

[Cerebral Cavernous Malformations Clinical Awareness, Research, and Education \(CCM-CARE\) Act of 2017](#)

Expands and coordinates research activities related to cerebral cavernous malformations.

Updated last **November 8, 2017**

for the 02/28/2017 versions of HR 1255 and S 475.

WHAT IT DOES

[HR 1255](#) / [S 475](#), the Cerebral Cavernous Malformations Clinical Awareness, Research, and Education Act of 2017 (CCM-CARE Act), aims to expand and coordinate clinical and research activities for [cerebral cavernous malformations](#) (CCM) across public and nonprofit private entities. The bill creates opportunities for clinical trials, general research, and [investigational new drug \(IND\) applications](#) to provide more treatment options and cures. The bill would establish coordinating centers and award grants to increase CCM-related research efforts.

The CCM-CARE Act amends the [Public Health Service Act](#) (specifically [42 U.S.C. 284 et seq.](#) and [42 U.S.C. 243 et seq.](#)) to indicate the roles of three government agencies—the National Institutes of Health (NIH), the Centers for Disease Control and Prevention (CDC), and the Food and Drug Administration (FDA)—in line with the bill's goals.

The NIH is designated to fulfill the following tasks:

- Award grants and form cooperative agreements with public and nonprofit private entities;
- Broadly expand research efforts for CCM related to treatments, causes, diagnoses, education, and clinical training; and
- Establish two clinical and research coordinating centers, several participation centers, and a CCM consortium.

The CDC is responsible for carrying out the following actions:

- Award grants and form cooperative agreements with public and nonprofit private entities and provide technical support to collect, analyze, and report data on CCM;
- Establish a national CCM epidemiology program to collect, analyze, and report data on CCM, including data describing the usefulness of particular clinical practices; and
- Create a national surveillance program for CCM that will perform the same activities as the epidemiological program and coordinate with the NIH for sample and data collection.

The FDA is required to perform the following duties:

- Assist in clinical trial preparedness and support programs; and
- Coordinate with clinical centers to facilitate [biomarker](#) identification, clinical outcome assessment qualifications, IND applications, as well as adaptive trial design and expedited review pathways.

RELEVANT SCIENCE

Cerebral cavernous malformations are [lesions](#) in brain or spinal vasculature caused by structurally abnormal collections of [capillaries](#). Cavernous malformations—whether in the brain, spinal cord, or elsewhere in the body—are pockets or “[caverns](#)” that form in the presence of clusters of thin, weak capillary walls. Blood flows through and stretches the walls into caverns that fill with blood and slow the rate of flow through the capillaries. The NIH [reports](#) CCM affects approximately 0.5% of the worldwide population.

CCM is typically categorized into [two forms](#): familial, otherwise known as genetic or hereditary, and sporadic, where there is no identifiable cause. Familial cases are associated with at least three genes: [KRIT1](#), [CCM2](#), and [PDCD10](#). Despite progress in identifying these genes, the proteins they code for are still not fully understood, leaving questions over their precise roles and mechanisms. The CCM-CARE Act attempts to answer these questions by analyzing proteomic (protein), pharmacological (drug effects), and cellular mechanisms of CCM molecules.

Some geneticists [hypothesize](#) that these proteins might play a role in the structure of capillary walls. Gene mutations can result in abnormalities in the proteins that loosen the connections between cells. As the cells pull apart, the capillary walls are prone to leakage (bleeding), which can greatly increase pressure in the brain and lead to chronic neurological damage.

The familial form of CCM accounts for approximately 20% of all CCM cases worldwide and is most highly concentrated in New Mexico due to a specific mutation dubbed the “common Hispanic mutation” ([Q455X mutation](#)). The genetic mutation has been passed down from early Spanish settlers of what is now the American Southwest. Accordingly, many research groups and hospitals in the area have specific programs dedicated to CCM.

[According to the NIH](#), the severity of CCM depends on the number and location of the abnormal clusters. While most cases only involve one cluster, familial forms often have multiple, resulting in often overlapping neurological problems. A cluster’s given location in the brain creates problems related to the specific brain or spinal cord function of the affected region.

