

# FEDERAL PAIN PORTFOLIO PREVIEW

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Federal Agencies: AHRQ, CDC, DoD, FDA, NIH, VA

Interagency Pain Research Coordinating Committee  
March 27, 2012

# IPRCC Charge

- I. 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.
- II. Identify critical **gaps in basic and clinical research** on the symptoms and causes of pain.
- III. Make recommendations to ensure that the activities of the National Institutes of Health and other Federal agencies are free of **unnecessary duplication** of effort.
- IV. Make recommendations on how best to **disseminate information** on pain care.
- V. Make recommendations on how to expand **partnerships between public entities and private entities** to expand collaborative, cross-cutting research.

# Federal Data Call on Pain Activities

## Overall categories:

- Science Advances
- Portfolio Analysis – research categories:
  - Basic Research
  - Translational Research
  - Clinical Research
  - Comparative Effectiveness Research
  - Epidemiology
  - Health Disparities
- Education and Dissemination
- Public-Private Partnerships

# Portfolio: Basic Research

## Department of Defense:

- Underlying molecular mechanisms, novel analgesics, and alternatives to opioids for pain caused by war and traumatic injury
  - Amputations, phantom limb pain, neuropathic pain, inflammation, burn pain, co-morbidity with PTSD
- Toxicity due to increased use of local anesthetics for pain

## Department of Veteran's Affairs:

- Pathobiology and diagnostics for Gulf War Illness
- Consequence of burn and blast injuries – e.g. chronic pain due to neurotrauma

# Portfolio: Basic Research cont'd

## National Institutes of Health:

- Mechanisms of pain due to injury, disease, environmental, psychosocial, and physiological factors
- Neurobiology of mechanosensation, thermosensation, and nociception
- Nervous system plasticity and neuro-immune interactions underlying hypersensitivity
- Genetic mutations, gene expression, and gene based therapies for pain conditions

**Potential areas of overlap:** Underlying mechanisms and preclinical therapy development for traumatic pain conditions

# Portfolio: Translational Research

## Department of Defense:

- Biomarkers for persistent post-traumatic pain
- Anesthesia and analgesia medical database and novel analgesic delivery systems for pain management

## Department of Veteran's Affairs:

- Pre-clinical testing and development of therapies for traumatic pain
- VA Rehabilitation R&D Center of Excellence on Restoration of Nervous System Function – emphasis on neuropathic pain

# Portfolio: Translational Research cont'd

## Centers of Disease Control and Prevention

- Behavioral interventions for arthritis pain

## National Institutes of Health:

- Technology for better pain assessment and treatments
- Drug discovery and animal models for assessing therapeutic effectiveness and novel analgesic targets
- Combined therapies for multiple pain conditions
- Validation of animal models & assays for pain, preclinical testing of novel pharmacological and non-pharmacological therapies

**Potential areas of overlap:** Therapy development for neuropathic pain; technology for optimizing drug delivery

# Portfolio: Clinical Research

## Agency for Healthcare Research and Quality

- Behavioral interventions, pain management , and acupuncture for low back pain
- Effective pain management strategies and education, especially among the elderly

## Department of Defense:

- Pharmacological or non-pharmacological treatment for low back or musculoskeletal pain, PTSD and pain, opioid use and abuse
- Tools and registries for pain assessment and outcomes

## Department of Veteran's Affairs:

- Pharmacological or non-pharmacological approaches for Veterans with Gulf War Illness
- VHA National Pain Management Strategy

# Portfolio: Clinical Research cont'd

## National Institutes of Health:

- Pharmacological and non-pharmacological interventions for acute pain and chronic pain associated with cancer, musculoskeletal disorders, sickle cell disease, headache, and visceral, inflammatory and neuropathic pain
- End of life pain management in elderly and in cancer patients
- Management of prescription analgesic drug abuse & misuse
- Genetic and neurobiological risk factors for chronic pain

**Potential areas of overlap:** Pharmacological and non-pharmacological treatment and management of low back pain; risks and management of pain medication misuse

# Portfolio:

## Comparative Effectiveness Research

### Agency for Healthcare Research and Quality

- Treatment & management of low back pain, osteoarthritis, labor & pelvic pain

### Department of Defense:

- Opioid detoxification

### Department of Veteran's Affairs:

- Effect of health care organization, financing, management on health care delivery, quality, cost, access, and outcomes

### National Institutes of Health:

- Pharmacological and non-pharmacological therapies for various musculoskeletal and orthopedic pain disorders, especially low back pain
- Prevention of prescription drugs (e.g. opioids) abuse for chronic pain

**Potential areas of overlap:** Treatment and management of low back pain and osteoarthritis; management of opioid use and misuse

# Portfolio: Epidemiology

## Centers of Disease Control and Prevention

- Chronic pain prevalence and treatment with prescription drugs; access to Emergency Services
- The Behavioral Risk Factor Surveillance System (BRFSS) – arthritis and cancer pain

## Department of Defense:

- Effect of acute pain on long-term outcomes including PTSD and chronic pain; incidence of chronic pain following amputations

## Department of Veteran's Affairs:

- Consequences of deployment-related injuries – e.g. chronic pain due to neurotrauma

# Portfolio: Epidemiology cont'd

## Food and Drug Administration

- Trends in opioid and acetaminophen prescription, use, abuse, and hospitalizations

## National Institutes of Health:

- Effects and consequences of genetics, environmental factors, medication, hormones, and physical activity on musculoskeletal disorders
- Impact of care quality on sickle cell and cancer pain in nursing homes and prisons; pain, and medication concerns among the elderly

