



# Chronic Pain Management Research Program

## Strategic Plan

### INTRODUCTION

The Congressionally Directed Medical Research Programs (CDMRP) represents a unique partnership among the U.S. Congress, the military, and the public to fund innovative and impactful medical research in targeted program areas. Programs managed by the CDMRP have formalized strategic plans that identify program-specific research priorities; how to best address these urgencies; short- and long-term goals; investment strategies; and ways to identify and evaluate program successes with respect to the priorities.

This document presents the current strategy for the CDMRP's Chronic Pain Management Research Program (CPMRP). The CPMRP Strategic Plan identifies the high-impact research goals most important to its stakeholders while providing a framework that is adaptable to changes in the medical research environment to address those goals. This plan has been formulated to provide greater clarity of the program's goals over time to the public and other stakeholders. Funding for the CPMRP is congressionally appropriated on an annual basis; therefore, there is no guarantee of future funding. The CPMRP Strategic Plan is reviewed during the program's annual vision setting meetings and updated as necessary.



### CPMRP BACKGROUND AND OVERVIEW

Chronic pain is a prevalent and debilitating condition experienced by U.S. military and civilian populations alike. In 2016, 20.4% (50 million [M]) of the general American adult population was estimated to have experienced chronic pain, with 8.0% (19.6M) experiencing high-impact chronic pain.<sup>1</sup> The occurrence of chronic pain in active-duty Service Members is projected to be even higher, in the range of 31%–44%. Further, the chronic pain syndromes experienced by Service Members can be complex in nature due to the distinct comorbidities arising from physical and psychological trauma experienced during deployment-related activities.<sup>2</sup> Overall, chronic pain presents itself as a pervasive risk to the health, wellbeing, and quality of life of all Americans and is furthermore a barrier to continuation of service for those in the armed forces.

The toll exacted by chronic pain extends beyond personal suffering and has broader implications, including significant financial impacts and, more tragically, increased mortality associated with the ongoing opioid epidemic. The 2011 Institute of Medicine report, "Relieving Pain in America," estimated that chronic pain health care expenses and lost productivity cost the U.S. public approximately \$600 billion per year.<sup>3</sup> During 2017–2019, 45,000–50,000 deaths per year were attributed to overdoses involving opioids, with 14,000–17,000 directly involving prescription opioids.<sup>4</sup> In addition to contributing to overdose fatalities, prescription narcotics also pose a significant risk for substance abuse, with 9.9M people aged 12 or older misusing prescription pain relievers in 2018 alone.<sup>5</sup>

The CPMRP was established in fiscal year 2019 (FY19) with a congressional appropriation of \$10M to conduct research on the effects of using prescription opioids to manage chronic pain and to research opioid-alternative or non-addictive methods to treat and manage chronic pain, with a focus on issues related to military populations. The program strives to support research of exceptional scientific merit with the potential to make a significant impact on improving the health and

quality of life of those living with chronic pain. Per the FY19 CPMRP congressional appropriation, chronic pain is defined as pain that occurs on at least half the days for 6 months or more, which can be caused by issues including, but not limited to, combat- and training-related physical or mental stress and trauma, migraines and chronic headaches, traumatic brain injury (TBI), arthritis, muscular-skeletal conditions, neurological disease, tick and vector-borne disease, other insect-transmitted or tropical disease, and cancer. The CPMRP actively pursues collaborations and partnerships with entities from the *Interagency Pain Research Coordinating Committee* and encourages investigators to align their research projects to the committee’s work products, the *National Pain Strategy* and *Federal Pain Research Strategy*, to maximize the impact on chronic pain research outcomes.

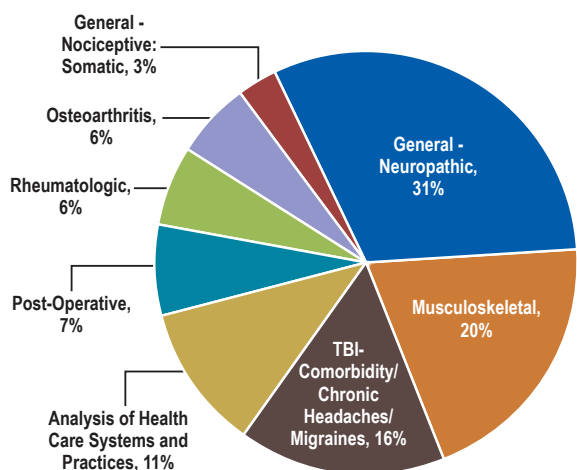
Based on recommendations from its Programmatic Panel, the CPMRP has developed the following vision and mission in response to congressional intent:

**VISION:** Improving the medical readiness of Service Members, as well as quality of life and level of function of all Americans, with or at risk for developing chronic pain

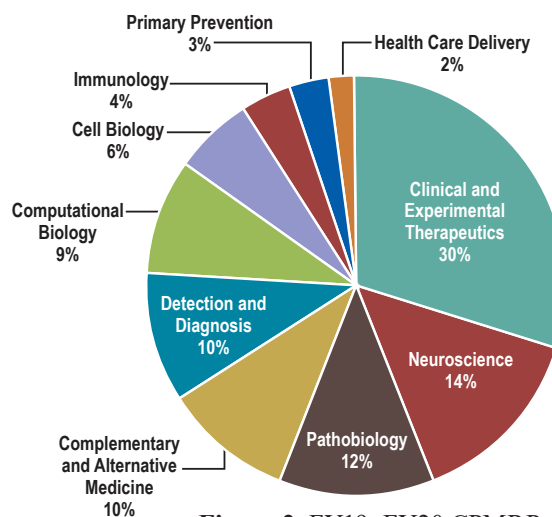
**MISSION:** To support and promote innovative, high-impact research to prevent the development and improve the management of chronic pain

## FUNDING HISTORY

The CPMRP has received \$55M in total appropriations since the program’s inception in 2019. To date, the program has funded a total of 14 Investigator-Initiated Research Awards and 3 Translational Research Awards. **Figure 1** provides a breakdown of the program’s investment based on research focus and pain type. The congressional guidance received with annual appropriations casts a broad landscape of chronic pain conditions and syndromes that fall within the responsibility of the program. The program will continue to monitor funding allocations and seeks to expand its portfolio to address the complex needs of Service Members, Veterans, and the American public. **Figure 2** depicts the types of research being supported as specified by the scientific classification system.



**Figure 1.** FY19–FY20 CPMRP Investment by Pain Classification



**Figure 2.** FY19–FY20 CPMRP Investment by Research Category

## PREVIOUS ENDEAVORS

Prior to establishment of the CPMRP, funding for chronic pain management within the U.S. Army Medical Research and Development Command was supported by several CDMRP programs and the Defense Health Agency Joint Program Committees. These included the Defense Medical Research and Development Program, Peer Reviewed Medical Research Program, Psychological Health/Traumatic Brain Injury Research Program, Spinal Cord Injury Research Program, Peer Reviewed Orthopaedics Research Program, Gulf War Illness Research Program, Prostate Cancer Research Program, and Multiple Sclerosis Research Program. During FY06–FY17, the aggregate investment in chronic pain research exceeded \$174M (**Figure 3**), with an increased emphasis occurring around FY14.

