

Building equitable and effective research partnerships with LMIC scientists in environmental health

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Outline

1. Lessons from a Peruvian research institution
2. Applying these lessons to an environmental health program
3. Advice to global environmental health researchers



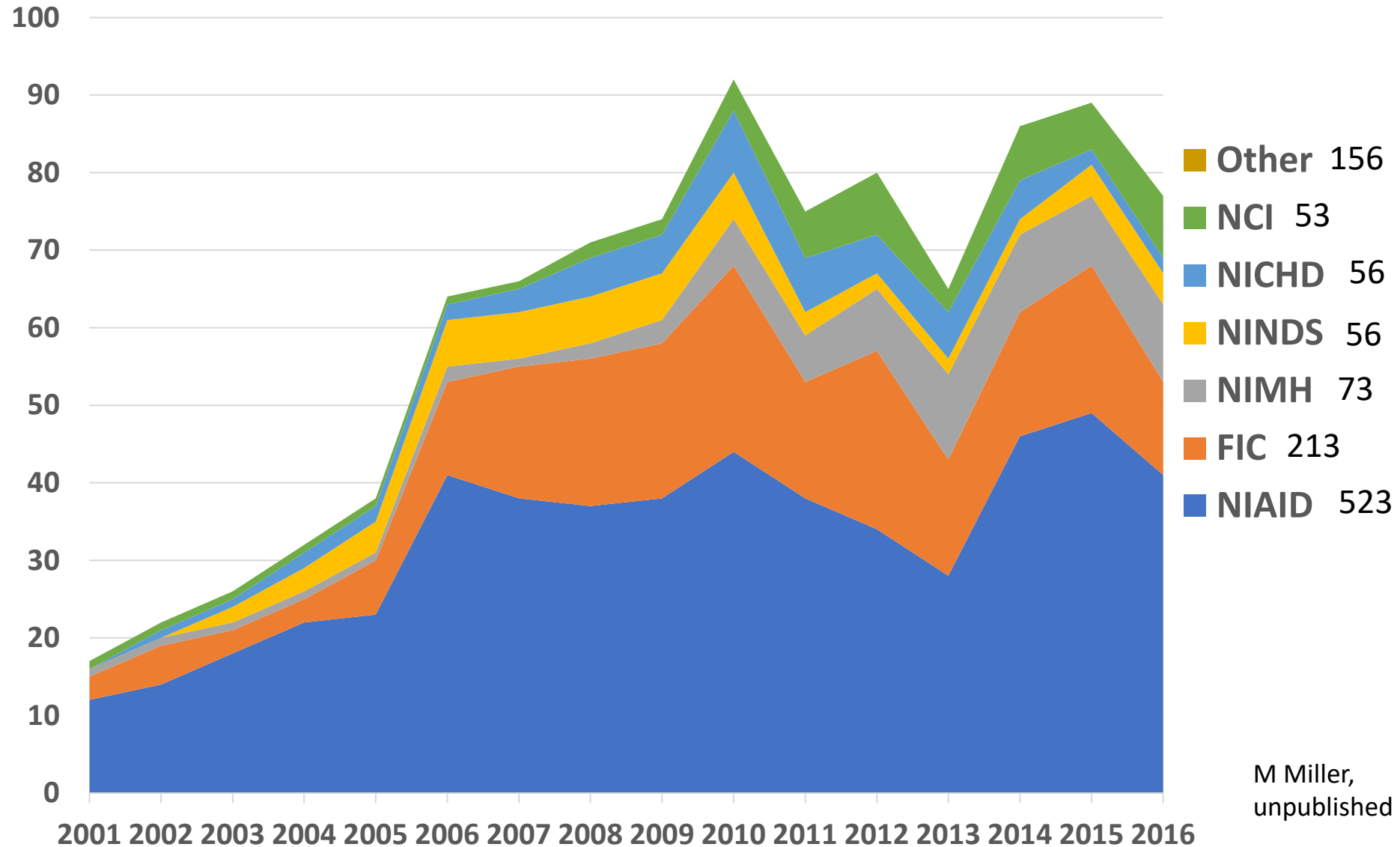
Disclaimer: My personal views
They definitely do represent official
NIH or USG policies

1. Lessons from a Peruvian research institution

- Universidad Peruana Cayetano Heredia, Lima, Peru
- Small private medical school established in 1961
- Modest research program in 1990s

