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ORIGINAL ARTICLE

# The prevalence of suicide prevention training and suicide-related terminology in United States chiropractic training and licensing requirements

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**ABSTRACT**

**Objective:** To summarize the prevalence of suicide-related terminology in US doctor of chiropractic educational programs, residency programs, continuing education training, diplomate training programs, and state licensure requirements. The secondary objective was to provide next-step recommendations to enhance suicide prevention education and training for the profession.

**Methods:** A review of public-facing electronic documents and websites occurred from April to May 2020 for doctor of chiropractic program course catalogs, residency program curriculum overviews, state licensing requirements, candidate handbooks for the chiropractic specialties, and continuing education training. Data were extracted to tables reflecting the state of suicide prevention training and suicide-related terminology. Descriptive statistics were used to report the findings.

**Results:** Of 19 doctor of chiropractic programs, 54 relevant courses were identified. No course catalogs specifically mentioned suicide prevention education, but specific risk factor-related terminology was highlighted. For the 10 doctor of chiropractic residency programs, all required mandatory trainee training, which included suicide prevention education. Two states required suicide prevention education training as part of the state re-licensure process and are available through 4 continuing education courses. No diplomate training program handbooks included a requirement of suicide prevention education though suicide risk-factor terminology was described in some handbooks.

**Conclusion:** The state of suicide prevention training in the chiropractic profession documented in handbooks is largely lacking and widely varied at this time. The development of profession-specific suicide prevention continuing education may be beneficial for practicing chiropractors, and suicide prevention curriculum development at the doctor of chiropractic programs may prepare future doctors of chiropractic.

**Key Indexing Terms:** Suicide; Primary Prevention; Chiropractic; Education

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## OBJECTIVE

According to the Centers for Disease Control and Prevention (CDC), self-directed violence continues to be among the top 10 causes of death with over 50,000 deaths reported annually in the United States (US) since 2008.[1] On March 5, 2019, Executive Order 13861, *President's Roadmap to Empower Veterans and End a National Tragedy of Suicide* (PREVENTS) was signed.[2] This executive order initiated funding and interagency collaboration to create a task force to develop and implement a national, comprehensive plan to change how the US treats mental health and understands suicide prevention for all Americans.

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Several other health care professions have conducted professional training evaluations and self-reflection on their professional roles in societal suicide prevention.[3–5] As portal-of-entry providers, chiropractors have a duty to engage in suicide prevention despite most often being consulted for spinal and musculoskeletal conditions.[6–9] In the 12 months leading up to a suicidal ideation or suicidal attempt, patients are more likely to seek care from primary care practitioners than a mental health care provider.[10,11] It is suspected that portal-of-entry providers—such as chiropractors—may encounter a high rate of patients with risk factors associated with suicide including chronic pain, depression, anxiety, posttraumatic stress disorder, substance use disorder (not performance enhancing drugs), a sense of hopelessness, or a sense of helplessness.[12–16]

It is currently unknown how often chiropractors encounter patients at risk of suicide in the US or anywhere else worldwide. Several factors highlight the growing importance for chiropractors to be trained in recognizing the suicidal patient: (1) chiropractors are portal-of-entry providers,[9] (2) growing workforce of chiropractors at the Veterans Health Administration,[17] (3) expansion of integrated clinical residency opportunities within the Veterans Health Administration,[18] (4) high prevalence of psychiatric comorbidities presenting with spinal complaints,[16,19] (5) opioid crisis generating demand for nonpharmacological health care services,[20] and (6) an elevated risk of suicidal ideation in patients with psychiatric comorbidities prescribed antiepileptics for spinal pain.[21,22]

