

The Future of NIH Pain Research

Challenges and Opportunities

Story Landis, Ph.D

American
Pain
Society

32nd Annual Scientific Meeting
New Orleans, LA



*The NIH Pain Consortium
In 2013 and going forward*

Emily Dickinson on pain
"It has no future but itself"



The NIH Pain Consortium



Mission

The NIH Pain Consortium was established to enhance pain research and promote collaboration among researchers across the many NIH Institutes and Centers that have programs and activities addressing pain.

Goals

- To develop a comprehensive and forward-thinking pain research agenda for the NIH - one that builds on what we have learned from our past efforts*
- To identify key opportunities in pain research, particularly those that provide for multidisciplinary and trans-NIH participation*
- To increase visibility for pain research - both within the NIH intramural and extramural communities, as well as outside the NIH. The latter audiences include our various pain advocacy and patient groups who have expressed their interests through scientific and legislative channels*
- To pursue the pain research agenda through Public-Private partnerships, wherever applicable*

Leadership

- *Dr. Story Landis, Director NINDS, Pain Consortium Chair*
- *Dr. Josephine Briggs, Director NCCAM*
- *Dr. Patricia A. Grady, Director NINR*
- *Dr. Martha Somerman, Director NIDCR*
- *Dr. Nora Volkow, Director NIDA*

Staff

- *Dr. Linda Porter, Policy Advisor for Pain*
- *Dr. Cheryse Sankar, Policy Analyst for Pain*

The NIH Pain Consortium



National Institutes
of Health

Membership of 24 Institutes and Centers

National Cancer Institute
National Eye Institute
National Institute on Aging
National Institute on Alcohol Abuse and Alcoholism
National Institute of Arthritis, Musculoskeletal and Skin Diseases
National Institute of Biomedical Imaging and Bioengineering
National Institute of Child Health and Human Development
National Institute on Deafness and Other Communication Disorders
National Institute of Dental and Craniofacial Research
National Institute of Diabetes and Digestive and Kidney Disorders
National Institute on Drug Abuse
National Institute of General Medical Sciences
National Institute of Mental Health
National Institute of Neurological Disorders and Stroke
National Institute of Nursing Research
National Heart Lung and Blood Institute
National Institute of Minority Health and Health Disparities
National Center for Advancing Translational Sciences
National Center for Complementary and Alternative Medicine
John E. Fogarty International Center
Warren Grant Magnuson Clinical Center
Office of Science Policy
Office of Behavioral and Social Sciences Research
Office of Research on Women's Health

The NIH Pain Consortium



National Institutes
of Health

Highlights of Consortium Activities:

Training and educational tools

Increased visibility of pain research

Development of clinical research resources

Support of targeted basic research

Expansion of the pain research portfolio

NIH Pain Consortium

Centers of Excellence in Pain Education



NIH funded Centers of Excellence in Pain Education to develop, evaluate, and distribute pain management curriculum resources for medical, nursing, dental, and pharmacy schools to enhance and improve how health care professionals are taught about pain and the treatment of pain.