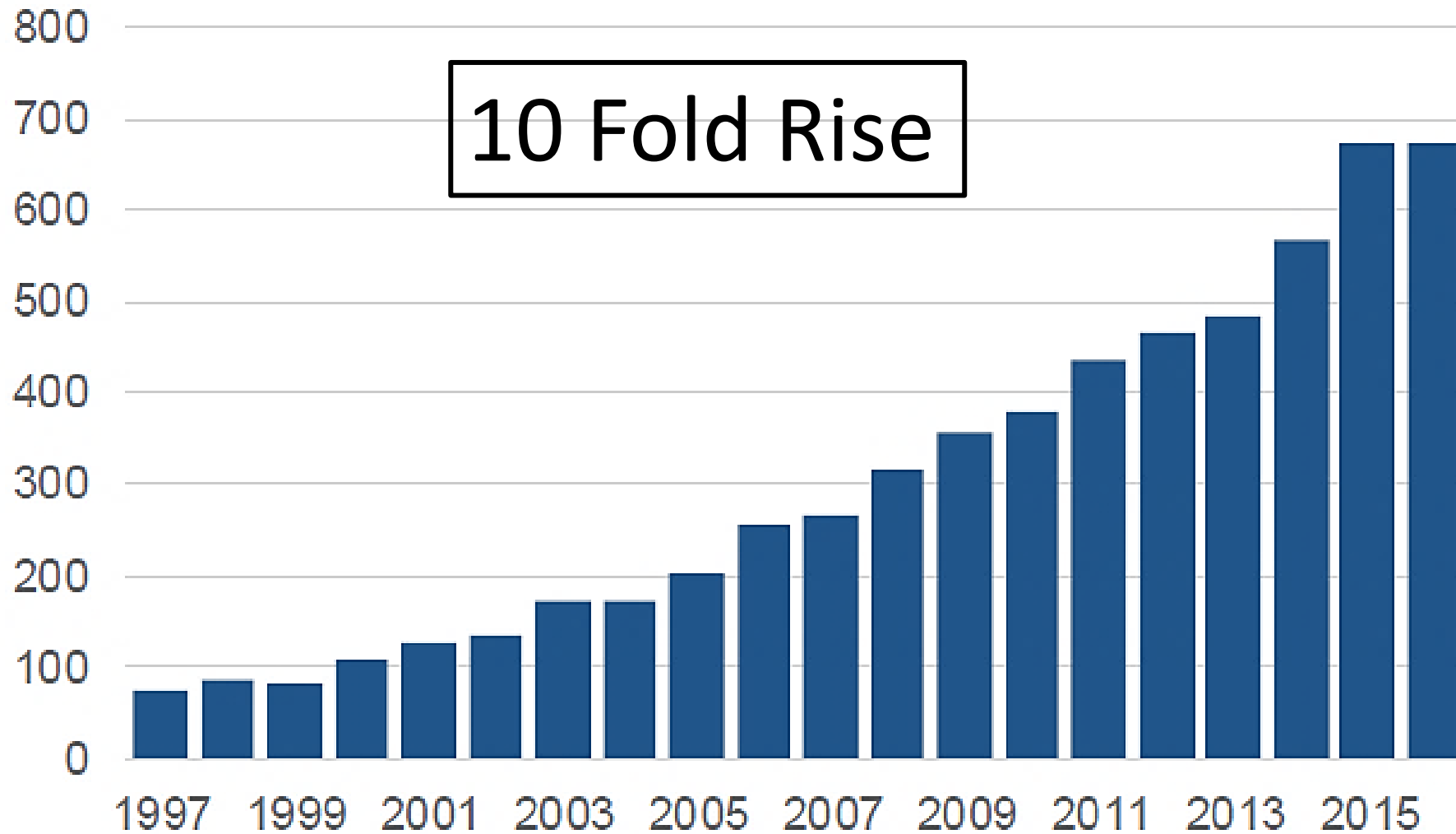


Number of Active NIH Awards with Peru by Institute 2001-2016 (N=1130 years total)