In the US, the chiropractic profession has multiple opportunities available for suicide prevention education including doctor of chiropractic programs (DCPs), doctor of chiropractic residency programs (DCRPs), postgraduate continuing education (CE), and diplomate training programs (DTPs) under the American Board of Chiropractic Specialty programs (ABCS). Individual DCPs and DCRPs are expected to operationalize Council on Chiropractic Education (CCE) meta-competency curricular objectives and outcomes. Mental and behavioral health education training in DCRPs is regulated under the guidance of the public health meta-competency within Section H (Curriculum, Competencies and Outcomes Assessment) of the CCE Accreditation Standards.[23] CCE accreditation standards for mental and behavioral health education in DCPs are found under meta-competency 3 (Health Promotion and Disease Prevention).[24] The practice of chiropractic is regulated by state legislation and state or provincial regulatory boards. In the US, state, district, and territory licensing boards maintain governing statutes or bylaws that govern health profession licensure and CE requirements.[25] As such, licensing boards are responsible for the protection of the health and safety of the public from professionals acting in fraudulent and unethical manners in accordance with statutory practice acts.[9] CE is mandatory for chiropractors and most health care professionals and is designed to keep practitioners current in their respective fields.[9]

To date, it is not known to what extent suicide prevention education and training is provided within the DCPs, DCRPs, DTPs, or institutional affiliated CE within the US. There is a gap in the literature describing the educational requirements for suicide prevention training for DCPs, DCRPs, DTPs, and US state licensing requirements. Most chiropractors are sole proprietors or in chiropractic group practices and greater than one-third (36.6%) of chiropractors practice in rural communities or small towns and cities.[9] A recent call to action[26] for the chiropractic profession has indicated that chiropractors, as portal-of-entry providers, triaging and managing patients with spinal pain should be prepared to identify risk factors associated with suicide. It is imperative that every provider is afforded suicide prevention education and resources to assist at-risk patients.

The objectives of this study were to (1) describe the current state of US DCP and US DCRP curricula as they relate to suicide prevention and self-harm risk factors; (2) report current US licensing and re-licensing requirements for chiropractors as it relates to suicide prevention education; (3) assess current DTP and chiropractic-specific CE resources available to prepare clinicians for encounters with individuals at risk of suicide; and (4) provide recommendations for the profession to enhance the dissemination of suicide prevention training.

## METHODS

This study design was adapted from past studies reviewing the prevalence of various terminology in DCP curricula,[27,28] and a pharmacy profession's review[3] of US licensing requirements for suicide prevention training. We limited our search to US DCPs, DCRPs, licensing boards, DCP postgraduate CE courses, and diplomate credentialing bodies endorsed by the ABCS. We included all DCP institutions with campuses in the US and that were included on the Association of Chiropractic Colleges list of training programs[29] (Table 1).[30–45] Similar to Gliedt et al,[46] we included Sherman College of Chiropractic. DCRPs were sourced from the CCE accredited residency list[47] or are in the process of accreditation with at least a publicly available projected application date[48] (Table 2).[49–58]

Licensing and re-licensing requirements were identified from the Federation of Chiropractic Licensing Board (FCLB) website for all 50 states, 1 federal district, and 2 US territories.[25,59] DTPs that led to chiropractic specialty board certifications were included if they were recognized by the American Chiropractic Association on the ABCS website[60] (Table 3).[61–71] For the purposes of this study, CE opportunities were limited to the US institutions that also maintained DCPs. DTPs not recognized by ABCS and CE offerings not affiliated with the postgraduate department of DCPs were excluded.

We searched for each suicide and suicide-related risk factor term (Table 4) in the public-facing websites, course catalog, curricula overviews, and handbooks for included institutions or licensing bodies. These search terms and conditions were selected based on their established associations with suicidal self-directed violence and suicide-related behaviors as noted in the literature.[72,73]

For any ascertained content dated older than May 2019, we contacted the relevant organization through email for confirmation of accuracy. A follow-up email was sent 1 week later, and if the organization or board was nonresponsive, then we proceeded with publicly available information and marked with an asterisk. Due to the significant variation in CE offerings and multiple systems used for course offerings, we did not contact individual institutions to verify the information from each institution or third party-affiliated CE providers.

