National Institutes of Health

NIH Update on Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS) Research

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Office of Research on Women's Health

Division of Program Coordination, Planning and Strategic Initiatives

National Institutes of Health
Office of Research on Women's Health

NIH ME/CFS FY 2013 Funding

- **Estimates of Funding for Various Research, Condition, and Disease Categories (RCDC)**
  - http://report.nih.gov/categorical_spending.aspx
  - **Search under category—*Chronic Fatigue Syndrome (ME/CFS)***
- NIH FY 2013 spending on ME/CFS = $5,118,721
- NIH FY 2014 spending incomplete, fiscal year not ended
- Multiple funding sources within NIH Institutes and Office of the Director Offices support ME/CFS research
- Scientific Areas of Funded Projects:
  - NIH Intramural
    - Correlates and therapeutics of fatigue
  - NIH Extramural
    - Microbiome
    - Gene expression
    - Immunity and inflammatory processes
    - Neuroimaging
    - Adult and pediatric patient populations

NIH ME/CFS Funded Projects FY 2013

Project Listing by Category

Category	FY	Funding IC	Project Number	Sub Project #	Project Title	PI Name	Org Name
Chronic Fatigue Syndrome (ME/CFS)	2013	OD	1R01HD072208-01A1		Pediatric CFS in a Community-Based Sample	JASON, LEONARD	DE PAUL UNIVERSITY
Chronic Fatigue Syndrome (ME/CFS)	2013	NIDDK	5R03DK093874-02		Neural mechanism of glucagon-like-peptide-1 receptor-mediated nausea /malaise	HAYES, MATTHEW	UNIVERSITY OF PENNSYLVANIA
Chronic Fatigue Syndrome (ME/CFS)	2013	NIMH	1R01MH100005-01		Specificity and Validity of Oxidative Stress Model of Chronic Fatigue Syndrome	SHUNGU, DIKOMA	WEILL MEDICAL COLL OF CORNELL UNIV
Chronic Fatigue Syndrome (ME/CFS)	2013	OD	1R01MH100005-01		Specificity and Validity of Oxidative Stress Model of Chronic Fatigue Syndrome	SHUNGU, DIKOMA	WEILL MEDICAL COLL OF CORNELL UNIV
Chronic Fatigue Syndrome (ME/CFS)	2013	NINDS	5R01NS072599-04		Patient-Partner Stress Management Effects on CFS Symptoms and Neuroimmune Process	ANTONI, MICHAEL	UNIVERSITY OF MIAMI CORAL GABLES
Chronic Fatigue Syndrome (ME/CFS)	2013	NINDS	5R01NS071361-04		Brain mast cells and Chronic Fatigue Syndrome	THEOHARIDES, THEOHARIS	TUFTS UNIVERSITY BOSTON
Chronic Fatigue Syndrome (ME/CFS)	2013	NIAMS	5R01AR057853-04		Study of Chronic Fatigue Syndrome using comprehensive molecular profiling with ne	KLIMAS, NANCY	SOUTH FLORIDA VA FDN/RESEARCH/ EDUCATION
Chronic Fatigue Syndrome (ME/CFS)	2013	NIAID	5R21AI101614-02		Microbiomes and Inflammation in Chronic Fatigue Syndrome	HANSON, MAUREEN	CORNELL UNIVERSITY
Chronic Fatigue Syndrome (ME/CFS)	2013	NINR	5R21NR013650-02		NAC for Treatment of Oxidative Stress in Chronic Fatigue Syndrome	SHUNGU, DIKOMA	WEILL MEDICAL COLL OF CORNELL UNIV
Chronic Fatigue Syndrome (ME/CFS)	2013	NIAID	5R21AI099809-02		Microbial Translocation in Chronic Fatigue Syndrome	FLETCHER, MARY	UNIVERSITY OF MIAMI SCHOOL OF MEDICINE
Chronic Fatigue Syndrome (ME/CFS)	2013	NIAID	5R01AI078234-05		New Strategies to Decipher the Pathophysiology of Chronic Fatigue Syndrome	LOMBARDI, VINCENT	WHITTEMORE PETERSON INSTITUTE
Chronic Fatigue Syndrome (ME/CFS)	2013	NIAMS	5R01AR060336-03		POST-EXERCISE ION CHANNEL GENE EXPRESSION BIOMARKERS IN CFS	LIGHT, KATHLEEN	UNIVERSITY OF UTAH
Chronic Fatigue Syndrome (ME/CFS)	2013	NINR	5R01NR014049-02		Peripheral and Central Mechanisms of Fatigue and Pain in Patients with ME/CFS	STAUD, ROLAND	UNIVERSITY OF FLORIDA
Chronic Fatigue Syndrome (ME/CFS)	2013	NIAID	1R01AI107762-01		Immune cell gene expression and predictive models in CFS	CAMPAGNE, FABIEN	WEILL MEDICAL COLL OF CORNELL UNIV
Chronic Fatigue Syndrome (ME/CFS)	2013	NINDS	1R01NS085131-01		Exertional Exhaustion in CFS	BARANIUK, JAMES	GEORGETOWN UNIVERSITY
Chronic Fatigue Syndrome (ME/CFS)	2013	NIAID	2R56AI065723-06A1		Immunologic Mechanisms,Biomarkers and Subsets in CFS/ME	FLETCHER, MARY	NOVA SOUTHEASTERN UNIVERSITY
Chronic Fatigue Syndrome (ME/CFS)	2013	NINR	1ZIANR000019-04		Investigating Correlates and Therapeutics of Fatigue	SALIGAN, LEOREY	NIH

