Information & Communication Technologies (ICT) Resources for Global Health Research and Research Training

Thomas Cherian Mampilly, MPH
International Health Program Officer
Co-Chair, ICT Working Group

Fogarty International Center (FIC)
National Institutes of Health (NIH)
4.2% ($29.1 billion) of total FY 2007 HHS budget ($698 billion) in research
National Institutes of Health (NIH) Mission

NIH is the steward of medical and behavioral research for the United States

Our mission is science in pursuit of fundamental knowledge about the nature and behavior of living systems, and the application of that knowledge to extend healthy life and reduce the burdens of illness and disability.
NIH Consists of 27 Institutes and Centers
FY 2007 ACTUAL TOTAL NIH BUDGET AUTHORITY: $29.128 BILLION

- Research Mgmt & Support: 5%
- All Other: 2%
- Other Research: 6%
- Research Centers: 10%
- R&D Contracts: 10%
- Research Training: 3%
- Intramural Research: 10%
- Research Project Grants: 54%
FY 2008 ENACTED
TOTAL NIH BUDGET AUTHORITY: $29.457 BILLION

- Research Mgmt & Support: 5%
- Research Training: 3%
- All Other: 2%
- Other Research: 6%
- Research Centers: 10%
- R&D Contracts: 11%
- Intramural Research: 10%
- Research Project Grants: 53%
Appropriated NIH Budget, FY07, $29.1 Billion

<table>
<thead>
<tr>
<th>%</th>
<th>Amount</th>
<th>Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>10%</td>
<td>$2.9B</td>
<td>6000 Intramural Scientists &amp; Research Personnel</td>
</tr>
<tr>
<td>3.8%</td>
<td>$1.1B</td>
<td>Research Mgt &amp; Support</td>
</tr>
<tr>
<td>3.2%</td>
<td>$1.0B</td>
<td>NLM, OD, etc.</td>
</tr>
</tbody>
</table>

83% of the total NIH budget supports over 212,000 Extramural Scientists and Research Personnel at over 2,800 Institutions.
NIH Funding Across the U.S.
In FY’07, well over $500 million of NIH’s annual budget supported international research, international conferences, and/or international research training, involving over 100 countries worldwide.
Rationale for NIH’s international investments

- Science Anywhere Benefits People Everywhere.
- We can make substantive gains in our own nation’s health only through a better understanding of the predilection for diseases from ancestral populations abroad.
- International collaborations accelerate the pace of discovery, and its application, by enabling scientists worldwide to share conceptual insights, analytic methods, data sets, patient cohorts, special environments, and other opportunities.
- Allows access for cutting edge research in areas of the world which provide unique opportunities to understand disease pathogenesis, anticipate disease trends, or develop interventions because of their geography, disease burdens, population structure, and other characteristics not available in the United States.
NIH International Funding: Examples of foreign institutions

- Africa and the Middle East
  - Cairo University, Egypt
  - University of Ghana
  - Hebrew University, Israel
  - Jordan University of Science and Technology
  - Kenya Medical Research Institute (KEMRI)
  - American University of Beirut, Lebanon
  - National Institute of Hygiene, Morocco
  - King Fahd Medical City, Saudi Arabia
  - University of KwaZulu-Natal, South Africa
  - University of Capetown, South Africa
  - University of Tunis, Tunisia
  - Makerere University, Uganda
  - Al Quds University, West Bank
  - Sana’a University, Yemen
NIH International Funding: Examples of foreign institutions (cont.)

- The Americas
  - Universidade Federal de Minas Gerais, Brazil
  - McGill University, Canada
  - University of British Columbia, Canada
  - Catholic University of Chile
  - University of Costa Rica
  - Universidad del Valle de Guatemala
  - GHESKIO Centers, Haiti
  - University of the West Indies, Jamaica
  - National Institute of Public Health, Mexico
  - Cayetano University, Peru
NIH International Funding: Examples of foreign institutions (cont.)