Data for all DCPs, DCRPs, US licensing boards, DTPs, and CE were collected between April 2020 and May 2020. Data extraction was independently performed by 2 investigators and entered into a Google Sheets spreadsheet

**Table 1 - Doctor of Chiropractic Program Institutions**

| Institution Name | City and State |
|---|---|
| Cleveland University-Kansas City, College of Chiropractic[30] | Overland Park, KS |
| D'Youville College[31] | Buffalo, NY |
| Keiser University[32] | West Palm Beach, FL |
| Life Chiropractic College West[33] | Hayward, CA |
| Life University[34] | Marietta, GA |
| Logan University[35] | Chesterfield, MO |
| National University of Health Sciences, Florida Campus[36] | Seminole, FL |
| National University of Health Sciences, Illinois Campus[36] | Lombard, IL |
| New York Chiropractic College[37] | Seneca Falls, NY |
| Northwestern Health Sciences University[38] | Bloomington, MN |
| Palmer College of Chiropractic, Davenport Campus[39] | Davenport, IA |
| Palmer College of Chiropractic, Florida Campus[39] | Port Orange, FL |
| Palmer College of Chiropractic, West Campus[39] | San Jose, CA |
| Parker University[40] | Dallas, TX |
| Sherman College of Chiropractic[41] | Spartanburg, SC |
| Southern California University of Health Sciences[42] | Whittier, CA |
| Texas Chiropractic College[43] | Pasadena, TX |
| University of Bridgeport School of Chiropractic[44] | Bridgeport, CT |
| University of Western States[45] | Portland, OR |

**Table 2 - Doctor of Chiropractic Residency Sites**

| Facility Name | City and State | CCE Accreditation Status; Year |
|---|---|---|
| Cincinnati VA Medical Center[50] | Cincinnati, OH | Application Projected; 2020 |
| Miami VA Healthcare System[51] | Miami, FL | Application Projected; 2020 |
| VA Central Iowa Health Care System[52] | Des Moines, IA | Application Projected; 2020 |
| VA Connecticut Healthcare System[53] | West Haven, NY | Accredited; 2016 |
| VA Finger Lakes Healthcare System[49] (*formerly Canandaigua VA Medical Center*) | Canandaigua, NY | Accredited; 2016 |
| VA Greater Los Angeles Healthcare System[54] | Los Angeles, CA | Accredited; 2016 |
| VA Palo Alto Health Care System[55] | Palo Alto, CA | Application Projected; 2020 |
| VA Puget Sound Health Care System[56] | Tacoma, WA | Application Projected; 2020 |
| VA St. Louis Health Care System[57] | St. Louis, MO | Accredited; 2016 |
| VA Western New York Health Care System[58] | Buffalo, NY | Accredited; 2016 |

**Table 3 - Diplomate Training Programs**

| American Board of Chiropractic Specialties; Abbreviation | Credential | Credential Abbreviation |
|---|---|---|
| American Board of Chiropractic Acupuncture; ABCA[61] | Diplomate | DABCA |
| American Board of Chiropractic Internists; ABCI[62] | Diplomate | DABCI |
| American Board of Chiropractic Pediatrics; — | — | — |
| American Board of Forensic Professionals; ABFP[63] | Diplomate | DABFP |
| American Chiropractic Board of Occupational Health; ACBOH[64] | Diplomate | DACBOH |
| American Chiropractic Board of Radiology; ACBR[65] | Diplomate | DACBR |
| American Chiropractic Board of Sports Physicians; ACBSP[66] | Diplomate | DACBSP |
| American Chiropractic Neurology Board; ACNB[67] | Diplomate | DACNB |
| American Chiropractic Rehabilitation Board; ACRB[68] | Diplomate | DACRB |
| American Clinical Board of Nutrition; ACBN[69] | Diplomate | DACBN |
| Chiropractic Board of Clinical Nutrition; CBCN[70] | Diplomate | DCBCN |
| International Academy of Neuromusculoskeletal Medicine; IANM[71] (formerly the Academy of Chiropractic Orthopedists) | Diplomate | DIANM |

**Table 4 - Suicide and Suicide-Related Terminology Search Terms**

| |
|---|
| Suicide, suicidality, self-directed violence, self-harm, depression, anxiety, substance use disorder, bipolar disorder, psychiatric, yellow flag, psychosocial |
| Search Terms: |
| "public health", "suicid", "depress", "anxi", "psych", "social", "harm", "violence", "helplessness", "hopelessness", "yellow flag", "orange flag", "behavio", "mental" |

