

Concept Clearance: Human Heredity and Health in Africa (H3Africa)

Mark Guyer

on behalf of the
H3Africa Working Group

June 29, 2011



H3Africa

Human Heredity and Health in Africa



H3Africa Working Group – ICs

FIC

NCI

NEI

NHGRI

NHLBI

NIA

NIAAA

NIAID

NIBIB

NICHD

NIDA

NIDCR

NIDDK

NIEHS

NIMH

NIMHD

NINDS

NLM

OD



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H3Africa Working Group – Members

FIC

Ken Bridbord
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Elizabeth Gillanders
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Robert Eisinger
Tanya Hoodbhoy



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Global Health a National Priority

POLICYFORUM

RESEARCH AGENDA

Opportunities for Research and NIH

Francis S. Collins

The pursuit of fundamental advances in diagnosis, prevention, and treatment of diseases, now accelerated.

NIH emphasis on global health research

The application of the knowledge to extend health, life and to reduce the burden of illness and disability. The power of the molecular approach in health and disease has steadily gained momentum, over the past several decades and is now poised to enter into a new era of discovery. The transition of science to biomedical research has always been, and will continue to be, the creative insights of individual investigators. But increasingly these insights are working in teams, accelerated by interdisciplinary approaches and empowered by open access to tools, databases, and



The United States President's
Emergency Plan for AIDS Relief



May, 2009

President's Global Health Initiative goes beyond current programs on HIV/AIDS, malaria, and TB to address health of women and children in developing nations



INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMIES

2009

**THE U.S. COMMITMENT TO GLOBAL HEALTH:
Recommendations for the New Administration**

African populations have the
greatest genetic diversity which
contributes to disease risk

THE LANCET

2010

Three percent of the world's health workers
address 24% of the global burden of disease in
Sub-Saharan Africa

International
HapMap
Project



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Why Global Health?

- **Scientific advances** make an attack on **infectious diseases** more feasible than ever
 - RNAi
 - Small molecule screening
 - Genomics of pathogens & vectors
 - Vaccine development
- Opportunity to push beyond HIV/AIDS, malaria, TB to a long list of **neglected tropical diseases** (NTDs)
- Need for increased emphasis on **chronic, non-communicable diseases** of increasing importance in developing world
- Tapping into the passion of **young medical researchers**
- Compelling need to build **capacity for research** in all countries of the world



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Common Fund Global Health Initiatives

- Medical Education Partnership Initiative (MEPI)
- Human Heredity and Health in Africa (H3Africa)



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Common Fund Global Health Initiatives Cont'd

“Recent advances in the **capacity to link genetic variation to disease predisposition** are providing important clues to disease pathogenesis and, over the coming decade, are expected to assume an important role in informing the prediction, diagnosis, monitoring, and treatment of many conditions...”

“...However, **African researchers and populations are substantially underrepresented** within this increasingly global research endeavor.”



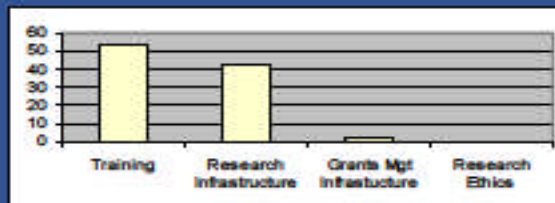
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NIH IC Investment in Global Health

