The Policy

Synopsis

*HR 5528* [15] requires the Department of Defense (DOD) to submit a plan to the congressional defense committees (the *Senate Committee on Armed Services* [16], the *Senate Committee on Appropriations* [17], the *House Committee on Armed Services* [18], and the *House Committee on Appropriations* [19]) containing the following:

- A collaborative plan for the *Defense Health Agency* [20] -- in association with the National Institutes of Health (NIH), the Department of Veterans Affairs (VA), major universities, and appropriate private firms -- to increase the research and development of new treatments for post-traumatic stress and traumatic brain injury;
- A description of how the Defense Health Agency should maximize coordination between the parties;
- A description of the DOD’s plan to leverage existing transaction agreements to encourage financial collaboration between the parties; and
- A description of new processes that will accelerate scientific research in the area.

The DOD must also provide recommendations for executive or legislative actions necessary to support success of the described plan.

Context

*HR 5528* combines the recent interest in concussion research and the well-established support for increased veterans' benefits into a bill that seeks to improve research collaboration on traumatic brain injuries and post-traumatic stress disorder.

According to the VA, American policymakers have historically been supportive [21] of veterans. This dedication to veteran assistance dates back to 1636, when the Pilgrims at Plymouth Colony passed a law declaring that the colony would support injured soldiers. However, some of the most important modern developments in American support for veterans occurred during the twentieth century. In 1930, President Herbert Hoover created VA. Following World War II, the *Servicemen’s Readjustment Act of 1944* [22] (the GI Bill) was signed into law, offering federal aid to help veterans adjust to civilian life by providing books and supplies, equipment, tuition, and counseling services for veterans to continue their education. As a result of the GI Bill the VA grew to become the second highest funding and personnel priorities [21]. In 1989, President Reagan elevated the VA to a cabinet-level executive department.

Supporting veterans continues to be a popular stance among both political parties during the twenty-first century. For example, President George W. Bush passed the *post-9/11 GI Bill* [23], which renewed federal funding for veterans who served at least 90 days of active duty following September 10, 2001 to continue their education.
The bill provides funding for tuition and fees, books and supplies, and housing. On July 31, 2016, President Obama released an official statement describing all of the veteran-supportive policies that the White House pursued throughout his presidency. Finally, President Trump recently signed the VA MISSION Act of 2018, which amends the VA by expanding access for veterans to VA-funded healthcare in the private sector.

Recent public attention around concussions in football and their subsequent effects on an individual has also given impetus to this bill. The scientific debate has increased support for legislation revolving around concussion research and regulation of contact sports. Several examples of recently proposed bills relating to concussions include:

- **HR 2360** (26), 115th Congress: This bill, known as the Concussion Awareness and Education Act of 2017, would require the Centers for Disease Control and Prevention to establish a national system to determine the incidence of sports-related concussions among youth.
- **HR 3580** (27), 115th Congress: This bill, known as the Protecting Student Athletes from Concussions Act of 2017, would require local educational agencies to develop and implement a concussion safety and management plan that would create educational programs about concussions, provide support for students recovering from a concussion, and develop safety standards and procedures.
- **HR 6615** (28), 115th Congress: This bill, known as the Traumatic Brain Injury Program Reauthorization Act of 2018, would reauthorize the Centers for Disease Control and Prevention to implement a national concussion surveillance system to determine the incidence and prevalence of concussions in the United States’ population.

**Policy History**

There are no previous versions of this bill.

**The Science**

### Learn About the Science

- **Post-Traumatic Stress Disorder (PTSD)** [29]
- **Immediate Post-Concussion Assessment and Cognitive Testing (ImPACT)** [30]

### Science Synopsis

Three types of brain injury or disorder, and their related scientific research, are pertinent to the goals of HR 5528: traumatic brain injury, post-traumatic stress disorder, and chronic traumatic encephalopathy.

**Traumatic Brain Injury**

A traumatic brain injury (TBI) occurs when an individual sustains a blow to their head that causes damage to the brain. Millions of people in the United States suffer from brain injuries each year; one of the major causes of TBI is traffic accidents. However, certain populations, including military personnel deployed in modern combat zones, are also at particular risk of suffering TBI. According to the Defense and Veterans Brain Injury Center and the DOD, about 22% of combat casualties in Iraq and Afghanistan are the result of brain injuries, compared to only 12% of combat-related casualties in Vietnam.

The mildest form of TBI is known as a concussion. A concussion can cause headaches, neck pain, dizziness, tiredness, nausea, and ringing in the ears. Moderate to severe TBI symptoms are typically more serious, including repeated vomiting or nausea, convulsions or seizures, slurred speech, weakness or numbness in arms and legs, dilated pupils, and a headache that worsens or does not subside. Severe TBI can cause permanent brain damage or even death. Furthermore, TBI can cause dramatic changes in thinking, language, emotions, and sensation. TBI has even been associated with PTSD. Multiple studies have linked TBI to increased occurrences of PTSD.

