Building research capacity for Heart, Lung and Blood Disorders through global networks

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NIH Global Health Interest Group
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Global Health Research: A New Era

- Increasing attention to global health
- Shifting patterns of disease burden from acute infectious to chronic diseases
- Emerging biomedical research leadership and support organizations

Graphic from Research!America
What is NHLBI Doing in Global Health

- Structure
- Programs
  - REDS-III
  - Centers of Excellence in LMICs
  - GACD- Hypertension Program
- Resources
Office of Global Health (April 2010)
A component of the IOD- NHLBI
Role of OGH includes:
- Facilitation & Coordination across NHLBI
- Liaise with other NIH ICs, HHS, USG
- Link with other national and international organizations (public, private, multilateral)
- Program Management (in partnership with PDs)
  - Centers of Excellence
  - GACD - RFA
Programs

- REDS-III
- Centers of Excellence Program
- GACD-Hypertension Program
Goal of the REDS-III (Recipient Epidemiology and Donor Evaluation Study-III) research program is to improve the safety and availability of transfused blood products in the U.S. and internationally.

Seven year multicenter program with international and domestic components, charged with conducting epidemiologic, survey and laboratory studies in blood donors and transfusion recipients.

A cohesive, global, and dynamic program.
The Epidemic of Non-Communicable Diseases

FEATURE

Grand challenges in chronic non-communicable diseases

The top 20 policy and research priorities for conditions such as diabetes, stroke and heart disease.

Abdallah S. Daar¹, Peter A. Singer¹, Deepa Leah Persad¹, Stig K. Pramming², David R. Matthews², Robert Beaglehole³, Alan Bernstein³, Leszek K. Borysiewicz³, Stephen Colagiuri³, Nirmal Ganguly³, Roger I. Glass³, Diane T. Finkgold⁴, Jeffrey Koplan⁴, Elizabeth G. Nabel⁴, George Sarra⁴, Nizal Sarrafzadeh⁵, Richard Smith⁵, Derek Yach⁶ and John Bell⁶

Chronic non-communicable diseases (CNCDs) are reaching epidemic proportions worldwide⁷,⁸. These diseases — which include cardiovascular conditions (mainly heart disease and stroke), some cancers, chronic respiratory conditions and type 2 diabetes — affect people of all ages, nationalities and classes.

The conditions cause the greatest global share of death and disability, accounting for around 60% of all deaths worldwide. Some 80% of chronic-disease deaths occur in low- and middle-income countries. They account for 44% of premature deaths worldwide. The number of deaths from these diseases...
The Increasing Burden of Chronic Non-Communicable Diseases: 2002-2030

Source: P01 AG 017625 (PI Murray)
National Heart, Lung, and Blood Institute

Global Health Initiative

Preventing Chronic Disease
NHLBI Global Health Initiative Program

- **Goal:** To establish Centers of Excellence to combat non-communicable chronic cardiovascular and pulmonary diseases (CVPD) in developing countries

- **Each Center of Excellence:**
  - Enables research capacity building
  - Trains future chronic CVPD investigators
  - Conducts research on new or improved approaches, programs, and measures to prevent or treat chronic CVPD
NHLBI/UHG Collaborating Centers of Excellence (since 2009)
Centers of Excellence: Research + Training

**RESEARCH**
- Epidemiological surveillance
- Dietary factors associated with cardiovascular disease
- Effects of indoor air pollution
- Stroke registry
- Prevention
- Rural vs. urban
- Validation of non-laboratory based screening tools

**TRAINING**
- Short courses
  - Chronic disease epidemiology
  - Clinical research
  - Biostatistics
  - IRB, DSMB
- Master’s level programs
- Scholarships
- Postdoctoral and junior faculty
- Mentorship programs
The whole is better than the sum of its parts

- Sub-committees: Epidemiology, Community Health Workers, Training, Pulmonary
- Regional networks: COEs in India and Latin America
- COEs working and publishing together
- Five supplements to support collaborative work across the COEs
- One training supplement on the Developmental Origins of Health and Disease (DOHaD)
- Develop database to aggregate COE common data elements
- Five supplements to align COEs research with the GACC RFA on Cookstoves and child mortality
New partners:

- US-CDC
- Medtronic Foundation
- American Thoracic Society
- International Academy of Cardiovascular Sciences
- National Institute of Mental Health (NIH)
  - RFA-MH-13-040: “Challenges in Global Mental Health : Integrating Mental Health into Chronic Disease Care Provision in LMIC” (Applications due: June 20, 2012)
- National Institute of Child Health and Human Development
  - PAR-11-270: “Biomedical/Biobehavioral Research Administration Development (BRAD) Award [G11] (Guatemala and Bangladesh)
How we leverage investments

- **NIH Clinical Center Courses:**
  - Principles and Practice of Clinical Research (China, Bangalore and Kenya)
  - Ethical and Regulatory Aspects of Clinical Research: Guatemala (1), Kenya (9)

- **Grants writing workshop in Bogota, Colombia:** Partnership with Colombia MoH, PAHO, CDC, NIH (Peru, Guatemala, Costa Rica)

- **Summer Institute on Randomized Behavioral Clinical Trials:** (2012: Kenya & Bangladesh; 2013: Guatemala & Peru)

- NHLBI and FIC sponsored **Five COE members** to attend the NIH Household Air Pollution Research Training Institute, October 2012 (Argentina, Bangladesh, Kenya and South Africa)

- **Grants writing workshop in South Africa, November 18-20, 2013- Johannesburg**
THE COE network in Scientific meetings

- **2013 World Hypertension Congress** Special NHLBI sponsored symposium featuring the COE network (speakers- NHLBI, Argentina, Guatemala, India Delhi, Kenya). June 2013, Istanbul, Turkey.