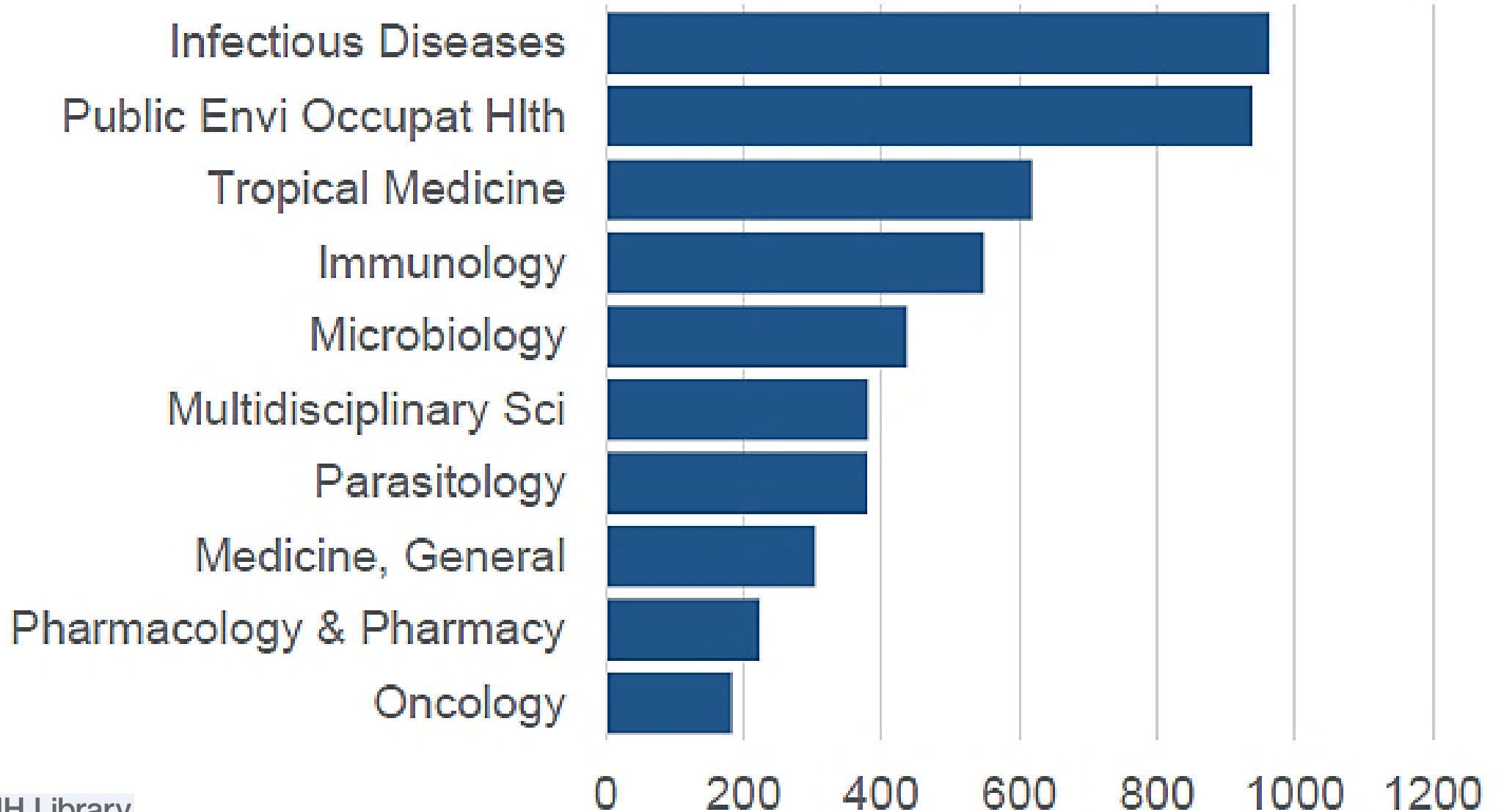


M Miller,
unpublished

Peruvian Publications per year 1997-2016

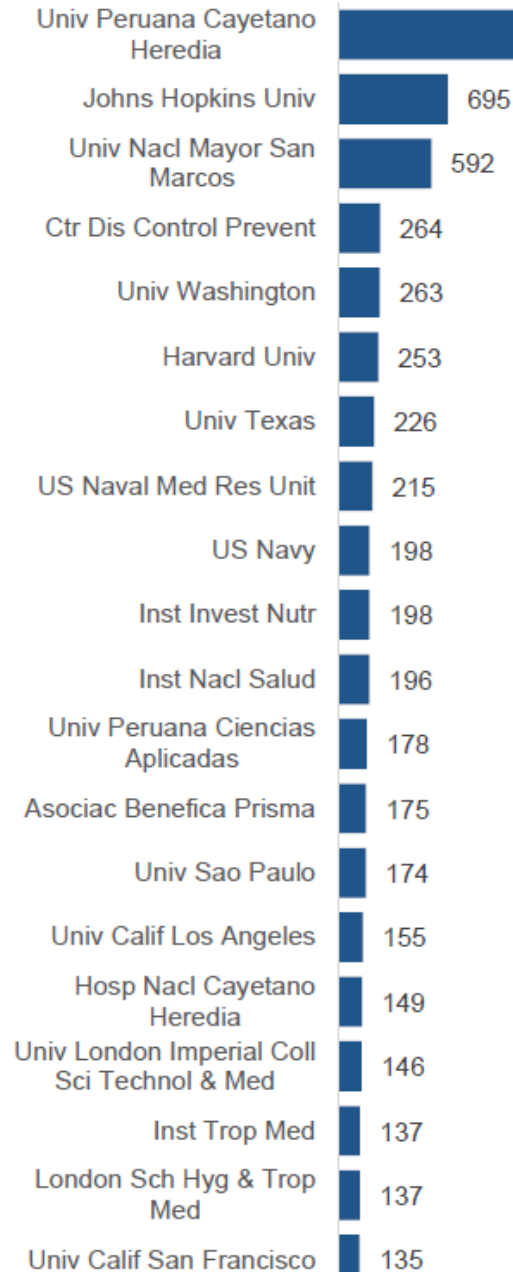


Publications per WOS subject category

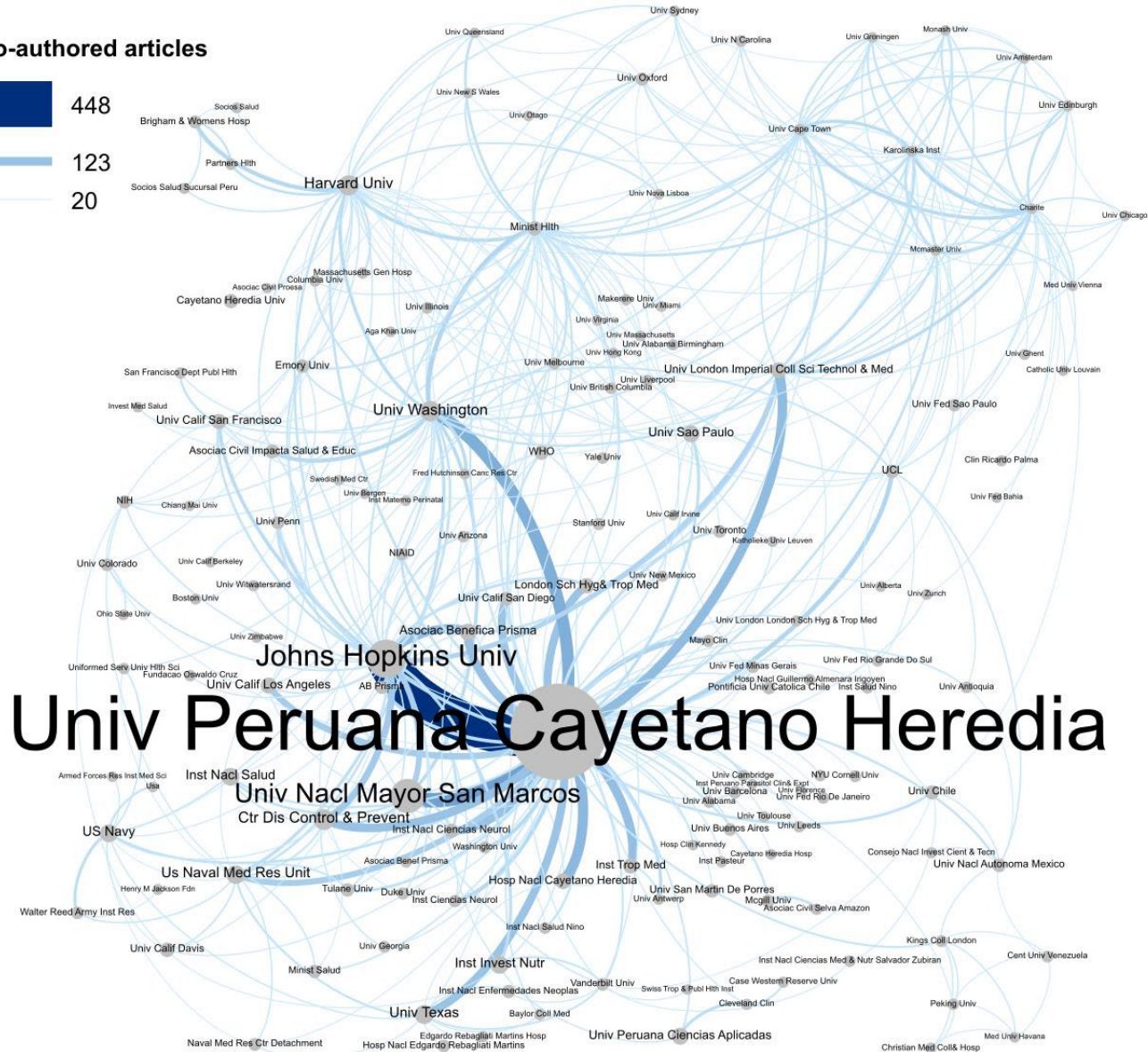
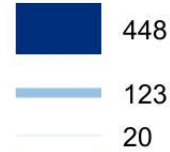