Data downloaded from http://Report.nih.gov

Research Capsule: R01HD072208 (Jason, L.)

- **PEDIATRIC CFS IN A COMMUNITY-BASED SAMPLE**
  - Goals
    - Determine the prevalence of pediatric CFS in a community-based sample
    - Examine the frequency of CFS within a developmental perspective (by age and among demographic groups)
    - Examine the prevalence of orthostatic abnormalities (postural tachycardia syndrome) among youth and how this relates to neurocognitive functioning

This study will better define the burden posed by pediatric CFS, something that has not been well defined by prior studies.

Research Capsule: R01AR060336 (Light, K.)

- **POST-EXERCISE ION CHANNEL GENE EXPRESSION BIOMARKERS IN CFS**
  - Goals
    - Examine unique gene expression profiles in CFS that could be used as diagnostic tools (compare to healthy controls and individuals with other disorders characterized by fatigue)
    - Differentiate women vs. men with CFS, and subgroups of CFS patients identified by post-exercise increases vs. decreases in alpha-2a adrenergic receptor expression
    - Builds on prior work to develop robust and specific molecular biomarkers of ME/CFS
      - (CFS patients show large post-exercise increases in leukocyte gene expression of sensory ion channel receptors, adrenergic receptors and certain immune markers while healthy subjects or patients with Multiple Sclerosis do not. comparing this post-exercise gene expression

Gene alterations suggest a potential role for alterations of peripheral sensory signaling in the symptoms of CFS, suggesting that a blood test could be devised as an objective biomarker for sensory muscle fatigue and muscle pain in CFS.

Trans-NIH ME/CFS Workgroup

- Established 1999
- Representatives from NIH Institutes, Centers, and Offices within the Office of the NIH Director
- Office of Research on Women's Health (ORWH) leads and coordinates Workgroup activities

- Goals:
  - Advance research on the etiology, prevention, diagnosis, pathophysiology and treatment of ME/CFS
  - Encourage biomedical research investigators and organizations to study ME/CFS
  - Communicate ME/CFS research information among and between NIH ICs and the Office of the Director

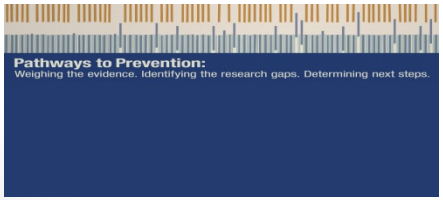
http://orwh.od.nih.gov/research/me-cfs/aboutgroup.asp

Trans-NIH ME/CFS Workgroup Update

- NIH Funding Opportunities Targeted to ME/CFS:
  - PAR-12-032 Myalgic Encephalomyelitis/Chronic Fatigue Syndrome: Etiology, Diagnosis, Pathophysiology, and Treatment (R01)
  - PAR-12-033 Myalgic Encephalomyelitis/Chronic Fatigue Syndrome: Etiology, Diagnosis, Pathophysiology, and Treatment (R21)
- Program Official Network developed to engage researchers early in the proposal development process
- Workgroup members attended the 2014 Conference of the International Association for Chronic Fatigue Syndrome/Myalgic Encephalomyelitis (IACFS/ME)
- Ongoing commitment to engage investigators at all career levels in ME/CFS research