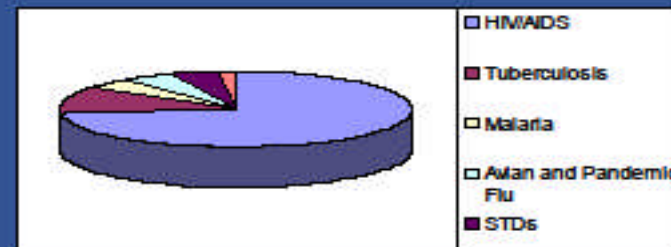


Several global health initiatives → Few awards to African institutions

68 grant awards to African institutions in 2009-2010, plus some contracts



Most NIH awards in training and research infrastructure



Most NIH awards in communicable disease



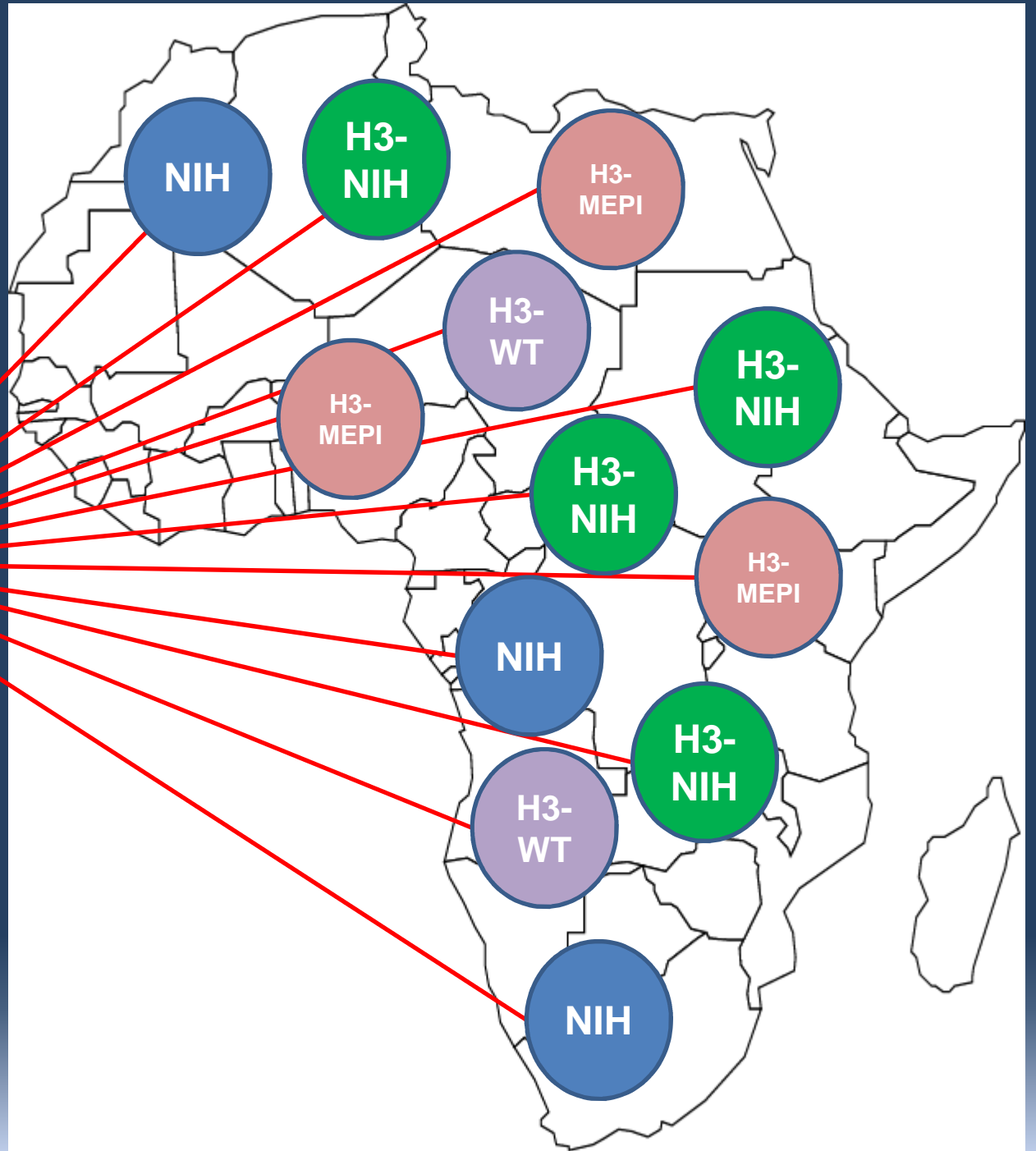
10 awards in genetics, although in some this is a minor emphasis

We need to do more.....