Harvard School of Dental Medicine and Brigham and Women's Hospital CoEPE

John D. Loeser CoEPE at the University of Washington

Johns Hopkins University CoEPE

Rochester Area Collaborative CoEPE

Southern Illinois University Edwardsville/St. Louis University CoEPE

Thomas Jefferson School of Medicine Headache Collaborative CoEPE

University of Alabama at Birmingham CoEPE

University of California, San Francisco, CoEPE

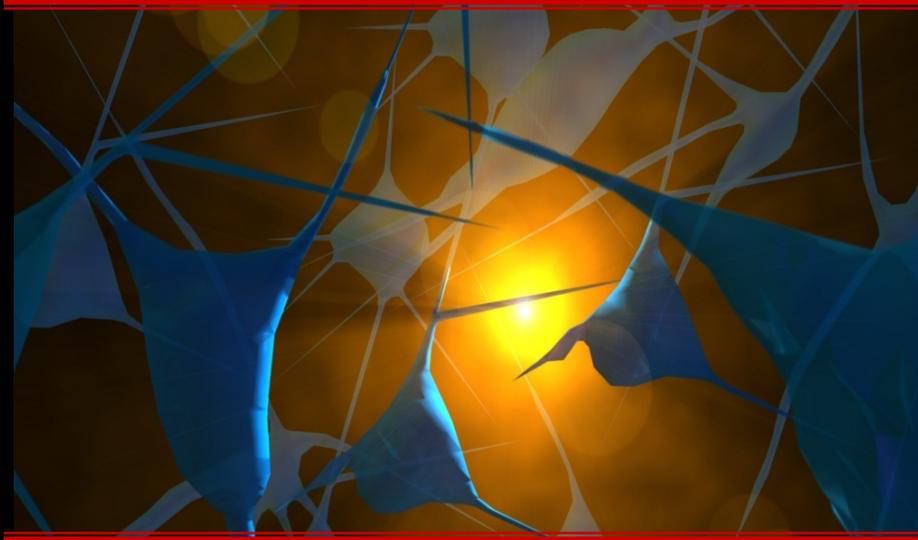
University of Maryland Baltimore CoEPE

University of New Mexico CoEPE

The University of Pennsylvania CoEPE

The NIH Pain Consortium Presents
the 8th Annual Symposium on
Advances in Pain Research

Integrated Self-management
Strategies for Chronic Pain



May 29, 30, 2013
NIH Campus

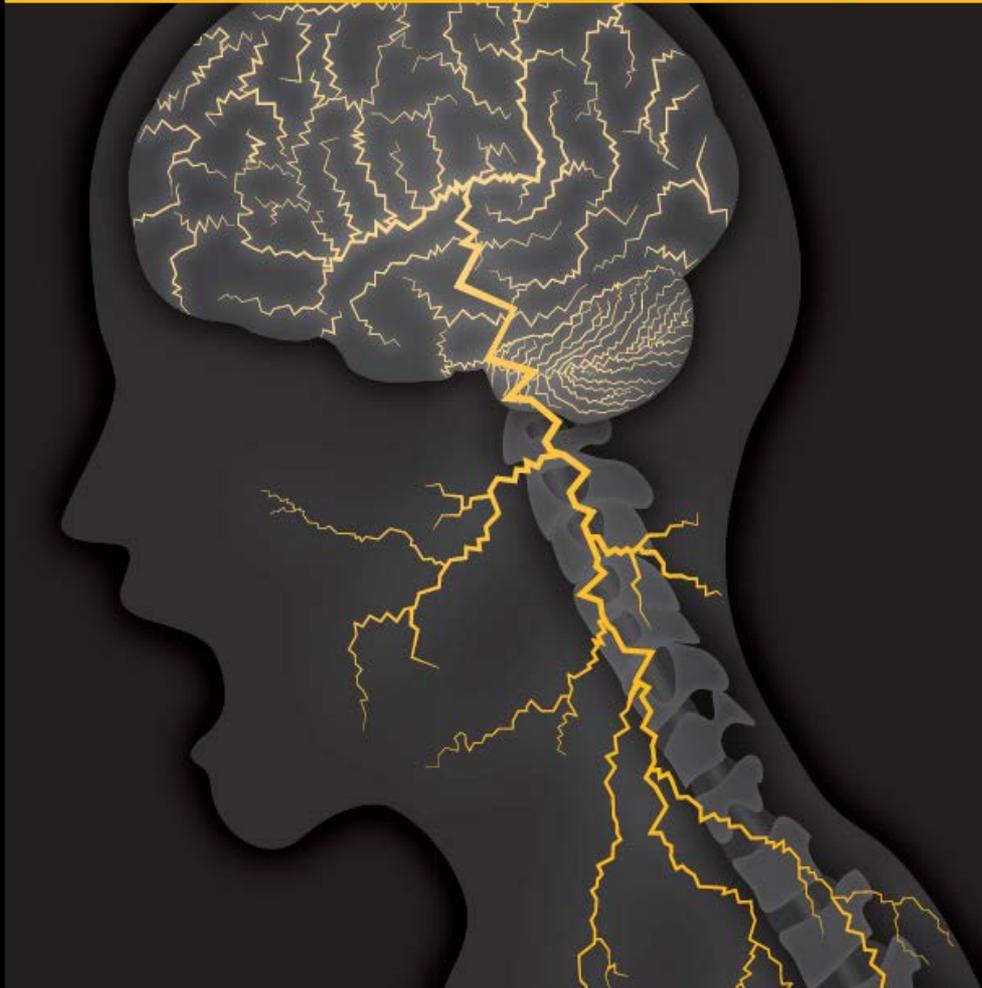


<https://cmpinc.net/painconsortium>

nature collections

April 2013

Chronic pain



The NIH Pain Consortium & Stanford University Pain Registry



- Partnership between members of the NIH Pain Consortium and Stanford
- open source centralized registry for tracking self-reported outcomes of chronic pain sufferers over time
- data definitions and standards are being developed in conjunction with the NIH-funded Patient Reported Outcomes Measurement Information System
- the Registry's Executive Committee will make decisions on data definitions and data sharing policies
- data are free and accessible to investigators for outcomes and comparative effectiveness research and point-of-care decision making
- full rollout of the registry is targeted for late 2014



The NIH Pain Consortium

Chronic Low Back Pain Research Task Force

Purpose: The Chronic Low-Back Pain Research Task Force, led by NCCAM, was convened to:

- create consistent standards for terminology, classification, data collection, and outcome assessment for clinical low back pain research
- to bring greater consistency to and ultimately advance the state of clinical research on a challenging and complex problem.

