existing DOEHRs-IH, as required by section 742 of the NDAA for FY 2020. Section 717 of the NDAA for FY 2020 directs documentation of blast exposures into the medical record; the feasibility and advisability of this is currently under review.

Conclusion

The BOS is leveraging existing work and requires a portfolio of studies across the LOIs. The results from the LOIs portfolios will inform safety standards and medical policy to protect Service member health. Additionally, the studies will address the feasibility of tracking and documenting blast exposures during a Service member's career lifecycle.