**Diagnosis** of a brain injury usually involves a neurological examination, a cognitive examination, imaging tests, and/or observation. Treatment of TBI depends on the severity of the injury. For example, the most appropriate treatment for concussions is rest. This usually means avoiding physical or mental exertion. For more serious injuries, however, treatment is usually more direct. An injured brain tends to swell, and a surgeon might have to remove a portion of the skull to immediately reduce the associated pressure caused by swelling.

Fortunately, medical understanding of TBI continues to improve. This increased understanding has been promoted by organizations such as the Brain Trauma Foundation which have defined and refined the best practices in treating brain injuries. Medical care is also improving. In particular, the war in Iraq has revolutionized the way TBI is treated in the United States; military surgeons learned life-saving techniques such as early cranioplasty that American trauma centers have adopted. Some current NIH-funded clinical projects focused on TBI include:

- Long Term Clinical Correlates of TBI: Imaging, Biomarkers, and Clinical Phenotyping Parameters
- Testing and Calibration of Non-Invasive Optical Imaging Technology for Functional Brain Imaging; and
- Evaluation, Pathogenesis, and Outcome of Subjects with Suspected TBI.

**Post Traumatic Stress Disorder**

Post-traumatic stress disorder (PTSD) is a disorder that can develop in people who have experienced trauma. Symptoms of PTSD usually begin within three months of the distressing event; however, symptoms occasionally develop long after the triggering event (up to years following the event). To be diagnosed with PTSD, an individual must display all of the following symptoms for at least one month:

- At least one re-experiencing symptom;
- At least one avoidance symptom;
- At least two cognition and mood symptoms; and
- At least two arousal and reactivity symptoms.
The main treatments [50] for individuals experiencing PTSD are medications and psychotherapy, or both. The most common medications prescribed to treat PTSD are antidepressants, anti-anxiety medications, and prazosin. Antidepressants [49] help control symptoms such as worry, anger, sadness, and emotional numbness. Anti-anxiety medications [50] helps manage symptoms of anxiety. Prazosin might help suppress nightmares associated with PTSD, although studies have had mixed results. Additional medications might be prescribed to treat other PTSD symptoms as they arise. Psychotherapy [50] is the most common therapy for treating PTSD. Effective psychotherapies [49] usually emphasize symptom education, skills to help identify triggers, and symptom management skills. Psychotherapy treatment for PTSD usually lasts between six and twelve weeks; however, treatment can continue past twelve weeks depending on the severity of the illness.

Research [49] on the mental and biological foundations of PTSD over the last decade has created a better understanding of why trauma leads to a variety of reactions in different people. Some current NIH-funded research projects include:

- Determining how fear memories are affected by learning, changes in body, or sleep;
- Prevention of PTSD shortly after trauma exposure; and
- Identification of factors that determine whether an individual with PTSD will respond positively to one type of intervention or another.

Chronic Traumatic Encephalopathy

Chronic traumatic encephalopathy (CTE) [51] is a progressive degenerative disease of the brain found in individuals with a history of repetitive brain trauma. The repeated brain trauma causes progressive degeneration of brain tissue, which has been associated with confusion, memory loss, impaired judgment, aggression, depression, suicidal thoughts, impuls control problems, Parkinson’s disease, and eventually, progressive dementia. CTE has been found in athletes competing in contact sports and in military veterans who have a history of sustaining multiple head injuries.

Currently, CTE can only be diagnosed after death by postmortem neuropathological analysis [52]. There is no known way to use current imaging technology to diagnose CTE. Since CTE cannot currently be diagnosed in living subjects, there is no cure for CTE. However, the individual symptoms of CTE can be treated through medication and psychotherapy [53].

The CTE Center at Boston University [54] is one of the leading CTE research facilities in the United States. It currently focuses its research on three interconnected research endeavors:

1. Molecular research: "The mission of the molecular research team is to discover disease mechanisms and develop new diagnostics and treatments for Chronic Traumatic Encephalopathy and other neurodegenerative disorders, including Alzheimer’s disease."
2. CTE Brain Bank: "Pathological research is the bedrock of the study of disease. The CTE Center neuropathologists study brain and spinal cord tissue of former athletes to better understand the cause, progression, and characteristics of the disease."
3. Clinical Research: "The CTE Center will conduct and support research designed to identify genetic and environmental risk factors, diagnostic tests, treatment, and more."