Outcome: An expert panel recommended development of research standards for clinical research on cLBP to include:

- definition of chronic LBP
- sub-classification scheme for cLBP by impact & prognosis
- minimum dataset (based on NINDS Common Data Elements)

Chronic Pain and Opioids

An Evidence –Based Methodological Workshop 2014

Purpose: The workshop, led by NIDA and supported by the NIH Pain Consortium to:

- address research gaps on evidence for opioid use in chronic pain conditions
- provide systematic reviews of evidence based studies on opioid use in clinical practice

Grand Challenge: the Transition from Acute to Chronic Neuropathic Pain A Funding Opportunity supported by the NIH Pain Consortium

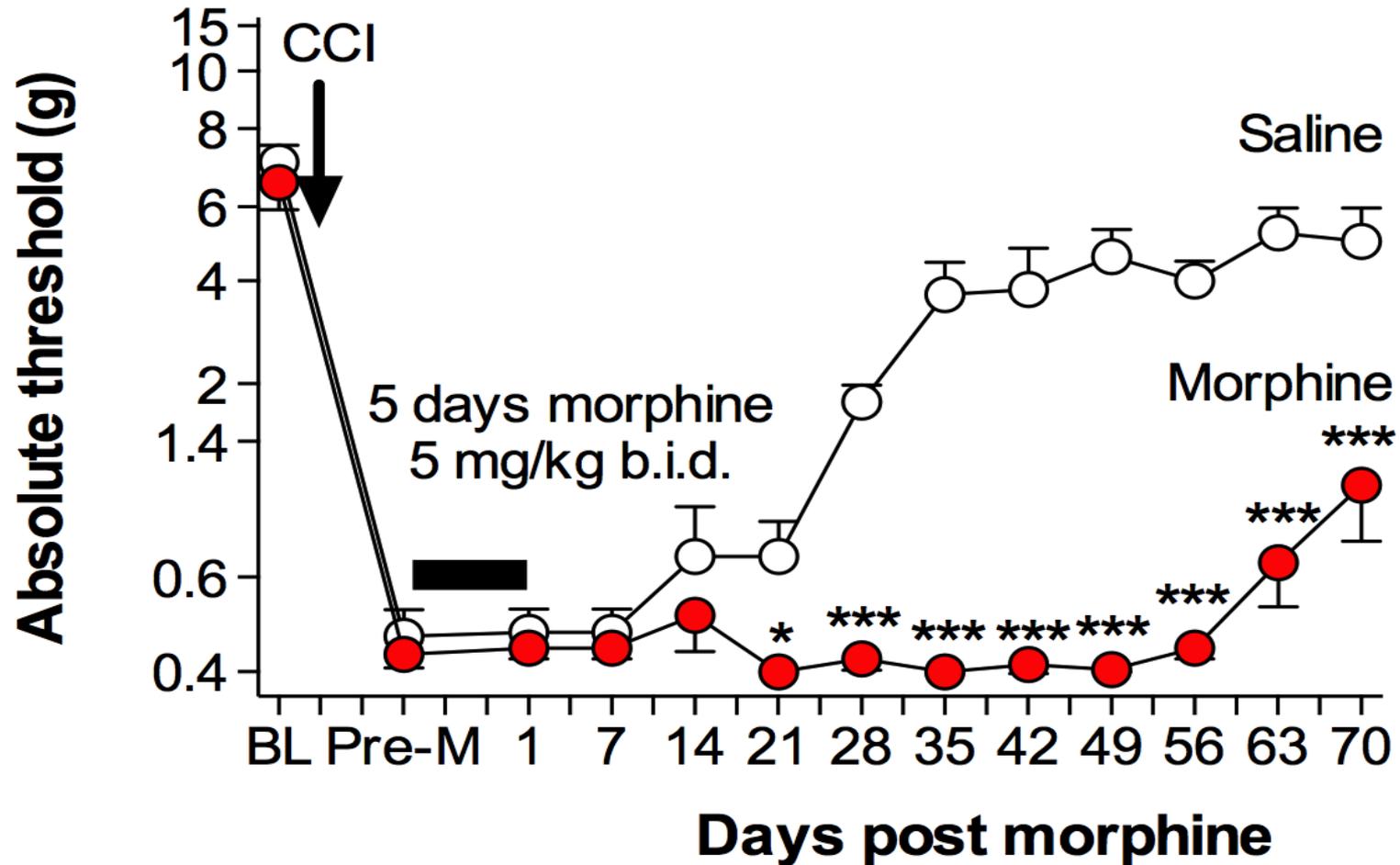
Goals:

The goal of the Grand Challenge initiative is to facilitate research collaborations between pain and non-pain scientists with expertise in neuroplasticity to study biological mechanisms underlying the transition from acute to chronic neuropathic pain. Expertise, tools, and knowledge from the field of neural plasticity will bring new insights and approaches to elucidate the maladaptive changes associated with chronic pain.

Projects:

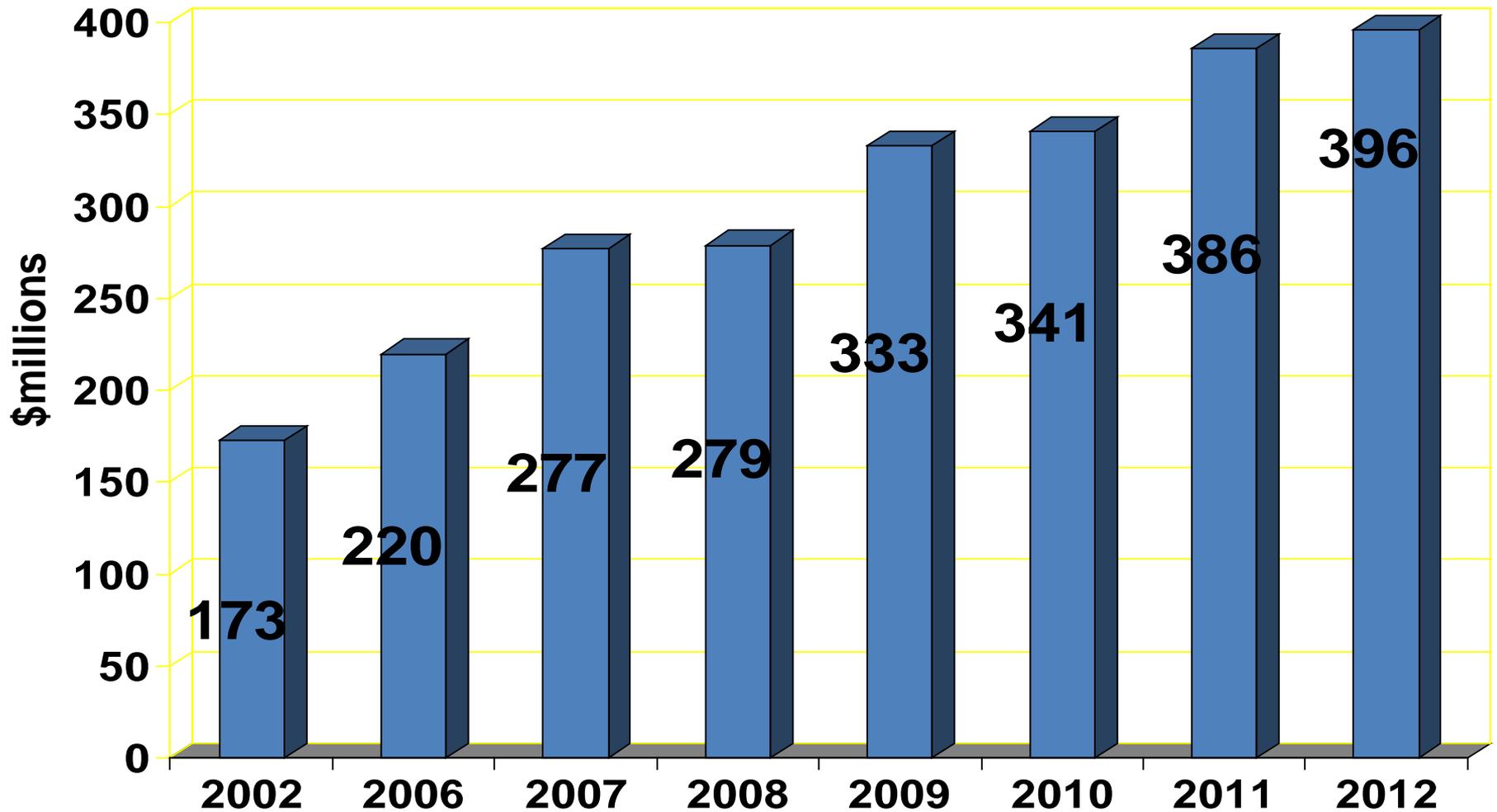
- epigenetic contributors to persistence of neuropathic pain
- glial priming enhances pain
- neuronal subtype-specific plasticity and the transition to chronic pain
- neuroimmune response to injury contributes to chronic pain
- altered emotional and motivational learning circuits enhance pain