While diagnostic methods such as [imaging](#) and [genetic testing](#) exist, most cases are not diagnosed until patients appear symptomatic. While the symptoms associated with CCM vary case to case, they can include, but are not limited to, migraines, paralysis, [hemorrhages](#), seizures, and auditory or visual deficits. Approximately 25% of those afflicted with CCM experience no symptoms. Treatment options are primarily surgical but often include symptom management, such as the use of [anticonvulsants](#) to manage seizures. The CCM-CARE Act attempts to increase treatment and diagnostic methods available for CCM.

The bill specifically seeks to identify and develop biomarkers for FDA [qualification](#), which can simplify and accelerate clinical trials. [Biomarkers](#) are measurable biological characteristics used to indicate normal or pathogenic processes and responses to exposure or intervention. Biomarker identification and development is potentially useful for diagnostic purposes as well as for clinical trials.

The bill also seeks to provide avenues for [precision medicine](#) for CCM targeted therapies. Targeted therapies identify and fix specific genes, molecules, proteins, and other underlying biological pathologies. [Targeted gene therapy](#) for CCM would target the genetic mutations associated with the familial form of CCM.

BACKGROUND

The bill would put in place the first major government effort regarding CCM, as no previous programs target the condition specifically. [Clinical trials](#) researching CCM vary in focus from [effects](#) of certain drugs on lesions to [factors](#) influencing disease severity.

ENDORSEMENTS & OPPOSITION

Endorsement:

- [Angioma Alliance, statement](#), March 13, 2017: "We are grateful to Senator Udall for his advocacy on behalf of our New Mexico families and those around the country. His legislation, coupled with our exciting new community engagement effort, will raise awareness and potentially have a dramatic impact on the New Mexico CCM community."

At present, there has not been any publicly reported opposition to this bill.

STATUS

HR 1255 was introduced in the House on February 28, 2017. On March 3, 2017, it was referred to the [Subcommittee on Health](#) by the [Committee on Energy and Commerce](#).

S 475 was introduced in the Senate on February 28, 2017, and referred to the [Committee on Health, Education, Labor, and Pensions](#) on the same day.

RELATED POLICIES

President Barack Obama announced the [Precision Medicine Initiative](#) (PMI; [SciPol brief available](#)) on January 20, 2015, during his State of the Union Address. The PMI is meant to “accelerate a new era of medicine that delivers the right treatment at the right time to the right person, taking into account individuals’ health history, genes, environments, and lifestyles.” The PMI was allocated funds as part of the President’s FY (Fiscal Year) 2016 Budget and [additional government agency actions](#) have been taken in support.

POLICY HISTORY

In 2008, [Representative Tom Udall](#) (D-NM-3) introduced a House Resolution ([H Res. 1193](#), 110th Congress) expressing the sense that research, education, and awareness was needed with respect to CCM.

The first version of the CCM-CARE Act, the Cavernous Angioma CARE Center Act of 2012 ([HR 4008](#), 112th Congress), was introduced in the House in 2012 by [Representative Martin Heinrich](#) (D-NM-1). Subsequent versions were introduced in the 113th and 114th Congressional sessions. Earlier versions of the bill contained fewer requirements and specific provisions concerning the role of the FDA in CCM research. Specifically, the present version (115th Congress) added measures for IND applications (Section 5(c)) and adaptive trial design and expedited review pathways (Section 5(d)).

SPONSORS

HR 1255

Sponsor: [Representative Ben Ray Lujan](#) (D-NM-3)

Cosponsors:

- [Representative Michelle Lujan Grisham](#) (D-NM-1)
- [Representative Stevan Pearce](#) (R-NM-2)

S 475

Sponsor: [Senator Tom Udall](#) (D-NM)

Cosponsor: [Senator Martin Heinrich](#) (D-NM)

PRIMARY AUTHOR

Kirsten Bleiweiss, MA candidate

EDITOR(S)

Sean Riley, MA; Andrew Pericak, MEM

RECOMMENDED CITATION

Duke SciPol, "Cerebral Cavernous Malformations Clinical Awareness, Research, and Education (CCM-CARE) Act of 2017 (HR 1255 / S 475, 115th Congress)" available at <http://scipol.duke.edu/content/cerebral-cavernous-malformations-clinical-awareness-research-and-education-ccm-care-act-2017> (11/08/2017).

LICENSE



This work is licensed under a [Creative Commons Attribution-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-sa/4.0/). Please distribute widely but give credit to Duke SciPol, linking back to this page if possible.