- **2013 International Congress of Nutrition**- Special NHLBI sponsored symposium featuring the COE network (speakers- NHLBI, China, Guatemala and Tunisia). September 2013, Granada, Spain.

- **2014 World Congress of Cardiology- Melbourne, Australia**
NHLBI will support enhancement of several proposals:

- **Verbal Autopsy:**
  - Short courses (Argentina, Peru, Mexico): Short workshops on autopsy techniques that includes practice interviews and analysis of the results

- **Health Economics Web-based Module:**

- **Training area on ACC site**
  - A repository of COE training materials, strategies, and products
  - Interactive area for Trainees to exchange ideas, information, and to network
  - Seed Grants- AWARDED – 13 Projects on February 2013
  - A library of web-based trainings
  - Tracking System Trainees post-training
Process Evaluation: completed summer 2012
Implementation of Process Evaluation recommendations: completed summer 2013
Feasibility Study Evaluation: Report received April 2013
Outcome evaluation: Plan development – Fall 2013
COE Program: Final Meeting

- Bethesda, Maryland
- April 13-16, 2014
- Network members will gather to present results
Global Alliance for Chronic Diseases
The Global Alliance for Chronic Diseases (GACD) is the first collaboration of eight major international biomedical research funding agencies to address the specific needs of chronic noncommunicable diseases.

- Announced June 15, 2009
## GACD Current Members: Public Funders of Biomedical Research

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GACD Goals

- Coordinate implementation research activities
- Seek common approaches to guide policy
- Develop and share best practices
- Build research/economic capacity
First GACD Program: Reducing the Impact of Hypertension in LMICs

Goals of the Program:

- To develop a better understanding of key barriers and facilitators at local and national levels that affect hypertension control and to consider how these implementation challenges can be overcome.

- To understand how innovations for hypertension control can be introduced and scaled up across a range of settings.

- To identify what elements of systems most need to be strengthened to prevent hypertension and its consequences (e.g. stroke).

- To improve hypertension control rates while reducing disparities in hypertension control across population sub-groups.

http://www.nhlbi.nih.gov/about/globalhealth/alliance-chronic-diseases/index.htm
GACD Hypertension Program

- 15 community-based research projects that will focus on implementing effective approaches to control high blood pressure
- The projects represent an investment of more than US$21.8 million over three to five years
- Research in 15 different low- and middle-income countries:
  - Argentina
  - China
  - Colombia
  - Fiji
  - Ghana
  - India
  - Kenya
  - Malaysia
  - Nigeria
  - Peru
  - Rwanda
  - Samoa
  - South Africa
  - Tanzania
  - Uganda
NIH Funds 5 GACD projects

**NHLBI:**
- Task shifting and BP control in Ghana: A cluster-randomized trial
- Comprehensive approach for hypertension prevention and control in Argentina
- Launching a salt substitute to reduce BP at the population level in Peru
- Optimizing linkage and retention to hypertension care in rural Kenya

**NINDS:**
- Tailored Hospital-based Risk Reduction to Impede Vascular Events after Stroke (THRIVES) in Nigeria
Partners Have Complementary Roles

NHLBI: research, training, and education programs to promote the prevention and treatment of heart, lung, and blood diseases
Multi-Sector Solutions to Health Problems

- Transportation
- Housing
- Education
- Agriculture
- Urban Planning
- Local Ownership
  - Community
  - Business leaders
- Policymakers

Secondhand Smoke

Lead Poisoning
Opportunity for Prevention

- The major causes of chronic diseases are known.
- If these risk factors were eliminated,
  - Prevent at least 80 percent of all heart disease, stroke and type 2 diabetes
  - Prevent over 40 percent of cancer
Research to Results: Age-Adjusted Death Rates for Coronary Heart Disease, U.S., 1950-2004

Deaths/100,000 Population

Year


Risk Factors defined 1961

Primary and Secondary Prevention

Risk Factors

NHBPEP 1972

Physical Intervention

HDFP 1979

CPPT 1984

TIMI 1985

NCEP 1985

ALLHAT 2002
Resources

- IOM report
- NHLBI Global Health Strategic Plan
- OGH website
Reducing Chronic Diseases Must Be a Global Priority

Chronic diseases are universal. They affect the young and the elderly, the rich and the poor, and every ethnic group. They impact entire communities and entire nations, and they cost millions of dollars in lost productivity and care.

Populations in developing countries are disproportionately affected by chronic diseases, with more individuals developing chronic diseases at younger ages than those in higher income countries. Chronic diseases account for around 60 percent of all deaths globally, and 80 percent of these deaths occur in low- and middle-income countries.

The impact of chronic diseases is rapidly growing among populations in developing countries, where, without action, deaths due to chronic diseases are expected to continue to increase substantially. With action, however, 36 million premature deaths worldwide could be averted by 2030, according to the World Health Organization (WHO), with nearly half prevented in people under 70 years old.

Scientific investments in chronic disease research, care, and translation in developing countries are essential to reducing the global burden of chronic diseases.

More than 35 million people worldwide die from chronic noncommunicable diseases — especially heart disease and stroke, diabetes, lung diseases, and cancer — twice the number of deaths from infectious diseases, maternal and perinatal conditions, and nutritional deficiencies combined.

Last Updated: August 27, 2012
“International partnerships are crucial to fighting this massive epidemic. All nations are feeling the devastating impact of …non-communicable diseases and, consequently, must be part of the solution. This convergence of interests presents exceptional opportunities - and enormous responsibilities - to those of us in the medical research community.”

Roger Glass, Director, FIC, 2011
Cristina Rabadán-Diehl, Ph.D., M.P.H.

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