Morphine administration after peripheral nerve injury prolongs duration of allodynia



Morphine or saline (5 mg/kg b.i.d.) administered for 5 days, beginning 10 days after CCI surgery in Fischer 344 rats
 Allodynia was assessed using the von Frey withdrawal method
 Compared to saline treated rats, allodynia was extended by 7+ weeks by morphine treatment. Grace et al. Univ. Colorado

NIH Funding Levels for Pain Research: Chronic Conditions



Patient Protection and Affordable Care Act 2010

Advancing Research and Treatment for Pain Care Management

- Secretary Health and Human Services to convene an IOM Conference on Pain
- Director of NIH to continue and expand, through the Pain Consortium, an aggressive program of basic and clinical research on the causes and treatments for pain
- NIH Pain Consortium, with DPCPSI, to develop and submit recommendations on pain research initiatives for the Common Fund
- Secretary HHS to establish Interagency Pain Research Coordinating Committee to coordinate all efforts within the DHHS and other Federal agencies that relate to pain

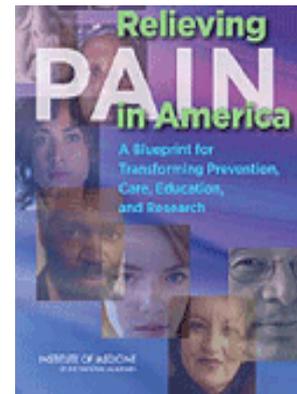


INSTITUTE OF MEDICINE OF THE NATIONAL ACADEMIES

Convene a conference on pain to:

- increase the recognition of pain as a significant public health problem in the US
- evaluate the adequacy of assessment, diagnosis, treatment, and management of acute and chronic pain in the general population, and in identified racial, ethnic, gender, age, and other demographic groups that may be disproportionately affected by inadequacies in the assessment, diagnosis, treatment, and management of pain
- identify barriers to appropriate pain care
- establish an agenda for action in both the public and private sectors that will reduce such barriers and significantly improve the state of pain care research, education, and clinical care in the US

***IOM: Relieving Pain in America:
A Blueprint for Transforming Prevention,
Care, Education, and Research***





5-1. NIH should designate a lead institute within the NIH responsible for moving pain research forward, and increase support for and scope of the Pain Consortium

- NINDS is designated to lead the NIH's pain research efforts
- The Director of NINDS serves as the Pain Consortium Chair and was selected as the IPRCC Chair
- NINDS received funds to establish a dedicated office to support activities of the NIH Pain Consortium and the IPRCC
- An Executive Committee of five Institute Directors provides leadership for the Pain Consortium



5-2. Improve the process for developing new agents for pain control

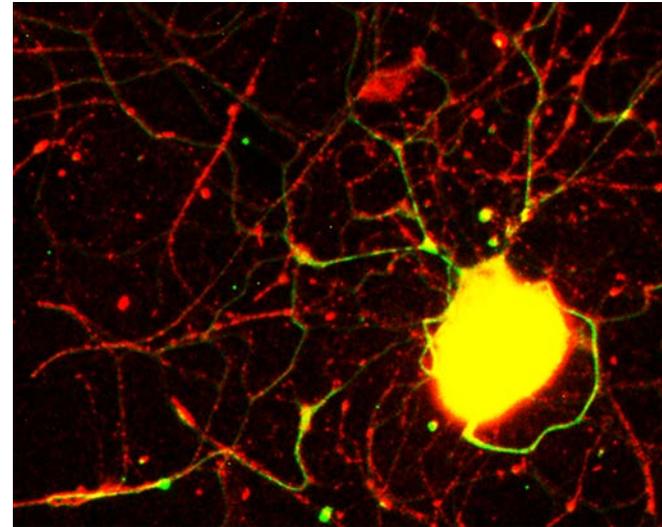
- Members of the Pain Consortium serve in advisory capacity for the FDA's Analgesic Clinical Trial Translations, Innovations, Opportunities, and Networks (ACTION) initiative
- In 2012, the FDA held a state of the science workshop on opioid efficacy for chronic pain in conjunction with the NIH Pain Consortium Symposium on advancing pain therapies
- NIH supports development of novel pain medications through basic research and translation drug development programs

A Novel Target for Analgesic Development

Resolvins, endogenous lipid mediators, may provide well tolerated and effective analgesia for pain caused by chronic inflammation such as arthritis or inflammatory bowel disease (2010) and neuropathic pain (2013) by facilitating the resolution of inflammation.