(Alphabet, Inc, Menlo Park, CA). Any discrepancy between investigators was adjudicated by a third author and group consensus was achieved. All materials evaluated were located electronically. All electronic documents were searched using the "find" function with the appropriate software (control-f or command-f) to locate suicide-related terminology included within DCP curricula, DCRP handbooks, FCLB state, district, and territory sites, chiropractic specialty credentialing exam candidate handbooks and job analysis, and DCP institution affiliated CE course catalogs.[27,46] Suicide-related terminology was tabulated by term. Due to the clinical nature of various training opportunities, language that implied referral, comanagement, or care coordination with mental or behavioral health care professionals was also noted as a specific category of suicide-related terminology.

Public health and psychology courses were searched for each DCP, as were any courses that included any suicide-related terminology in the course title, description, or objective. Relevant course hours and course credits were noted. Other program offerings at DCP institutions were excluded if they were not an available elective or core course for a DCP. We further extracted requirements for training in several topics relevant to suicide prevention and risk factors including self-harm, depression, substance abuse, lesbian, gay, bisexual, transgender, queer, intersex, asexual, and others (LGBTQIA+) issues, and other psychiatric conditions.[74–77]

## RESULTS

Course curricula were extracted for all 19 identified DCPs[30–45] with content extracted from 55 courses (Appendix A, available as additional content accompanying this paper online at www.journalchiroed.com). Twenty-three of the courses were public health-related, 20 were mental health-related, and 12 were other courses captured through the inclusion of suicide-related terminology. Fifty-one of the courses were core curricula and 4 were offered as electives. None of the course catalog descriptions for these courses specifically mentioned suicide prevention or self-harm, but risk factors were covered including: 6.9% (4/55) addressed depression, 19.0% (11/55) substance abuse, 3.4% (2/55) LGBTQIA+ issues, 22.4% (13/55) psychosocial screening, 15.5% (9/55) psychological or behavioral health referral.

Ten DCRPs[49–58] were extracted with all 10 requiring a mandatory computer-based training for trainees[78] as part of orientation (Appendix B, available as additional content accompanying this paper online at www.journalchiroed.com). Suicide prevention training is incorporated as an introductory module for all Department of Veterans Affairs (VA) health care trainees. There is a suicide prevention education computer-based training module, called S.A.V.E., for VA DCRPs.[79,80] This online training is a required annual training for all Department of Veterans Affairs staff with direct patient care. Components of S.A.V.E. include recognizing *S*igns of suicide, *A*sking about suicide, *V*alidating feelings, and *E*ncouraging help and *E*xpediting treatment. Additionally, 90% (9/10) of DCRPs commented on specific training experiences with behavioral health or psychology departments. None of the DCRP handbooks specifically described training related to self-harm, depression, or LGBTQIA+ issues.

All 50 US states, 2 US territories, and the District of Columbia licensing boards were reviewed for licensing requirements (Appendix C, available as additional content accompanying this paper online at www.journalchiroed.com). Connecticut and Washington state both require suicide prevention education through CE for re-licensure (Table 5). Washington state additionally requires training in self-harm, Connecticut mandates training in depression, posttraumatic stress disorders, and psychosocial screening, and Washington, DC requires education on LGBTQIA+ cultural competency. No other states or territories required training for suicide prevention education or suicide risk factors.

There are 4 postgraduate CE courses offered by ChiroCredit in affiliation with University of Bridgeport School of Chiropractic that offer suicide prevention training (Table 6).[81–84] Fifty percent (2 of 4) of the courses pertain to the military veteran population. Forty-eight additional courses were identified as covering at least 1 of the identified suicide risk factors (Appendix D,

**Table 5 - State, Territory, or District With Suicide Prevention Education Training Requirements**

| State | Suicide Prevention Education Requirements; Credit Hours |
|---|---|
| Connecticut | [a]Coursework appropriate for chiropractors on the subject of mental health conditions common to veterans and family members of veterans, including (A) determining whether a patient is a veteran or family member of a veteran, (B) screening for conditions such as posttraumatic stress disorder, risk of suicide, depression and grief, and (C) suicide prevention training. 2 hours |
| Washington | A 1-time training in suicide screening and referral from a qualified suicide prevention training program. The training must be completed during the first full reporting period after initial licensure. 3 hours |

[a] On and after January 1, 2016, not less than 2 contact hours of training or education during the first renewal period in which continuing education is required and not less than once every 6 years.