Pathways to Prevention (P2P) Goals

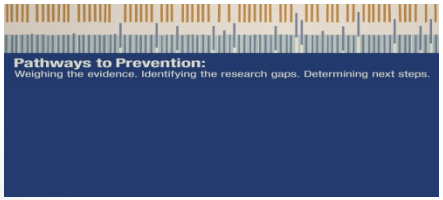
- Led and coordinated by the NIH Office of Disease Prevention
  - Identify research gaps and methodological and scientific weaknesses in a scientific area
  - Suggest research needs
  - Move the field forward through an unbiased and evidence-based assessment of a complex issue



https://prevention.nih.gov/programs-events/pathways-to-prevention

P2P: How are Topics Selected?

- Has a primary or secondary disease prevention focus
- Issue is of broad public health importance
- Designed for scientific topics that have limited published data or incomplete or underdeveloped research
- There is difficulty completing a systematic review and producing an evidence report
- Topic is trans-NIH and 2 or more ICs have committed to participating (i.e., sponsor, working group, post-workshop activities, etc.)



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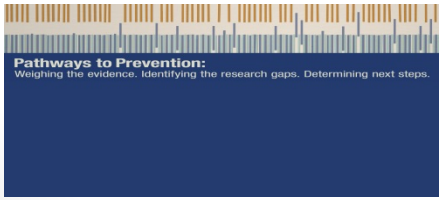
P2P workshop format and outcome

- 1-1/2 to 2-day workshop includes
  - Expert speaker presentations
  - “Town hall” discussion forums
  - Final product: panel report
- Independent, unbiased panel
  - weighs the “evidence”
  - issues report detailing methodological weaknesses in the field
  - suggestions for commonality across disciplines



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Panel Composition

- Panel members are:
  - U.S. citizen
  - Methodologists (biostatistics, epidemiology, clinical trialists)
  - Clinical practitioners (psychology, neurology, geriatrics, oncology)
  - Academic health researchers (health disparities, quality of life, pain research)
  - Non-health professionals (ethicist, attorney, economist)
  - Public representatives
  - *Highly recognized experts in their specific professional or public area*
- Panel members are not:
  - Employees of HHS or any Federal regulatory agency
  - Conflicted with the P2P workshop topic (they have no opinion or bias)

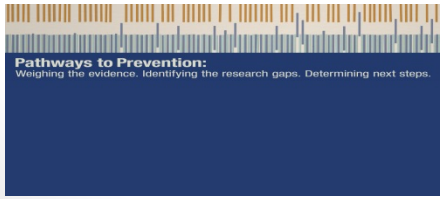
Comparison of content experts and P2P workshop panelists

Content Experts

- Workshop roles:
  - Working Group member
  - Speaker
  - Contributor to evidence report—
    - Technical Expert Panel
    - Peer reviewer
- MAY be conflicted; must disclose conflicts

Workshop Panelists

- Independent of topic:
  - No research on specific topic
  - No publications on specific topic
- Not an advocate
- Not a Federal employee
- MAY NOT be conflicted