The NIH Common Fund Transformative R01 project:
Preclinical studies that showed intrathecal administration of resolvins effectively relieves inflammatory and neuropathic pain

The NIH Small Business Grant Program funded:
Studies to synthesize and optimize resolvin analogues suitable for clinical use as analgesics



Nature Medicine March 2010 Xu Z-Z et al.
J. Neuroimmune Pharmacology March 2013, Xu Z-Z et al.

Co-localization of ChemR23 and TRPV1 expression in DRG neuron



- **5-3. Federal agencies and private funders of pain research should increase support for *interdisciplinary* research and training in pain**
- **OROFACIAL PAIN: Prospective Evaluation & Risk Assessment.** The OPPERA study is a multiyear, interdisciplinary program to enhance our knowledge of TMJD
- **Multi-Disciplinary Approach to the Study of Chronic Pelvic Pain** is a clinical, epidemiological, and basic research study to understand the causes of chronic urological pain syndromes
- **NIH Blueprint for Neuroscience Research Grand Challenge on Pain** required partnering of neuroplasticity and pain researchers
- The Omnibus NIH Pain Consortium Initiative on Pain: “**Mechanisms, Models, Measurement, & Management in Pain Research**” strongly encourages interdisciplinary and multidisciplinary teams



5-4. Public and private funders should increase the conduct of longitudinal research in pain

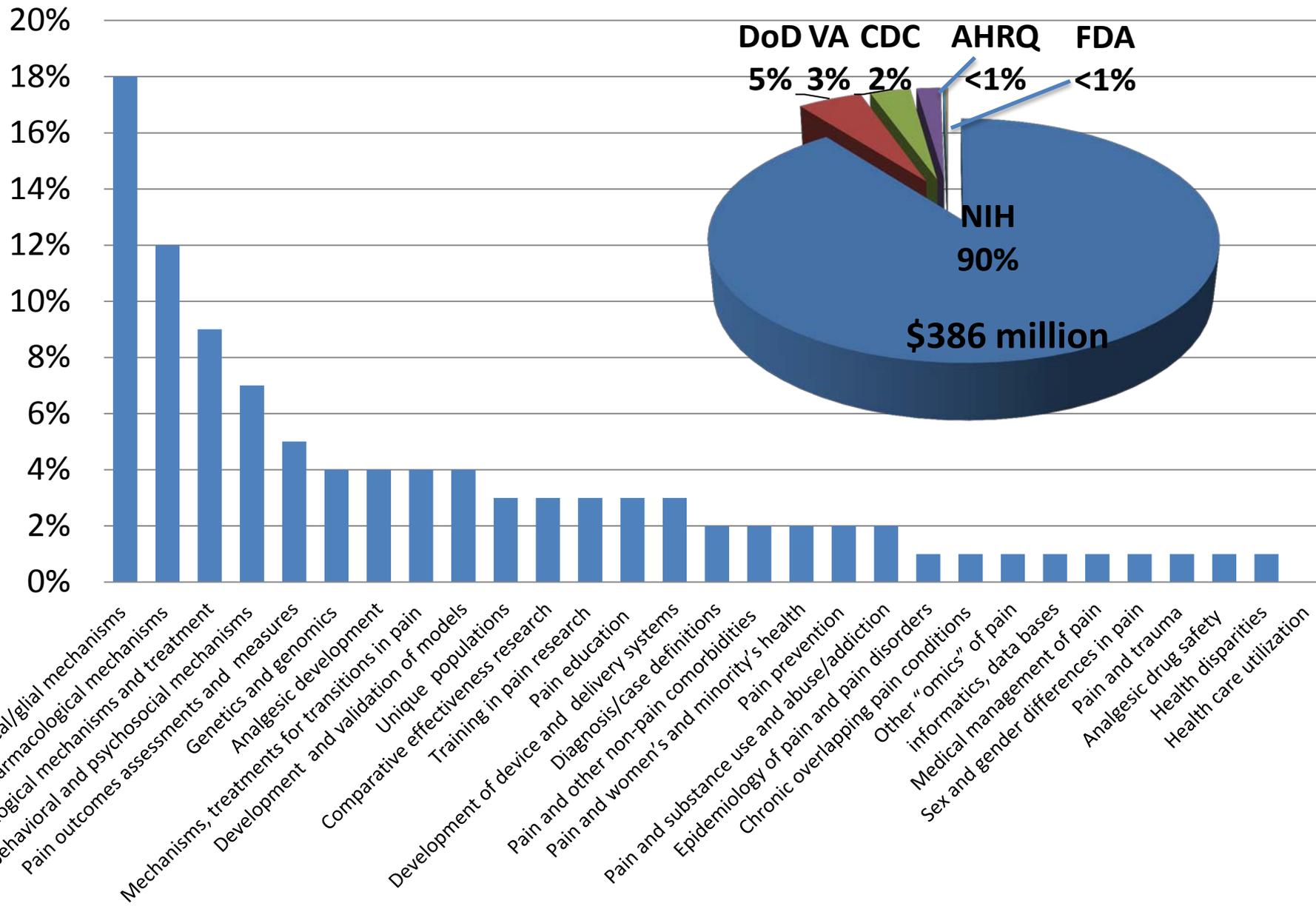
- NIH supports longitudinal studies on many chronic pain conditions
- The Patient-Reported Outcomes Measurement Information System (PROMIS®) www.nihpromis.org is creating psychometrically-robust patient-reported banks of questions to measure pain in clinical trials for various chronic disease
- Clinical research definitions and data standards and criteria for headache, low back pain, and vulvodynia will enhance the clinical research efforts