- Asia and the Pacific
  - University of Melbourne, Australia
  - University of Sydney, Australia
  - ICDDR, Bangladesh
  - China CDC
  - Peking University, China
  - All India Institute of Medical Sciences (AIIMS)
  - Y.R.G. Care, India
  - National Institute of Infectious Diseases, Japan
  - Seoul National University, Korea
  - Aga Khan University, Pakistan
  - Chiang Mai University, Thailand
NIH International Funding: Examples of foreign institutions (cont.)

- Europe and Eurasia
  - University of Copenhagen, Denmark
  - International Agency for Research on Cancer, France
  - Institut Pasteur, France
  - Decode Genetics Inc., Iceland
  - Erasumus University, Netherlands
  - Saint Petersburg University, Russia
  - Karolinska Institute, Sweden
  - University of Zurich, Switzerland
  - Oxford University, United Kingdom
  - Cambridge University, United Kingdom
### Science Anywhere Benefits People Everywhere

<table>
<thead>
<tr>
<th>Discovery</th>
<th>Implication for Global Health &amp; American Public</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bangladesh/India</strong> – Scientists pioneered development of oral rehydration therapy (ORT) for treatment of cholera.</td>
<td>ORT prevents over a million deaths per year and is first line of treatment for childhood dehydration worldwide.</td>
</tr>
<tr>
<td><strong>Nigeria</strong> – High fatality rates and insensitivity to treatment in African women compared with Caucasian women was linked to three genes.</td>
<td>Knowledge of genetic markers can personalize future treatment.</td>
</tr>
<tr>
<td><strong>Australia</strong> – Hepatitis B antigen discovered in blood samples led to discovery of the virus, development of a vaccine, and the prevention of related liver cancer.</td>
<td>American children are immunized against hepatitis B.</td>
</tr>
<tr>
<td><strong>China</strong> – Traditional medicine made from wormwood- <em>Artemisia annua</em> – found to be highly active for malaria treatment.</td>
<td>Artemesinin derived medicines are the treatment of choice for saving lives worldwide.</td>
</tr>
</tbody>
</table>
The Fogarty International Center is dedicated to advancing the mission of the National Institutes of Health by supporting and facilitating global health research conducted by U.S. and international investigators, building partnerships between health research institutions in the U.S. and abroad, and training the next generation of scientists to address global health needs.

The Fogarty International Center’s vision is a world in which the frontiers of health research extend across the globe and advances in science are implemented to reduce the burden of disease, promote health, and extend longevity for all people.

Typical Models: Long-term institutional commitments for research training, and funding for research based at foreign sites.
Fogarty International Center
Major Research and Training Sites Worldwide

- 60 US institutions
- >100 foreign institutions
FIC Information and Communication Technologies (ICT) Working Group

- Established May 2007 with a mandate to explore how ICT can further support NIH’s international medical research and research training priorities
- Documented a wide range of successful ICT activities within ongoing NIH programs
- Explored partnership concepts with Foundations, Multilateral organizations, NGOs, Academia, other NIH Institutes and Centers
- Hosted several ICT experts at FIC for meetings, speaking events, demonstrations
- Conference planning
ICT Working Group– Conference Planning

- **Goal**: Explore how ICT can facilitate global health research and research training; identify needs, challenges, solutions in using ICT for global health research; build partnerships; highlight ICT successes
- **Format**: Multi-site consultation with NIH Grantees, partner institutions, and other stakeholders. Based on feedback from the initial consultation, FIC will decide next steps
- **Partnership**: We are open to full participation and/or input from outside partners
- **Focus**: The first consultation in June 2008 will be focused on ICT applications for international Distance Learning
Examples of current ICT Applications for International Distance Learning

- Co-curriculum development and teaching
- Traditional and low resource distance learning course delivery
- Sandwich: face to face intensive courses followed by 6-12 months virtual mentoring
- Continuing education courses
- Low-bandwidth International seminars -delivered and attended globally through web-collaboratory (Elluminate)

- NIH Videocasts (As of 4/18/08: 3,932 archived; 420 podcasts; 95 scheduled future events; Live broadcasts) [http://videocast.nih.gov/](http://videocast.nih.gov/)
Thomas Cherian Mampilly, MPH

International Health Program Officer
Co-Chair, ICT Working Group

Fogarty International Center
National Institutes of Health

Email: mampillyt@mail.nih.gov