Institutional co-authorship network

WOS Bibliometric Analysis – Peru,
1997-2016 N=6032

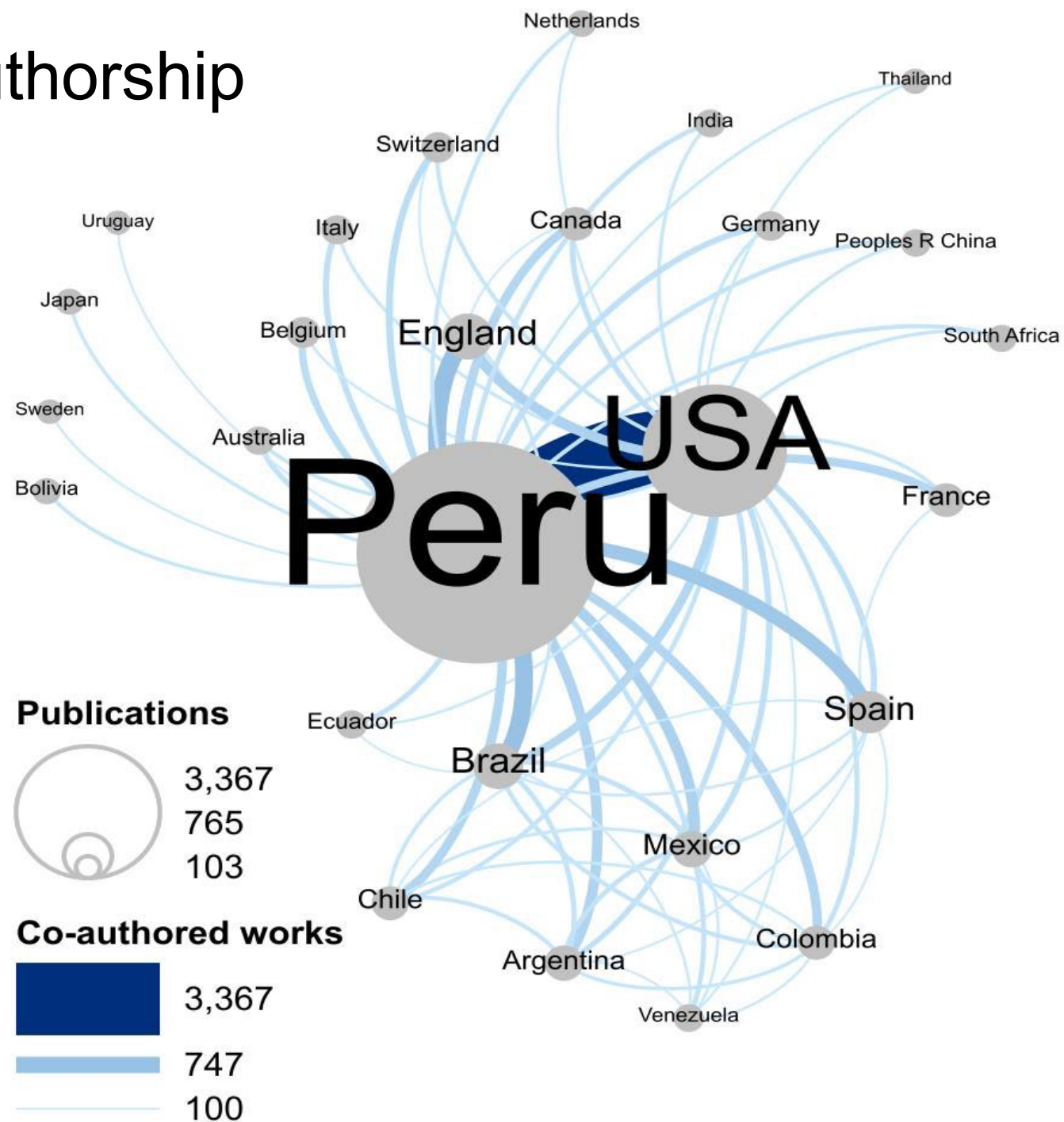


Co-authored articles



Univ Peruana Cayetano Heredia

Country co-authorship network



Bibliometric analysis by
Belter and Levinski

Characteristics of sustainable centers of excellence in LMICs

- Critical mass of first-class scientists
- International recognition in at least one science area
- Multiple international collaborations and funding streams
- Support and recognition by national government
- Commitment from institutional leadership
- Competent, transparent administration



2. Applying these lessons to an NIH Environmental Health Research Program



International Training and Research in Environmental and Occupational Health 2006-2011



John Froines, UC Los Angeles	-	Mexico
Luz Claudio, Mt. Sinai	-	Brazil, Chile, Mexico
Nelson Steenland, Emory	-	Peru
Jerrold Last, UC, Davis	-	Argentina, Chile, Brazil
Sarah Felknor, U of Texas	-	Nicaragua, Costa Rica, Columbia
Joseph Graziano, Columbia U	-	Bangladesh
Bill Daniels, U of Washington	-	Vietnam and SE Asia
Richard Kreutzer, Calif Health Dept	-	China
Tongzhang Zheng, Yale	-	China
Allan Smith, UC, Berkeley	-	India
Mark Robson, Rutgers	-	Thailand
Nalini Sathiakumar, UA Birmingham	-	Pakistan
Thomas Robins, U of Michigan	-	South African Develop. Community
Thomas Cook, U of Iowa	-	Central and Eastern Europe
Daniel Hryhorczuk, UI, Chicago	-	Ukraine, Belarus, Moldova, Russia
Thomas Voice, Michigan State	-	Balkan Republics

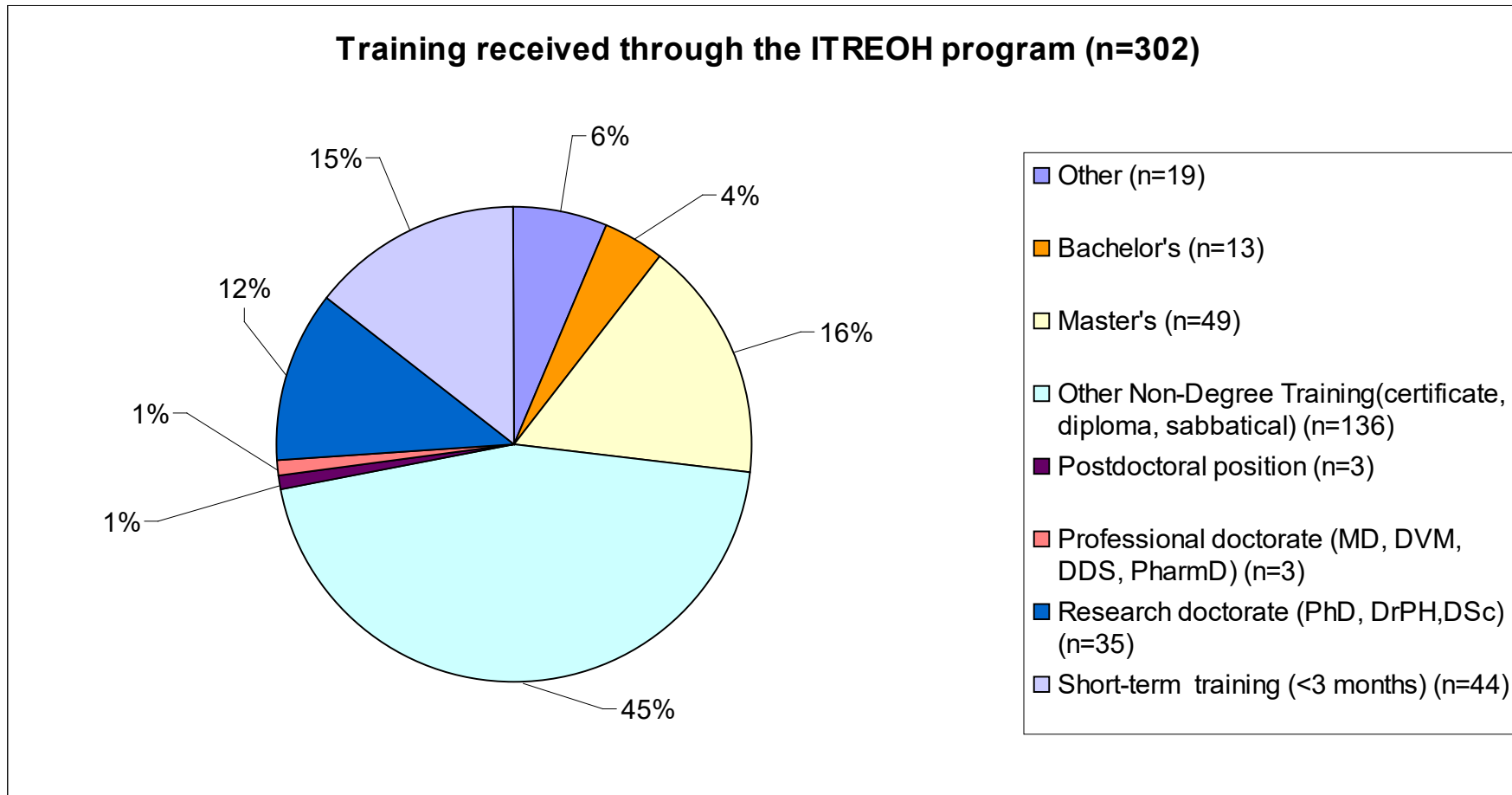
Publications by Grantees of the International Training and Research in Environmental and Occupational Health Program (1998-2010)