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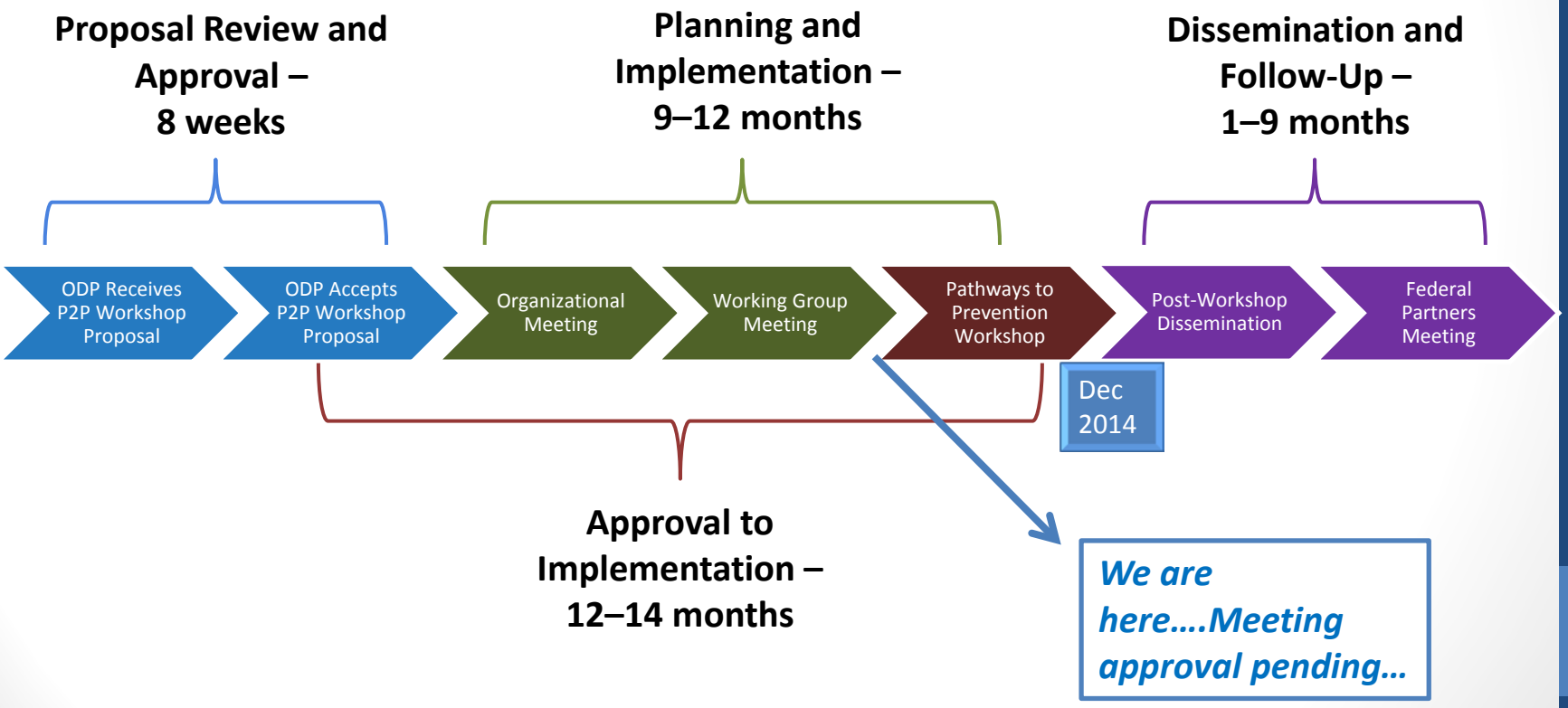
P2P Timeline



P2P Process—*Where are We*?

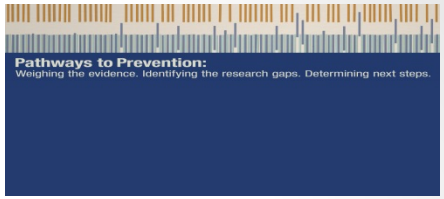
- Tentative Workshop Date: Dec 2014
- Conference approval form submitted; pending approval

AHRQ-sponsored Evidence-Based Practice Center (EPC)

- Key questions to EPC submitted
- Research protocol developed and posted http://www.effectivehealthcare.ahrq.gov/search-for-guides-reviews-and-reports/?pageaction=displayproduct&productID=1906
- Protocol to be implemented and systematic review underway

- Engage potential speakers for interest and availability
- Release workshop agenda, speakers, meeting logistics, etc.
- Release evidence report to panel members, public
- Widely promote meeting to various stakeholders

Pathways to Prevention (P2P) Program Summary



- P2P is a multi-step process involving high level of coordination
- Topics are submitted to NIH Office of Disease Prevention and are selected by an independent panel based on research need
- Different individuals (federal staff, content experts, others) with interest and investment in the research are involved in developing the topic and key questions, engaging outside experts and creating the foundation content for the actual workshop
- The foundation for the workshop consists of an evidence report (created by an independent source) based on key questions relevant to the research area, and the presentations from the content expert/speakers at the workshop
- An independent panel of individuals—recognized experts in their own unique fields—assess the weight of the evidence from the report and the content experts/speakers
- Deliverable from the workshop is a set of recommendations from the panel based on the totality of the evidence
- Follow up on the set of recommendations is carried out by the Federal partners

https://prevention.nih.gov/programs-events/pathways-to-prevention

NIH ME/CFS Contact

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