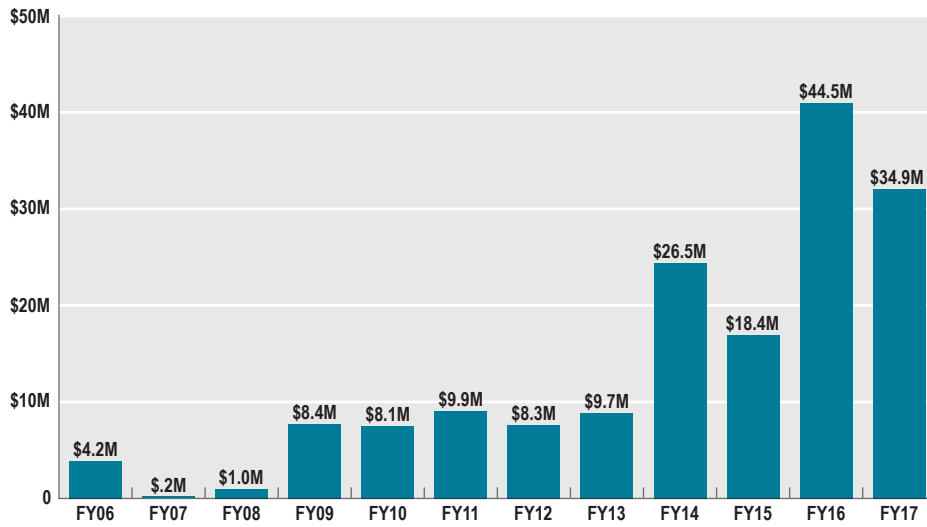


Figure 3. CDMRP Investment in Chronic Pain by Fiscal Year

The CPMRP continues to coordinate with other CDMRP and Department of Defense partners whose programmatic missions are concerned with conditions associated with chronic pain to maximize the impact of the research investments and reduce duplicative efforts.

## RESEARCH FUNDING LANDSCAPE

Among federal agencies, the National Institutes of Health (NIH) and the Department of Veterans Affairs (VA) are major sponsors of chronic pain research. Between FY11 and FY20 the NIH invested over \$4.5 billion toward research identified as chronic pain-related (Figure 4). Key institutes responsible for this investment include the National Institute of Neurological Disorders and Stroke (NINDS: \$882M), National Institute on Drug Abuse (NIDA: \$550M), National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS: \$528M), National Center for Complementary and Integrative Health (NCCIH: \$372M), National Institutes of Diabetes and Digestive and Kidney Diseases (NIDDK: \$348M), National Institutes of Dental and Craniofacial Research (NIDCR: \$284M), National Institute of Aging (NIA: \$245M), amongst others.

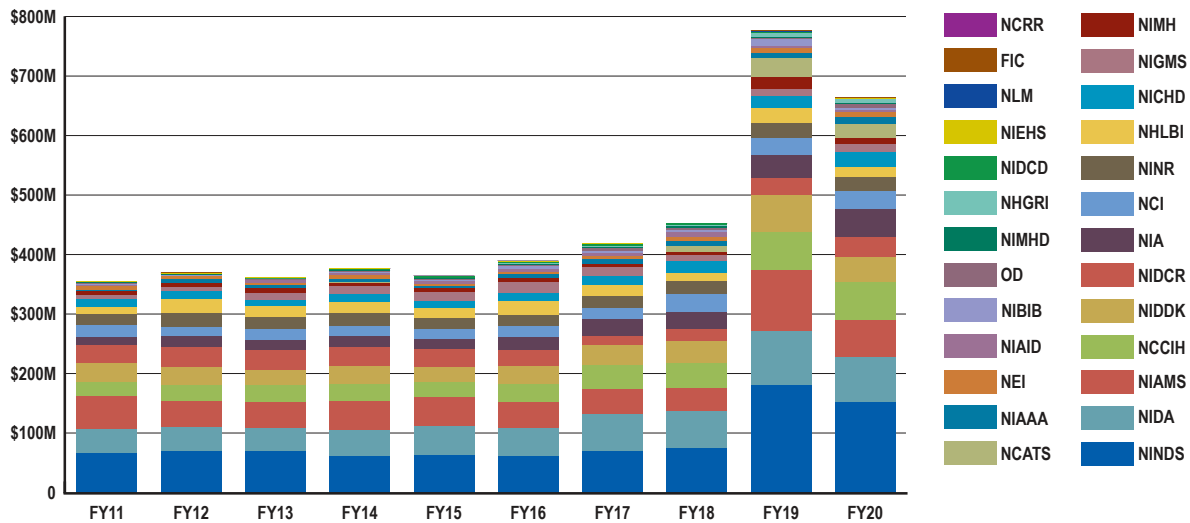
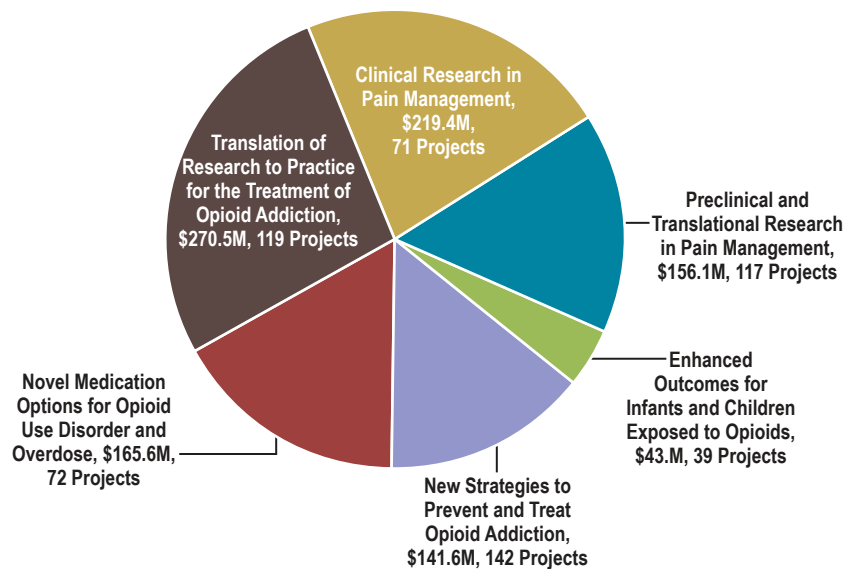