Microsoft Office Outlook Link



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Human Heredity and Health in Africa (H3Africa) initiative is the
Wellcome Trust and the National Institutes of Health



H3Africa: Goals

- Significantly **increase the number of African scientists** that are internationally competitive in genomics and population-based research (broadly defined)
- Establish **collaborative networks of African investigators** pursuing genomics-based, disease-oriented projects
- **Create/expand genomics research infrastructure**, particularly bioinformatics and biorepositories



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H3Africa: Essential Features

- **Awards made to African PIs** at African institutions
- Promote intra-continental collaborations (**'South-South'**)
- Emphasis on the study of **genomic and environmental determinants** of common diseases
- To the extent possible, research and infrastructure should **build upon existing resources**



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H3Africa: Defining Success

- **Enable African scientists** to apply genomics to improve African health
- **Empower African researchers** to be competitive in genomic sciences
- **Establish effective collaborations** among African researchers on the African continent
- **Achieve sustainability** beyond NIH Common Fund support



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Initiative 1

Infrastructure: Bioinformatics Network

H3Africa bioinformatics network for communication, training, data sharing, high-level analysis and development of new informatics tools customized for genomics research in Africa

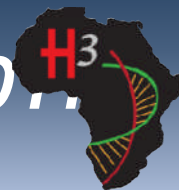


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Initiative 1

Infrastructure: Bioinformatics Network

- Nodes-based organization
 - Central node to coordinate and administer network
 - Distributed nodes
 - access to computational resources
 - training for both visitors and workshops
 - cutting-edge informatics research
 - high-level analytical capabilities
- RFI in April
- *RFA to be released in July 2011*



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Initiative 2

Infrastructure: H3Africa Biorepository

State-of-the-art biorepository in Africa for African samples

- receive and store samples (e.g. cards, blood, DNA)
- make cell lines (?)
- distribute to research community
- samples remain under African control



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Initiative 2

Infrastructure: H3Africa Biorepository

- Build on existing infrastructure
- Consider networked regional biobanks
- RFI in April 2011
- *RFA for planning grant/feasibility studies in August 2011*
- *Full-scale repositories funded in FY14 & 15*



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Initiative 3

H3Africa Research Projects

- Cooperative Centers
 - *RFA to be released in July for FY12 funding*
- MEPI Linked Awards
 - *RFA to be released in July for FY12 funding*
- NIH grant-associated awards
 - *RFA to be released in July for FY12 funding*
- *Cooperative Centers RFA to be re-released in FY13, FY14 year to add one additional center each year*



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Initiative 3

H3Africa Research Projects

- H3Africa Cooperative Centers
 - Award to African institutions/African PIs
 - Strongly encourage South-South collaboration
 - Must have informatics capability for data management, analysis
 - Must use H3Africa Bioinformatics Network
 - Must deposit samples in H3Africa Biorepository
 - Must include training
 - Allow societal implications research component



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Initiative 3

H3Africa Research Projects

- Possible scientific areas
 - Genomic/environmental determinants of:
 - non-communicable diseases
 - communicable diseases
 - Mendelian disease
 - Other health-related traits
 - Pharmacogenomics
 - Human microbiome
 - Human genetic variation



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Initiative 4

Societal Implications Research

Support research in societal implications of genomics in Africa

- provide support for independent investigators
- small grants (average size \$50K)
- Fogarty has been supporting bioethics training
- in addition to any societal implications research in H3Africa Cooperative Centers



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Initiative 4

Societal Implications Research

- NHGRI will support a meeting on societal implications research in Abuja, Nigeria in 2011
- *Release FOA in 2012 for funding in FY13*



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H3Africa: Defining Success

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