

# The NIH Office of Rare Diseases: Opportunities for Collaborative Research and Development Activities

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**and Genetic Diseases in Newborns and**  
**Children**

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# Rare Diseases Act of 2002

- **Public Law 107-280 (November 6, 2002)**
- **Legislative Mandate for Office at NIH**
- **Establish Clinical Research Centers with Rare Diseases Emphasis - > 6000 Rare Diseases**
  - **Clinical Research and Demonstration Programs**
  - **Clinical Research Training Programs**
  - **Demonstration of Diagnostic, Prevention, Control, and Treatment Methods for Rare Diseases**

# Rare Diseases Act of 2002

## Responsibilities of ORD

- Recommend Research and Public Education Agendas at NIH
- Promote Coordination and Collaboration of Rare Diseases Activities
- Develop Information Center (NHGRI)
- Prepare Biennial Report to Congress on Rare Diseases Research and Education Activities with Emphasis on Future Research Opportunities
- Prepare Annual Report to Congress on Research Advances in Rare Diseases

# Office of Rare Diseases

- Intramural Research Program
- Extramural Research Program
- Information Development and Dissemination
- Trans-NIH Working Group on Rare Diseases Research
- Information Available Through List Serve to Patient Advocacy Groups

# ORD Extramural Research Program

- **Scientific Conferences with NIH Institutes and Centers ~ 60 in FY 2005; >520 since 1995 (Two More Review Cycles in 2005)**
- **10 Rare Diseases Clinical Research Consortia and a Data and Technology Coordinating Center ( NIAMS, NICHD, NIDDK, NHLBI, NINDS, NCRR )**
- **Regional Workshops with Leaders of Patient Advocacy Groups**
- **Collaborative Research Initiatives**
  - NHLBI – Demonstration/Pilot Projects (R21)
  - NINDS – Improving Treatment Outcomes of Lysosomal Storage Disorders (R01/R21 and PAS)
  - NHGRI - Mentored Patient-Oriented Research Career Development Award (K23) Approaches of Genomics and Proteomics to the Study of Rare Diseases
  - NIH - Clinical Trial Planning Grant (R34)

# ORD/NHGRI Intramural Research Program

- **Dr. William Gahl - Director**
- **Biochemical Geneticists Training Program (3 Fellows)**
- **Patient Travel to the NIH Clinical Center  
Mercy Medical Airlift/Angel Flight**
- **Gynecological Consultation Services for  
Patients with Rare Diseases**
- **Undiagnosed Diseases**
- **Development of Genetic Tests**
- **Bench to Bedside Awards ~10/Year**

# Selected Outcomes of the Scientific Conferences Program

- Establish Research Priorities
- Develop Program Announcements, Solicit R01 Applications
- Establish Diagnostic and Monitoring Criteria
- Develop Animal Models
- Support Patient and Tissue Registries
- Develop Research Protocols, Collaborative Research Arrangements, and Plan Clinical Trials
- Disseminate Results to Targeted Professional and Patient Advocacy Groups

# Rare Diseases Clinical Research Network – Goals

<http://www.rarediseasesnetwork.org/>

**The systematic collection of clinical information to develop markers, assessment measures, and new approaches to diagnosis, treatment, and prevention of rare diseases, and, to promote training of new clinical investigators in rare diseases.**



# Rare Diseases Clinical Research Network- Key Features

- **Sub-Grouping of Rare Diseases**
- **Clinical Research Studies with Longitudinal/Natural History Component**
  - Includes Pilot Studies/Phase I/II Trials
  - Utilizes Institutional GCRCs across the Center Consortium.
- **Consortia Concept:**
  - Consortium of Investigators, Institutions, and Organizations, including Partnership with Patient Advocacy Organizations and Industry
- **Commitment of Each Rare Disease Clinical Consortia to Collaboration with Other Clinical Consortia and the DTCC Within the Network**

# Rare Diseases Clinical Research Network

## ■ Centralized Data and Technology Coordinating Center

- Collaboration in design of clinical protocols, data management and analysis
- Develop a coordinated clinical data management system for the collection, storage and analysis of data from multiple diseases and multiple clinical sites
- Develop tools for web based recruitment and referral, cross disease data mining
- Construct a portal for access and integration of public data resources
- Promote communication and coordination of Network (including internet video conferencing, centralized secure website)