Scientific Assumptions

- The complex physiology of the human brain makes the diagnosis and treatment of brain injuries uniquely challenging [Section 2 (2)]: Congress [15] found that the physiology of the human brain makes diagnosis and treatment of brain injuries difficult, placing significant burdens on family of the individual suffering the effects of brain injury. Furthermore, Basset and Gazzaniga [55] argue that the brain “can be understood as a complex system or network, in which mental states emerge from the interaction between multiple physical and functional levels.” Additionally, Moustafa et al. noted that “mounting evidence shows that brain disorders involve multiple and different neural dysfunctions, including regional brain damage, change to cell structure, chemical imbalance, and/or connectivity loss among different brain regions."
- PTSD can be effectively treated [Section 3 (1)(A)]: Researchers [56] have conducted many studies on the treatment of PTSD and believe that it can be successfully treated. For example, Bliss et al [57], found that trauma-focused psychological treatments effectively treat chronic PTSD. Furthermore, Raskind et al. [58] found that Prazosin effectively reduced the number of recurrent distressing dreams, facilitated better sleep, and reduced other PTSD symptoms for individuals suffering from PTSD.
- PTSD is a valid medical diagnosis [Section 2 (2)]: Researchers have conducted many studies on PTSD and largely agree regarding its legitimacy. PTSD was adopted [59] in the third revision of the Diagnostic and Statistical Manual of Mental Disorders [60] (DSM-III) in 1980.
- TBI can be effectively treated [Section 3 (1)(A)]: There are many accepted treatments [61] of TBI. For example, surgery is the appropriate treatment for severe TBI that results in blood clots, skull fractures, or increased intracranial pressure. Medication and therapy have also proven successful.

The Debate

Scientific Controversies / Uncertainties

Whether military service increases the risk that an individual might experience TBI or PTSD. There seems to be a strong correlation [62] found between combat experience and PTSD. However, the exact biological and neurological causes [63] of PTSD are still unknown. Therefore, research continues [49] to be done to gain a better understanding of the precise causes of PTSD. Further, research [64] has shown that there are more combat casualties in Iraq and Afghanistan caused from brain injuries than there were in Vietnam. The DOD and the Defense and Veterans Brain Injury Center found that 22% of all combat casualties in Iraq and Afghanistan are caused from brain injuries, compared to 12% in Vietnam.

Whether CTE [54] can eventually be diagnosed and treated in living individuals. Currently, CTE cannot be diagnosed [65] in a living person and therefore cannot be treated. However, research centers, such as The Boston University CTE Center [66], are committed to developing diagnosis mechanisms and treatment options for individuals living with CTE.

Whether increased federal spending [67] on scientific research regarding PTSD and TBI will improve the diagnosis, treatment, and delivery of therapies for military patients suffering from these disorders. Congress [15] found that increasing collaboration between the DOD, the NIH, and the VA would accelerate innovation and treatment of brain disease.

Endorsements & Opposition

- Rep. Don Bacon (R-NE-2), press release [68], “This legislation is about accountability for results. Our service members and veterans deserve the same urgency for rapid delivery of innovative diagnosis and treatment for PTSD and traumatic brain injury that we give to new weapons and other breakthrough military technologies.”

Potential Impacts
Supporters [68] of HR 5528 (see above) argue that the bill will hold the government accountable for addressing the needs of veterans who are suffering from PTSD and/or TBI.

Status

HR 5528 was introduced in the House on April 17, 2018, and referred to the House Armed Services Subcommittee on Military Personnel [69] on April 18, 2018.

Related Policies

S. 2372 - John S. McCain III, Daniel K. Akaka, and Samuel R. Johnson VA Maintaining Internal Systems and St...[70]
This bill overhauls the VA and expands access for veterans to VA-funded healthcare in the private sector.

H.R. 4132 - Veterans Affairs Physician Recruitment Act of 2017[71]
This bill aims to provide scholarships to individuals enrolled in physician or dental programs with the purpose of incentivizing students to work for the Veterans Health Administration to fill staffing shortages.

H.R. 5830 - Veteran Partners' Efforts to Enhance Reintegration Act[72]
This bill aims to establish at least two peer specialists in patient aligned care teams at the VA’s medical centers to promote the use and integration of services for substance abuse, and behavioral and mental health in primary care settings.

S. 1873 - Veteran Partners' Efforts to Enhance Reintegration Act[73]
This bill aims to establish at least two peer specialists in patient aligned care teams at the VA’s medical centers to promote the use and integration of services for substance abuse, and behavioral and mental health in primary care settings.

Recommended Citation


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Related Tags

Traumatic Brain Injury (TBI),[77] Post Traumatic Stress Disorder (PTSD),[78] Department of Veterans Affairs (VA),[79] veterans,[80] chronic traumatic encephalopathy (CTE)[81]