**Potential areas of overlap:** Trends in prescription drug use; risk factors for arthritis

# Portfolio: Health Disparities

## Agency for Healthcare Research and Quality

- Disparities in treating and managing acute pain, chest pain, lower back pain

## Centers of Disease Control and Prevention

- Burden of disease among older adults and implications for public health priorities
- Racial disparities in oral health-related quality of life

## Department of Veteran's Affairs:

- Ethnic/racial, geographic, gender-related, and age-related disparities in access and delivery of effective pain care
  - Health Sciences Research and Development (HSRD) Center of Excellence Research
  - Center for Health Equity Research and Promotion (CHERP)
  - Pain Research, Informatics, Medical Comorbidities, and Education Center (PRIME) - to be replaced by Centers of Innovation

# Portfolio: Health Disparities cont'd

## National Institutes of Health:

- Racial differences and preferences in health care management for cancer pain, arthritis, diabetes, and sickle cell disease
- Ethnic and sex differences in pain genetics, risk factors and pathophysiology, pain perception, CAM therapy efficacy, and analgesic responsiveness

**Potential areas of overlap: Treatment and management of musculoskeletal pain**

# Education

## Students:

- Predoctoral/institutional training grants in acute and chronic pain mechanisms, psychosocial co-morbidities, pain management (NIH)

## Researchers:

- Training in pain management for burn pain (DoD)
- Career development programs, training in pain & pain management (VA)
- Postdoctoral and career development awards in acute and chronic pain mechanisms, psychosocial co-morbidities, pain management (NIH)

# Education

## Health Care Providers

- Anesthesia training and chronic pain management (DoD)
- Seminar and research working group on pain management (VA)
- Academic detailing to educate high opioid prescribers (FDA)
- Academic detailing strategy to encourage physician referrals of arthritis patients to self-management education & physical activity interventions (CDC)
- Continuing medical education to increase addiction medicine skills and NIH Pain Consortium Centers of Excellence in Pain Education to develop pain curriculum resources (NIH)

# Dissemination

## Centers of Disease Control and Prevention

- State arthritis programs to promote self-management and education programs
- Health communications campaign to promote physical activity for arthritis pain
- Partnerships with national organizations to develop and disseminate arthritis programs

## Department of Defense

- Book on battlefield pain management; regional anesthesia training book and video

# Dissemination cont'd

## Department of Veteran's Affairs:

- Journal of Rehabilitation Research and Development with special issues on pain and pain management ; DVA pain management website with information on services, education, and guidelines for veterans

## Food and Drug Administration

- Online resources, white paper, and patient prescriber agreement on prescribing drugs

## National Institutes of Health

- Public symposia and online resources on pain research and healthcare
- Examples of special initiatives: advertising campaign for recommended approaches to TMJD, online self management program for adolescents with migraine

# Public-Private Partnerships

## Food and Drug Administration

- Analgesic Clinical Trial Translations, Innovations, Opportunities, and Networks (ACTION) to streamline the discovery & development process for new analgesics
  - Repository of Analgesic Clinical Trials (REACT);  
Retrospective Evaluation of Patient-Level Information from Controlled Analgesic Trials of Efficacy (REPLICATE)

## National Institutes of Health

- Private industry partnership to develop diagnostics & treatments for osteoarthritis

# Public-Private Partnerships

## Centers of Disease Control and Prevention

- Co-operative agreements on cancer control and arthritis program

## Department of Defense

- Partnerships with private companies and public foundations to develop CAM therapies for chronic pain and anesthesia for pain control (YogaMedics, Samueli Institute, VA)
- Academic partnerships to develop therapies for burn pain and chronic pain (Duke, JHU, VA)

## Department of Veterans Affairs:

- Cooperative agreement to develop gene-based therapy for painful diabetic neuropathy
- Partnerships with public foundations to develop pain management models

# Examples of Pain Research Advances

## Department of Defense

- Combining ketamine and virtual reality pain control during severe burn wound care: one military and one civilian patient

## Department of Veteran's Affairs:

- Will this patient develop persistent disabling low back pain?

## Centers of Disease Control and Prevention

- Differences in the prevalence and impact of arthritis among racial/ethnic groups in the United States

## National Institutes of Health

- Analgesia by inhibiting tetrahydrobiopterin synthesis
- GTP cyclohydrolase and tetrahydrobiopterin regulate pain sensitivity and persistence

# Summary

- Broad federal pain research portfolio with some degree of specialization among agencies based on agency mission
- Cross-agency support for research on pharmacological and non-pharmacological treatments for musculoskeletal pain disorders, specifically lower back pain and arthritis
- Multiple agencies involved in research and education efforts on prescription drug use and abuse
- Current public-private partnerships focused on CAM therapies for chronic pain, pain management models, arthritis, and drug discovery process

# Next Step: Portfolio Analysis

- NIH staff will devise categories that encompass the research activities of the IPRCC federal agencies
- The categories will be vetted by other federal agencies and the IPRCC working group and then presented to the IPRCC
- Once the categories are approved, staff will assign the research activities
- The analysis will be provided to IPRCC members in advance of the fall meeting

# Input on Next Meeting

- Suggested agenda items for future meetings?
  - Presentation of the Pain Research Portfolio including list of scientific advances, gaps and areas for synergy and collaboration
  - Dissemination
    - Identification of high priority needs for dissemination
    - Discussion of successful dissemination efforts/best practices
  - Public Private Partnerships
    - Presentation by Director of NIH Office on Public Private Partnerships
    - Other suggested presenters?
  - Other?
- Suggestions for additional federal agencies to be included as *ex officio* members
- Next meeting to be held in the early fall