Scientific Area		Number of Studies	
Agricultural Health Hazards		26	
Cancer		36	
Child Environmental Health		19	
Curriculum Development		15	
Ergonomics		4	
Gene-Environment Interactions		18	
Heavy Metals Exposure		26	
Indoor Air Pollution		16	
Industrial Pollution		23	
Infectious Disease		30	
Mining		4	
Neurological Health Hazards		6	
Outdoor Air Pollution		5	
Pesticides		21	
Psychosocial Health Hazards		17	
Radiation		18	
Reproductive Health Hazards		40	
Respiratory Health Hazards		28	
Trauma and Injury		9	
Water and Sanitation		28	
TOTAL		389	

Journal	Impact Factor
Science	28
American Journal of Respiratory and Critical Care Medicine	9.8
Archives of Internal Medicine	6.2
Allergy	6.1
Environmental Health Perspectives	5.7
Analytical Chemistry	5.8
International Journal of Epidemiology	5.5
European Respiratory Journal	5.5
American Journal of Epidemiology	5.4
Epidemiology	5.4

Source: Data from Spires, CareerTrac, and Progress Reports

Training Received through the ITREOH Program



* Source CareerTrac

ITREOH Collaborating Institutions (1)

LATIN AMERICA

Argentina	National University of Tucuman National University of Salta
Brazil	Oswaldo Cruz Foundation (FIOCRUZ), Rio
Chile	University of Chile Department of Labor, Ministry of Health Chilean Security Association (ACHS)
Columbia	Pontifical University "Javeriana"
Peru	National Agrarian University, La Molina University of Peru Cayetano Heredia
Uruguay	University of the Republic
Costa Rica	Technological Institute of Costa Rica National University of Costa Rica
Mexico	National Institute of Public Health (INSP) National Autonomous University of Mexico Center for advanced research (CINVESTAV) Autonomous University of Coahuila Autonomous Metropolitan University-Azcapotzalco Mexican Institute for Social Security (IMSS)
Nicaragua	National Autonomous University of Nicaragua

EASTERN EUROPE

Belarus	International Sakharov Environmental University
Bulgaria	National Academy of Sciences University of Mining and Geology National Center for Public Health Protection
Croatia	University of Zagreb
Macedonia	Institute of Occupational Health
Moldova	State Medical and Pharmaceutical University
Montenegro	Center for Ecotoxicological Research University of Montenegro
Russia	Russian Academy of Medical Sciences St. Petersburg State University Northwest Public Health Research Center, St. Petersburg Institute of Biochemistry and Genetics
Serbia	Clinical Center of Serbia Institute of Occupational and Radiological Health
Slovenia	Josef Stefan University
Ukraine	National University of Kyiv Ukrainian Academy of Medical Sciences Institute of Pediatrics, Obstetrics and Gynecology
Poland	Nofer Institute for Occupational Medicine
Romania	Polytechnical University of Bucharest Technical University of Cluj-Napoca Institute of Public Health Bucharest Center for Health Policy and Public Health
Slovakia	Slovakia Medical Center Tmava University

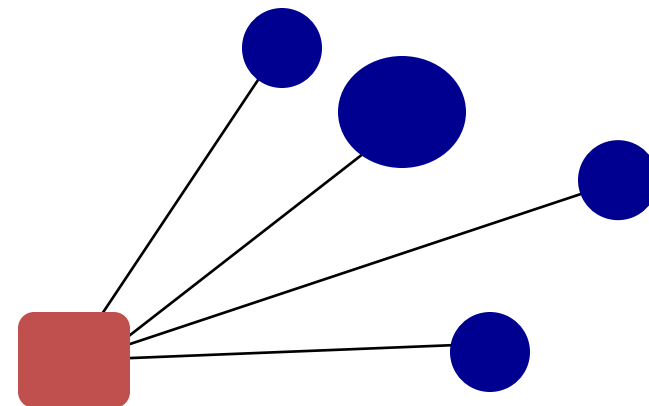
ITREOH Collaborating Institutions (2)

ASIA

- Bangladesh** BRAC University
Dhaka University
International Center for Diarrheal Disease Research
- Cambodia** Royal Phnom Penh University
- China** Northwestern University for Nationalities
Shanghai Municipal Center for Disease Control
China Centers for Disease Control
Center for Non-Communicable Disease Prevention, Shanghai
Chinese National Institute for Environmental Health Sciences
- India** Indian Institute of Chemical Biology
All India Institute of Hygiene and Public Health
Sri Ramachandra University
Manipal Academy of Higher Education
- Laos** Ministry of Health
- Pakistan** Aga Khan University
- Sri Lanka** Sri Lanka Ministry of Health
University of Colombo
- Thailand** Burapha University
Chulalongkorn University College of Public Health Sciences
Ministry of Health
- Vietnam** Can Tho Medical School, Can Tho
National Institute of Occupational and Environmental Health

AFRICA

- Gambia** The Gambia College, Brikama
- South Africa** University of Cape Town
University of Kwa-zulu Natal
University of Witwatersrand
- Tanzania** Muhimbili University
- Mozambique** University Eduardo Modlane
- Zimbabwe** University of Zimbabwe
- Zambia** University of Zambia