Figure 4. NIH Funding on Chronic Pain FY11-20



Starting in FY19, the total NIH investment in chronic pain research experienced an increase in funding associated with the trans-NIH Helping End Addiction Long-Term (HEAL) Initiative. Between FY19 and FY21, HEAL supported over 500 projects addressing opioid safety and addiction research as well as pain management (**Figure 5**). While the pain management focus areas of the HEAL Initiative share some priorities with the CPMRP, these priorities focus on the American public and do not specifically address the distinct needs of Service Members and Veterans.



**Figure 5.** NIH HEAL Initiative Investments by Focus Area

## STRATEGIC DIRECTIONS

The overall goal of the CPMRP Strategic Plan is to establish a strategy of research investment that leads to improved medical readiness of Service Members, as well as quality of life and level of function of all Americans, with or at risk for developing chronic pain. The CPMRP acknowledges the diverse range of chronic pain conditions and the significant challenges they pose to participation in both everyday activities and the strenuous work conditions that can exist in military service. The CPMRP Programmatic Panel, which is comprised of thought leaders from the scientific community, clinical care, patient advocacy, and relevant federal agencies, is convened at annual vision setting meetings to identify critical areas of medical need and assist in the development of plans for utilization of annual appropriations. To alleviate the burden associated with persistent and recurrent pain, the program has prioritized the following goals:

- Establish a better understanding of chronification, the process in which acute pain transitions to chronic pain, to identify those susceptible for the development of chronic pain and to advance safe and effective strategies that prevents the onset of chronic pain conditions.
- Improve clinical acceptance and utilization of non-pharmacological pain management methods that have established efficacy.
- Support the development of the next generation of non-opioid pain management strategies, including pharmaceuticals, devices, and complementary and integrative health approaches.
- Perform studies of patient care to identify promising treatment approaches worthy of further development and dissemination, or problematic practices that require reconsideration.

In addition to developing specific research goals, key areas of inclusion were identified whose integration are encouraged across all projects supported by the program.

**Stakeholder engagement:** The overall impact a treatment makes on clinical care is not only grounded in efficacy but also acceptance, utilization, and preferential attitudes. To foster these additional aspects, applicants are asked to consider the end-users of the treatments or the end-users of the research data and to include them in the planning and conduct of the study.



**Biopsychosocial assessment of the patient experience:** Chronic pain is not solely driven by molecular and neurological signaling but can influence, and be influenced by, physical and emotional wellbeing as well as social context. Applicants are challenged to think beyond numerical scales of pain intensity and consider the overall patient experience, including changes in physical functioning, emotional functioning, social context, and satisfaction with treatment, as well as changes in pain frequency and severity.

**Real-world approaches:** Measurements of efficacy occur under controlled study conditions and inclusion/exclusion criteria that rarely mirror real-world medical settings and patient profiles. Adapting interventions to regular practice requires considerable planning and deconstruction of implementation barriers. Applicants are encouraged to incorporate real-world approaches in their study design that facilitate rapid translation of findings by measuring intervention effectiveness under standard treatment conditions, including broader enrollment considerations that more accurately represent the general public.

