DTRA Leads the Way in Providing World Class Pandemic Support

By DTRA Public Affairs

FORT BELVOIR, VIRGINIA – The Defense Threat Reduction Agency's (DTRA) steady-state stance on defending against weapons of mass destruction (WMD) continually revolves around those known and unanticipated threats. Prior to the biological threat that led to the COVID-19 outbreak, DTRA investments in medical countermeasure technologies and analytics, interagency relationships, and international partnership capacity building allowed for well-structured courses of action to respond to the pandemic. In short, DTRA is constantly poised to answer the call to
support – especially during a pandemic.

"DTRA research in biological defense focuses on countering the effects of biological weapons," stated Dr. Ronald Hann, acting director for DTRA Research and Development. "Many of the tools developed in that research can rapidly be reoriented to support pandemic response for natural biological disasters. Several of the technologies we invested in are either part of the response or informed the rest of the government as solutions were developed."

Identification of COVID-infected persons is particularly difficult, with more than a third of those infected absent any outward symptoms. To answer this call, DTRA has been developing a tool called Rapid Assessment of Threat Exposure, or RATE. Supported by artificial intelligence and machine learning (AI/ML), coupled with a commercial wearable, this technology facilitates faster diagnosis of infection by evaluating human biometric information.

"Infectious agents cause subtle changes in a person's physiology before actually experiencing symptoms," explained Dr. Hann.
DTRA research also supported the use of AI/ML tools to determine the possibility of using drugs that are already FDA approved for off-label use to treat COVID-19. The Discovery of Medical Countermeasures Against Novel Entities (DOMANE) project is a biological defense rapid response capability designed to produce candidate drugs for vaccine and therapeutic formulation. Presently, DOMANE has identified more than five drugs that can potentially treat COVID and several have become a standard of care. Alongside DTRA's research contributions, the agency also delivered technical reachback support to interagency and international partners.

"DTRA's Technical Reachback supported DoD and Health and Human Services by responding to over 100s of request for information solicitations from Combatant Commanders, Interagency partners and NATO using epidemiological models to help forecast the spread of COVID-19 cases, said Dr. Rhys Williams, acting DTRA Director. "These reports included virus spread forecasts and potential requirements for hospital beds and ventilators to support warfighters and the greater population response efforts."

Early on, DTRA was called upon to assist in delivering critical supplies at the beginning of the pandemic. Since March 2020, DTRA has continuously leveraged longstanding

international partnerships to acquire and deliver PPE, test kits, laboratory equipment, training and medical supplies to support 17countries in four regions to mitigate COVID-19 effects.

"Historically, investments in developing capabilities for our warfighters has yieled tremendous results," Williams added. "The COVID-19 pandemic further confirms that investments in DoD science and technology are not only necessary, but rapidly provide solutions in a crisis for the nation as a whole."