**Table 6 - Suicide Prevention Education Postgraduate Continuing Education Training**

| CE Provider | Institutional Affiliation | Course Title (Credit Hours) |
|---|---|---|
| ChiroCredit | University of Bridgeport School of Chiropractic | Mental Health Conditions Common to Veterans[81] (2) |
| ChiroCredit | University of Bridgeport School of Chiropractic | Suicide Assessment 201[82] (3) |
| ChiroCredit | University of Bridgeport School of Chiropractic | Suicide Assessment 202[83] (3) |
| ChiroCredit | University of Bridgeport School of Chiropractic | Washington State Suicide Assessment and Referral[84] (3) |

available as additional content accompanying this paper online at www.journalchiroed.com).

Of the 12 ABCS recognized specialty councils, 11 offer diplomate programs.[61–71] No DTP electronic material specifically mentioned suicide prevention education or training in a handbook or website (Appendix E, available as additional content accompanying this paper online at www.journalchiroed.com), but 27.3% (3/11) addressed depression, 27.3% (3/11) substance abuse, 0% (0/11) LGBTQIA+ issues, 36.4% (4/11) psychiatric conditions, 18.2% (2/11) yellow flag or psychosocial screening, and 18.2% (2/11), psychological or behavioral health case referral. For 2 of identified board specialties (American Chiropractic Board of Radiology and American Board of Forensic Professionals), the education emphasis does not involve direct patient care, and thus suicide prevention education may be less relevant to their professional training expectations.

## DISCUSSION

In this paper, we present data on suicide prevention and suicide-related risk factor terminology used within publicly available DCP curricula handbooks, accredited or accreditation seeking DCRP descriptions, state board licensure requirements, DTP handbooks, and chiropractic CE course descriptions. Based on our findings, there is very little formal language addressing suicide prevention or suicide-related risk factors within state requirements for licensure, DCPs, CE, or DTPs. The majority of DCPs offer public health and mental health-related courses; however, few describe identified risk factors for suicide within their descriptions. Half of the DTPs cover at least 1 aspect or risk factor for suicide prevention education, but none specifically address suicide prevention.

Based on our methods, VA DCRPs demonstrated the most comprehensive approach to covering suicide prevention education. Currently, these are hospital-based clinical experiences with a primary goal to provide trainees with an advanced understanding of illness burden and case complexity in veteran patients[23,58] and all VA trainees are mandated to be trained in suicide prevention.[78] It is unclear if trainee clinical exposure to behavioral or mental health practitioners during VA residency training specifically addresses suicide prevention.

Asking patients direct questions about suicidal thoughts is difficult and many clinicians report the barrier of anticipatory anxiety about learning a patient is positive for suicidal ideation.[85] Gatekeeper training (eg, S.A.V.E., Applied Suicide Intervention Skills Training [ASIST], Question, Persuade, and Refer [QPR]) has been offered as a potential solution to help clinicians be more direct in their questioning of suicidal ideation.[86] Health care workers trained in gatekeeper approaches to suicide prevention test higher in confidence, knowledge, and skills related to suicidal behavior than untrained providers.[87–89] The development of a suicide prevention checklist has further been indicated by nurses to help create safe environments and improve consistency of practice by guiding management of potentially self-harming patients.[90]

While studies have demonstrated gatekeeper suicide prevention education to be effective in the short term, there are concerns about retention of suicide prevention knowledge and skills in the long-term.[91,92] Gatekeeper attitude and behavioral intention both indicate weak training effects with poor translation into practice.[93] For behavioral health providers, there is a significant positive correlation between the confidence and implementation of suicide prevention best practices and the number of suicide prevention trainings attended.[94] This underscores the necessity for normalization and frequent re-training of chiropractors with multifaceted approaches to suicide prevention throughout their DCP training, potential specialization, and license renewal CE over their careers.