## FOCUS AREAS

- Chronification of pain
  - Understanding mechanisms of, and developing models for studying, the transition from acute to chronic pain following trauma either physical and/or psychological
  - Development of mechanistically justified therapies to prevent and treat chronification
  - Identifying risk or protective factors or biomarkers for patients susceptible to chronification, including relevant subpopulations
  - Investigating relationships between pain and its comorbidities that can contribute to the development/progression of chronic pain
- Development of non-opioid therapies and methods for the treatment of chronic pain
  - Novel non-opioid pharmacological solutions
  - Devices that treat chronic pain directly
  - Devices that improve the administration of non-opioid analgesics
- Effectiveness or observational studies of novel or untested techniques/approaches/ pathways to chronic pain management
  - Pilot/preliminary studies
  - Potential clinical effectiveness
- Implementation science (for evidence-based, efficacious interventions to manage or prevent chronic pain)
  - Unique barriers for Service Members, Veterans, and beneficiaries, including at-risk subpopulations
  - Self-management and service-of-care models
  - Interventions to prevent chronification of pain
- Comparative effectiveness (for evidence-based, efficacious interventions to manage or prevent chronic pain)
  - Multimodal, integrative, and combination therapies
  - Relationships between comorbidities and pain
  - Preventing chronification of pain
- Observational studies related to chronic pain
  - Predictors of poor outcomes from long-term opioid use
  - Predictors of pain chronification
  - Evaluation of health care use patterns (e.g., systems, interventions, treatments)
  - Relationships between comorbidities and pain

## FY21 INVESTMENT STRATEGY

The CPMRP's 5-year investment strategy (FY21–FY25) outlines the program's approach to soliciting the type of research that will facilitate accomplishment of its strategic goals. After each fiscal year, the program will decide whether the award mechanisms supporting each strategic investment are working as intended or need to be improved. The FY21 CPMRP award mechanisms fall under the following categories:



- **Mature Ideas**

- FY21 Investigator-Initiated Research Award: Basic, translational, and clinical research that have the potential to make significant advances in research, patient care, and/or quality of life for those living with or susceptible to developing chronic pain.

- **Translational**

- FY21 Translational Research Award: Translational research that will accelerate the movement of evidence-based ideas in chronic pain management research into clinical applications such as healthcare products, technologies, clinical practice guidelines, and/or models of care.

- **Clinical**

- FY21 Clinical Exploration Award: Proof-of-principle pilot studies, clinical trials, and correlative studies to investigate hypothesis-based, innovative interventions and/or avenues of research that have the potential to resolve current clinical barriers and result in a profound impact on the management of chronic pain.

## LONG TERM

As the research landscape evolves and new resources become available, the program will continue to evaluate and expand the funding mechanisms it utilizes to support a diverse array of research. Recognizing the scope of the problem, and the urgent need for medical solutions, the program envisions offering additional clinical trial opportunities to help bring to market promising interventions, while also maintaining its commitment to support basic and translational research that provide insight into why chronic pain manifests, how recovery trajectories deviate for those that that develop chronic pain, and to advance the next generation on pain management interventions.

## MEASURING PROGRESS

Measuring strategic outcomes provides a means by which progress toward the strategic goals can be gauged. The CPMRP will measure its success in the near term based on successful investments in areas important to the strategy. Long-term success will be evaluated based on contributions to the scientific community, impacts on medical practices, and following research linked to CPMRP-funded projects. The CPMRP will use the following measurements to gauge its progress in meeting its near- and long-term strategic goals and to steer changes to the investment strategy in future years.

### NEAR-TERM OUTCOMES

- Quantity and quality of grant applications received
- Distribution of research investments in programmatic priority focus areas
- Distribution of research investment among military relevant pain syndromes
- Contributions to the scientific community (e.g., publications, patents, presentations )
- Whether funded projects generate subsequent follow-on funding
- Translation of evidence-based efficacious interventions into clinical practice
- Inclusion of relevant stakeholder input in research design and execution

### LONG-TERM OUTCOMES

- Contributions to the scientific community (e.g., publications, patents, presentations)
- Translation of research finding into new clinical trials
- Completion of CPMRP-funded clinical trials across the regulatory landscape
- Adoption of knowledge and/or technology products into clinical or operational practice and commercialization
- Contributions toward new clinical practice guidelines and changes to standards of care
- Development of diagnostic tools and methods that assist in identifying susceptibility for developing chronic pain
- Contributions toward understanding the etiology of chronic pain, including the process of chronification, to prevent its onset
- Increased diversity of stakeholders and partner types within research teams



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