The Interagency Pain Research Coordinating Committee

- develop a summary of advances in pain care research supported or conducted by the Federal agencies relevant to the diagnosis, prevention, and treatment of pain and diseases and disorders associated with pain
- identify critical gaps in basic and clinical research on the symptoms and causes of pain
- make recommendations to ensure that the activities of the National Institutes of Health and other Federal agencies are free of unnecessary duplication of effort
- make recommendations on how best to disseminate information on pain care
- make recommendations on how to expand partnerships between public entities and private entities to expand collaborative, cross-cutting research

2011 Federal Pain Research Portfolio

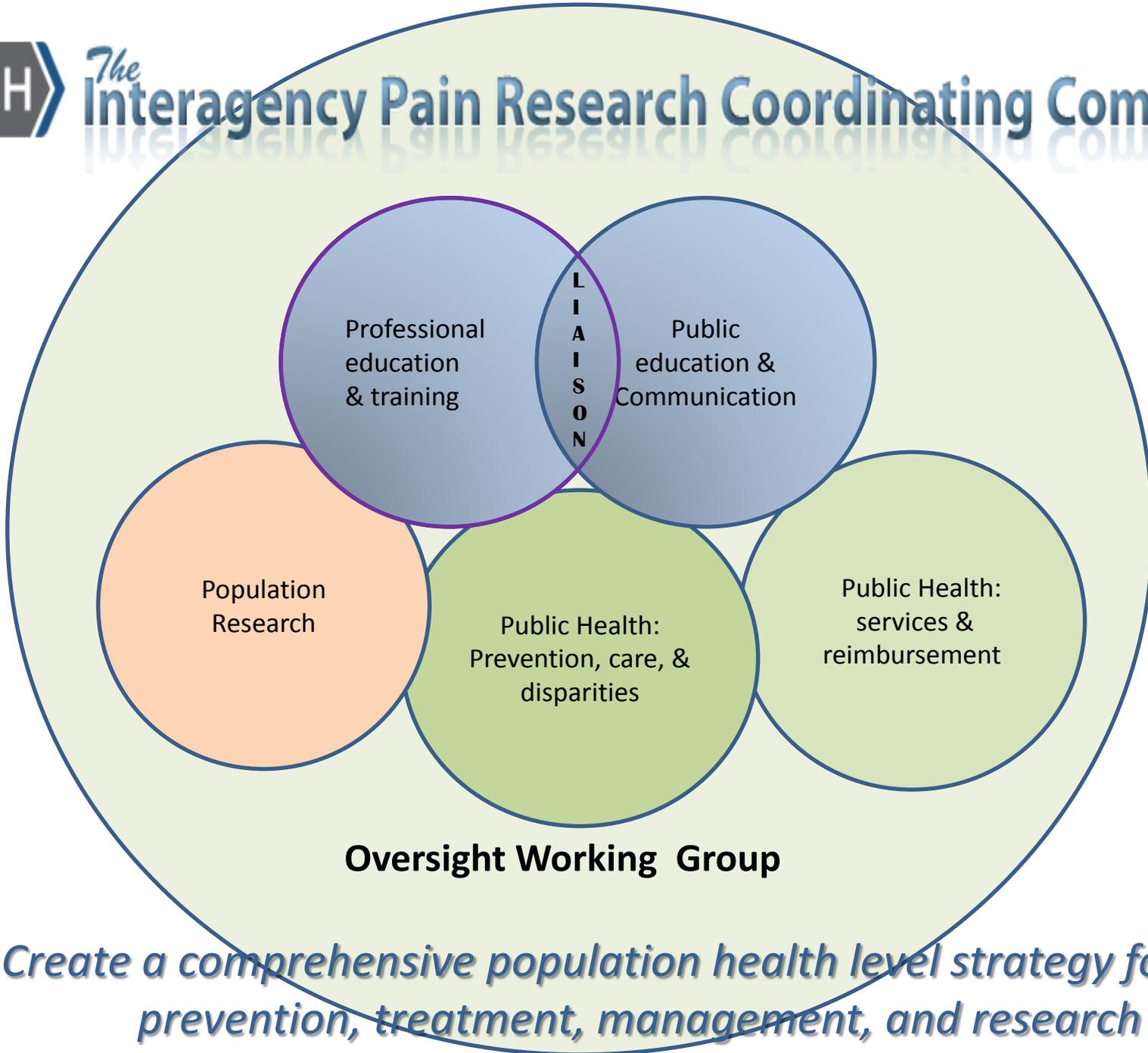


October 2012: Assistant Secretary for Health, Department of Health and Human Services tasked IPRCC and NIH to address IOM Recommendation 2-2.

- Create a comprehensive population health level strategy for pain prevention, treatment, management, and research that includes specific goals, actions, time frames, and resources.



The Interagency Pain Research Coordinating Committee



Create a comprehensive population health level strategy for pain prevention, treatment, management, and research



National Institutes
of Health

The Future of Pain Research



- Integrate pain management: **Health Systems Collaboratory**
- Understand pain through the **BRAIN**
- Translate research into the clinic: **The Stakeholders**

The NIH Common Fund: Health Care Systems Research Collaboratory



The goal is to strengthen the national capacity to implement cost-effective large-scale research studies that engage health care delivery organizations as research partners. The aim is to provide a framework of implementation methods and best practices to enable the participation of many health care systems in clinical research, not to support a defined health care research network. Research conducted in partnership with health care systems is essential to strengthen the relevance of research results to health practice.



A Pragmatic Trial of Lumbar Image Reporting with Epidemiology (LIRE)

Principal Investigator: Jeffrey Jarvik, MD

Institution: University of Washington

- Kaiser Permanente of Northern California
- Group Health Cooperative, Seattle, WA
- Mayo Clinic, Rochester, MN