Given the serious nature of failing to identify the patient at risk for self-harm, we recommend the following steps to raise chiropractic profession awareness of this public health concern, and enhance uptake and dissemination of suicide prevention:

1. All states, territories, and districts follow Connecticut and Washington's lead in adopting requirements of suicide prevention CE as part of licensure renewal.
2. To signify the importance of this public health concern, FCLB, though not a regulatory body, can consider adding a *yes*/*no* category under CE requirements for suicide prevention training for each state, territory, and district webpage to highlight whether or not suicide prevention training is a state licensure requirement. FCLB already has questions to similarly underscore training requirements for sexual boundaries and AIDS awareness/risk prevention.[25]
3. DCPs and DTPs that provide suicide prevention training should update respective curricular handbooks with relevant suicide prevention and suicide risk factor terminology.
4. If not already incorporated into public health and mental health courses within DCPs, we recommend institutions provide gatekeeper training education (or similar evidence-informed suicide prevention education program) with multiple content exposures throughout

training to prepare students to recognize and expedite care for patients with suicidal ideation in concordance with CCE meta-competency 3 (Health Promotion and Disease Prevention).[24]

5. Researchers design studies to assess chiropractors' and DCP students' knowledge and attitudes of suicide prevention implementation, best approaches to enacting suicide prevention education for chiropractors, and evaluate occurrence risk of patients with suicidal ideation within chiropractic offices.
6. All DCPs, DCRPs, and DTPs, in following recommendations from CCE accreditation standards, enhance and ensure vertical and horizontal integration of their curriculum in meeting and exceeding CCE meta-competencies educational accreditation standards as a framework for the delivery of suicide prevention strategies.

### *Limitations*

This was not a survey of DCP syllabi for course content and course descriptions may have been insufficient to address our study question. Suicide or suicide-related risk factor terminology may have been covered in courses but omitted from public-facing documents for a variety of reasons, such as word count limitation, oversight, or inability to list every condition or pathology a course will cover. Didactic or case-based learning clinical integration courses (ie, Grand Rounds) within the clinical phase of training may have included suicide prevention education and suicide-related risk factors; however, not all case scenarios can be succinctly described in the course objectives. A clinical preceptorship involves case management for the live patient in front of the trainee; therefore, specific preceptors may be exposed to suicide prevention screening due to the unique environment of their clinical training and once again may not necessarily be reflected in the course objectives. We did not search or evaluate residency programs that are not actively seeking accreditation or are not presently accredited by CCE, such as chiropractic institutions offerings in radiology and sports medicine.

CE evaluation was specific to the chiropractic profession and was not inclusive of CE individuals may pursue offered by other health care professionals or be part of a health care setting that requires training beyond standard re-licensure CE. We did not exhaust all CE offerings, rather we elected to assess CE associated with DCPs. Although we made efforts to contact all organizations with information older than 1 year, it is possible that organizational websites and online documentation may not have been updated with the most recent information that is provided in the curriculum or examination outline. Our utilized search terms were unlikely to be comprehensive of all risk factors for suicidal ideation and did not consider all special populations including children, adolescents, geriatrics, or ethnicity. For example, we did not include language specific to nonsuicidal self-injury, as we felt this was outside the scope of our intended question.

## CONCLUSION

Despite suicide prevention being a national crisis that requires efforts from all health care professionals, none of the public-facing DCP or DTP course description handbooks reflect inclusion of suicide prevention education and 51 US licensing jurisdictions do not require suicide prevention education for licensure. All DCRPs included a computer-based suicide prevention training module, and most sites described the possibility of behavioral health interdisciplinary training. Currently, there are 4 CE courses specific to suicide prevention that are targeted to chiropractors who are required to complete suicide prevention education to maintain a license in Washington state or Connecticut. As this is the first known assessment of suicide prevention education for the chiropractic profession, future work to evaluate the status of suicide prevention education at the various training levels of the chiropractor should consider investigations that evaluate course syllabi and class notes, surveys of faculty, as well as qualitative interviews with DCP faculty on suicide prevention education strategies at DCPs. As chiropractors are well-positioned to be gatekeepers who identify at-risk, self-harming patients, we have outlined several first-step recommendations for better preparing the profession to serve our communities and patients at risk of suicide.

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