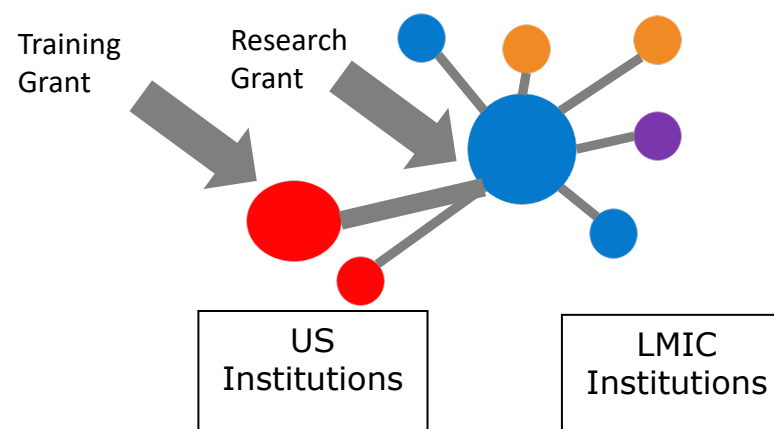
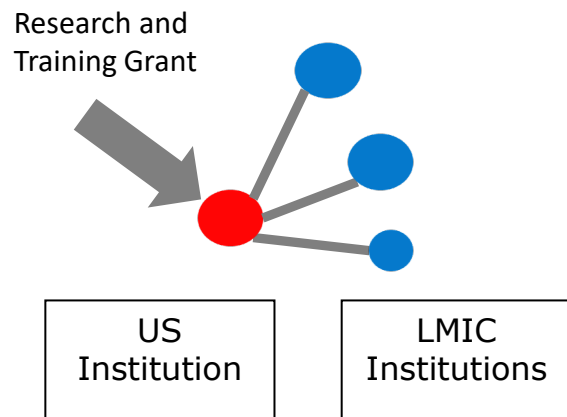
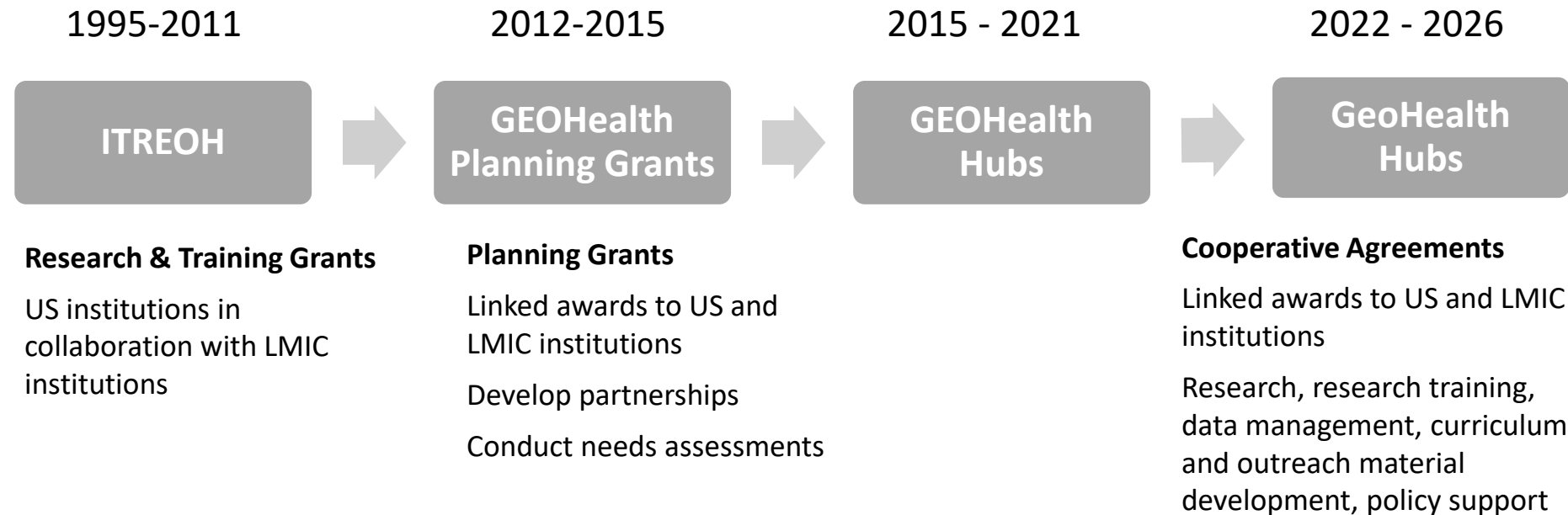


Characteristics of sustainable centers of excellence in LMICs

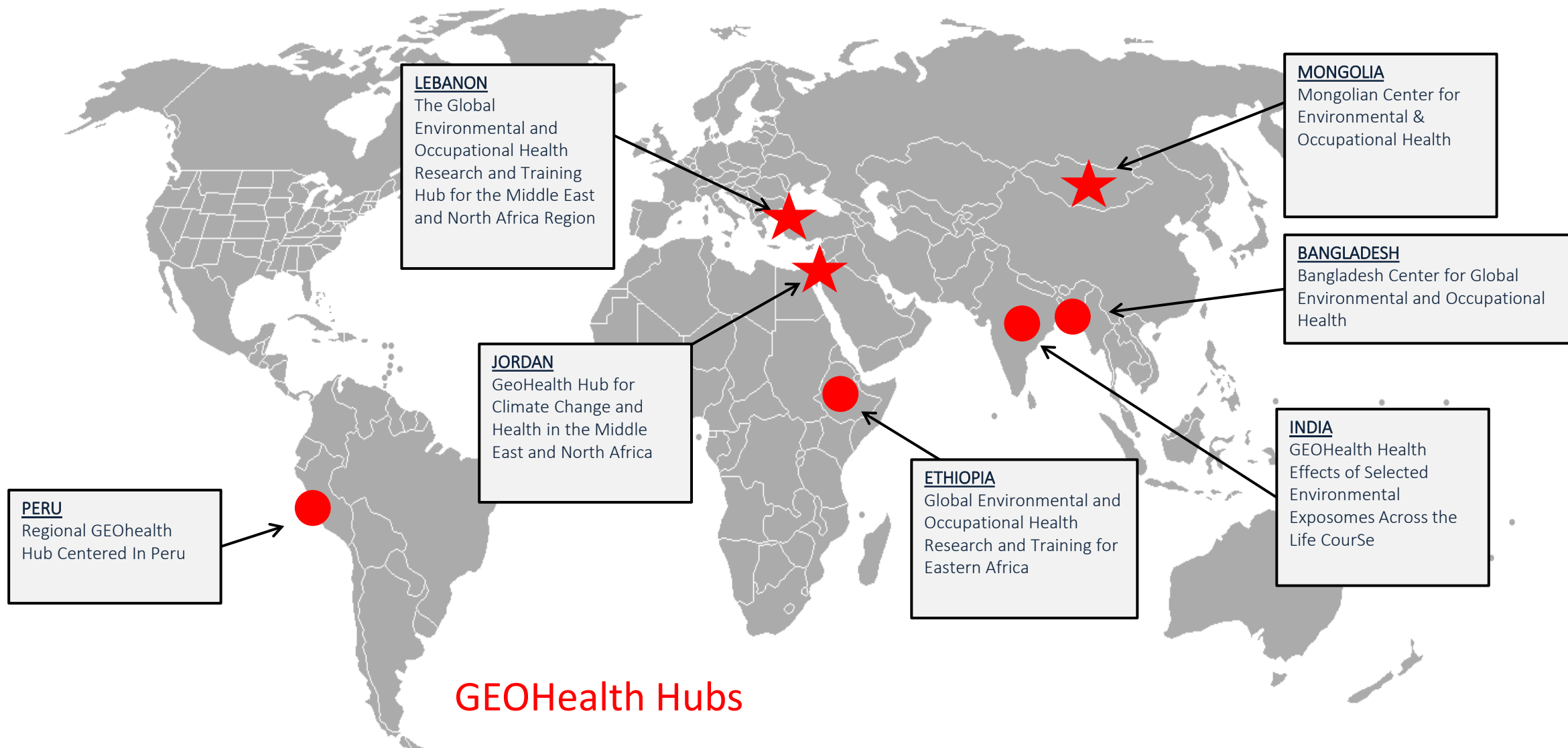
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From International to Global Environmental and Occupational Health