- Henry Ford Health System, Detroit, MI

NIH Institute/Center Providing Oversight: NIAMS & NCCAM

Program Officer: Jim Panagis (NIAMS)

Project Scientist: Partap Khalsa (NCCAM)



Description: Low back pain, an Institute of Medicine priority condition for comparative effectiveness research, is of major public health importance. It is one of the most common reasons for physician visits and an important cause of functional limitation and disability. Imaging is frequently performed as part of the diagnostic evaluation and is an important contributor to the cost of back pain care, which totaled more than \$86 billion in 2005. It is well known that, even without back pain, magnetic resonance (MR) imaging of the lumbar spine frequently reveals...[\(read more\)](#)

NIH Health Care System Research Collaboratory



Collaborative Care for Chronic Pain in Primary Care

Principal Investigator: Lynn DeBar

Institution: Kaiser Foundation Hospitals

- Kaiser Permanente - Georgia
- Kaiser Permanente - Northwest
- Kaiser Permanente - Hawaii

NIH Institutes Providing Oversight: NINDS & NIDA

Program Official: Linda Porter (NINDS)

Project Scientist: Sarah Duffy (NIDA)

Description: Chronic pain affects at least 116 million adults in the United States and exacts a tremendous cost in suffering and lost productivity. While health systems offer specialized pain services, it is in the primary care setting where most patients seek and receive care for pain. However, primary care providers often lack the specific training, not to mention the time, to deliver effective pain-management care. To address this problem...[\(read more\)](#)



NIH Health Care System Research Collaboratory



BRAIN: The Vision



“So there is this enormous mystery waiting to be unlocked, and the BRAIN Initiative will change that by **giving scientists the tools they need to get a dynamic picture of the brain in action** and better understand how we think and how we learn and how we remember. And that knowledge could be – will be – transformative.”

~President Obama, April 2, 2013

Moving the Research Enterprise into the Future

The Interagency Pain Research Coordinating Committee

The Research and Health Care Community

Advocacy and People with Pain

The NIH Pain Consortium

Professional Societies

Private Industry

Emily Dickinson on pain
"It has no future but itself"

<http://painconsortium.nih.gov/index.html>