# Rare Diseases Clinical Research Network

## ■ Network Sub-Committees/Working Groups:

- Operations Committee (NIH ORD/NCRR/Steering Committee Chair/DTCC PI)
- Human Subjects Recruitment/Protection
- Registry/Longitudinal Studies
- Website
- Standards in Terminology, Clinic and Laboratory Tests
- Specimen/Tissue Tracking
- Training
- Coalition of Patient Advocacy Groups
- Data Safety and Monitoring Board
- Scientific Advisory Board

# Rare Diseases Clinical Research Network Consortia (2004)

- Angelman, Rett, Prader-Willi Syndromes – A. Beaudet
- Bone Marrow Failure – J. Maciejewski
- Genetic Diseases of Mucociliary Clearance – M. Knowles
- Genetic Steroid Disorders – M. New
- Nervous System Channelopathies – R. Griggs
- Rare Liver Disorders – R. Sokol
- Rare Lung Diseases – B. Trapnell
- Rare Thrombotic Disorders – T. Ortel
- Urea Cycle Disorders – M. Batshaw
- Vasculitis Clinical Research – P. Merkel
- Data and Technology Coordinating Center (DTCC) – J. Krischer

# Coalition of Patient Advocacy Groups (RDCRN)

- **Voting Member of Steering Committee**
- **Advance the Implementation of the Network**
- **Leadership Advisory Board – Genetic Alliance and NORD Active Members**
- **Rare Diseases Emergency Room/Critical Care Treatment Guidelines**
- **Best Practices Treatment Guidelines and Access to Care**
- **Continuing Education Component for Conferences**
- **Patient Recruitment Emphasis**
- **DTCC Website Prominence**

# Trans-NIH Working Group on Rare Diseases Research

- **NIH Institutes and Centers**
- **Expand to Include Selected Government Agencies**
- **Coordination of Research and Public Education Components**
- **Identify Research Opportunities and Advances**
- **Develop Cooperative Research Initiatives – PAs, RFAs and RFPs**
- **Promote Collaborative Intramural and Extramural Research Programs**

# Trans-NIH Working Group on Rare Diseases Research Issues

- Development of Diagnostic Genetic Tests
- Collection, Storage, and Distribution of Biomaterials for Research
- Research Models for Rare Diseases
- Sources of Rare Diseases Information
- Training – Intramural and Extramural
  - Clinical Research Investigators

# Promoting Quality Genetic Testing

<http://www.phppo.cdc.gov/dls/genetics/RareDiseaseConf.aspx>

- **Recommended Activities from Conference on Promoting Quality Laboratory Testing for Rare Diseases (CDC, NIH, HRSA, CMS, FDA, DHHS, ASHG, ACMG, Genetic Alliance, Laboratories, Payers, Industry)**
  - Educational efforts to assure and promote quality for all patient testing and throughout the translation process;
  - Guidance, strategies, and criteria for evaluating the clinical readiness of potential tests moving from research phase to clinical use ;
  - Quality assurance strategies for accuracy of rare disease testing both + and - results to confirm mutations;
  - Reinstatement and Expansion of National Laboratory Network for Rare Diseases
  - Integrate Recommendations Into Collaborative Planning Meeting (Fall 2005)
  - Secretary's Advisory Committee on Genetics, Health, and Society (SACGHS) Meeting 2/28/2005-3/1/2005



# Promoting Quality Genetic Testing

- **International testing regulations and quality of global testing services**
- **Appropriate result interpretation with patient counseling**
- **Partnership and networks to improve research translation and data sharing**
  - **Between and among research and clinical laboratories**
  - **Among research investigators, clinical laboratories, patient groups, clinicians, payers**

# Promoting Quality Genetic Testing

- **Infrastructure needed to provide momentum and enable development of activities**
  - Facilitate rare diseases translational process to move research tests to clinical services
  - Assure the quality of testing services
  - Improve access to testing
  - Other Issues
    - Costs of test development
    - Reimbursement
    - Liability concerns
    - Quality assurance
      - Inter-laboratory comparisons
      - Prenatal diagnosis
      - Service back-up

# The Genetic and Rare Diseases Information Center (NHGRI/ORD)

- Toll-free 1-888-205-3223 (USA)
- International Access Number: 301-519-3194
- Fax: 240-632-9164
- E-mail: [GARDinfo@nih.gov](mailto:GARDinfo@nih.gov)

# ORD Website

<http://rarediseases.info.nih.gov/>

- Rare Diseases Information
- Research and Clinical Trials
  - PATIENT RECRUITMENT -  
<http://clinicaltrials.gov/>
- Patient Support Groups
- Patient Travel & Lodging
- Genetics Information - NCHPEG
- Research Resources
- Scientific Workshops, Archived Reports

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