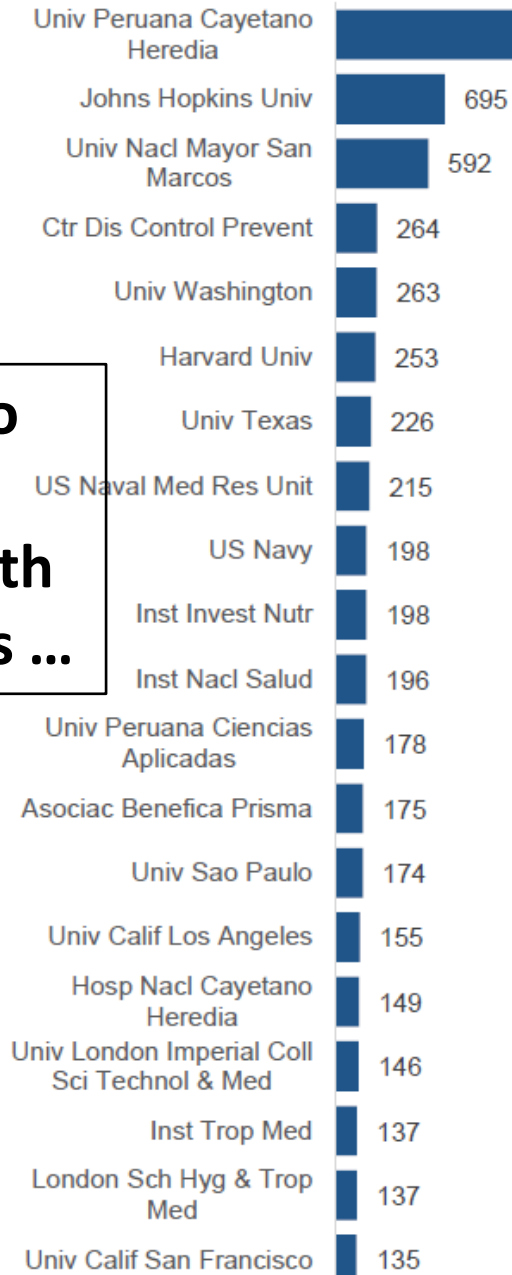


GEOHealth Research and Capacity Building Network 2022-2026



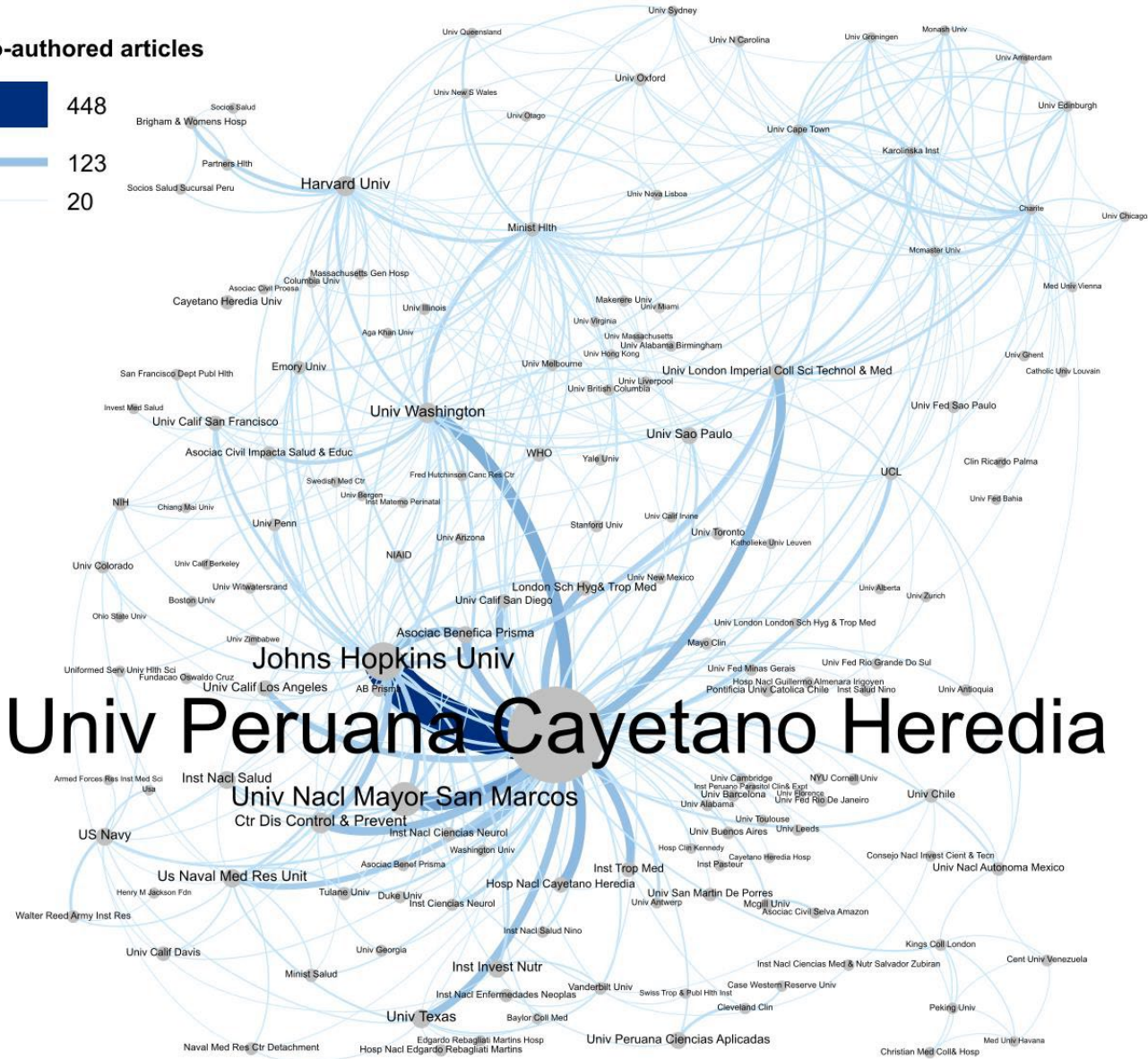
Institutional co-authorship network

WOS Bibliometric Analysis – Peru,
1997-2016 N=6032



Co-authored articles

- 448 (Dark Blue)
- 123 (Medium Blue)
- 20 (Light Blue)



Univ Peruana Cayetano Heredia

3. Advice to modern global health researchers ...

Individual co-authorship network

... Lessons from
Bob Gilman

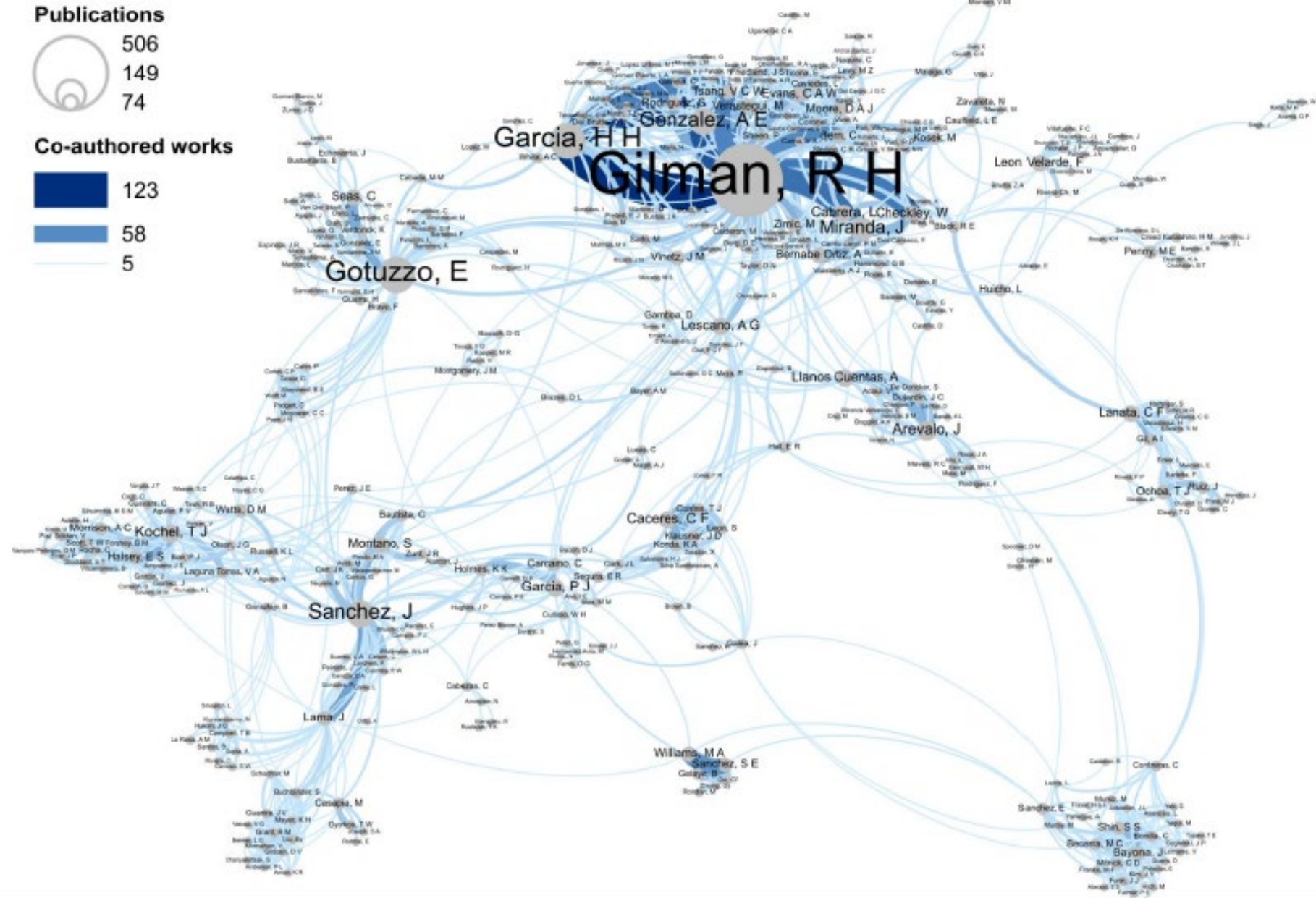
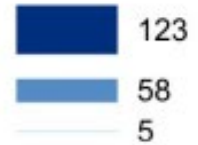


(as interpreted by
Josh Rosenthal)

Publications



Co-authored works



Context for LMIC Research Collaborations

- Grantsmanship and scientific writing skills limited to elite faculty
- Passionate interest and real talent often lies underneath the surface in junior faculty and students
- Scientific salaries likely mismatched to responsibilities
- Indirect costs from USG grants probably don't cover real costs
- Research administration offices often have modest capacity

Thinking of your collaborating institutions as “sites” to study the phenomenon of interest may lead you to miss important opportunities for discovery and impact.

Engage your collaborators at the outset. Will findings will be implementable locally and/or will yield valuable skills for your collaborators and their students?

Be prepared to be asked by LMIC policymakers to replicate findings made elsewhere in the local context.

Make explicit plans to report findings back to communities, institutions and policy makers.

Identifying a research question





Research capacity building is an ethical imperative when working in LMICs

- Training grants to support degree-oriented training
- Fellowships from diverse sources
- Online courses at your university
- Individually mentor local students at their uni
- Reciprocal IRB and grants administration workshops
- Leverage grad students, post-docs and skilled staff

Authorship

- ICMJE guidelines not well suited to team science or HIC-LMIC collaborations
- Need new ways to think about it e.g: who was indispensable to data collection, findings or analysis?
- Avoid assumptions and be transparent about needs and expectations at the outset, and continue to talk
- Anticipate that LMIC scientists in many countries are culturally predisposed to be highly diplomatic, and may be reluctant to share needs and concerns with an HIC partner



Main Message



- Its all about people
- Sustained collaborations over years can yield important changes beyond your research project
- Understand that excellent scientists at LMICs often have extraordinary commitments because they are tip of the iceberg
- Working with LMICs requires a commitment – be sure you are prepared to spend time, creativity and funding to make it work well.