State of the Institute: Current Trends and New Directions

Ronald T. Ackermann, MD MPH
5 October 2017

IPHAM
Advancing collaborative research and education to improve the health and well-being of individuals and their communities
Overview

• A Director’s perspective about how IPHAM works – One year later
• Strategic areas of work intended to deepen & extend impact
• Examples of activity within IPHAM and our Centers
• Trends and other analyses of our work to date
• Conversation
A Director’s view of how IPHAM works...
What is IPHAM?

• Catalyst for amplifying the size and impact of diverse research programs focused on the interface of public health and healthcare
• “Hub” for connecting methodologists, content experts, and stakeholders across disciplines and sectors
• Support for thematic Centers that bring together people and research programs with common goals, methods, & partnerships
• Home for health services and public health training and career development programs
• Resource core, offering administrative and technical assistance for proposals and awards, particularly those too big for a single division or department
• Vehicle for bidirectional communication with public health and health system stakeholders
• Platform for enabling leadership opportunities for existing or new faculty members
What’s “Included” in IPHAM?

- One IPHAM function is to connect & coordinate dry lab research & training activities across NU.
- Several departments and centers were doing dry lab research before IPHAM was founded in 2012.
- Some of those departments still house research administrative resources outside of IPHAM, though most faculty are IPHAM members.
- IPHAM attempts to connect & support investigators regardless of their need for space or research administrative resources.
## Between and Across Departments, Centers, & Programs

<table>
<thead>
<tr>
<th>Example Opportunity Areas</th>
<th>“Action”</th>
<th>Examples of IPHAM Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over 900 total IPHAM members&lt;br&gt;Better hub for public health activity</td>
<td>Convene</td>
<td>Seminars&lt;br&gt;Annual Meeting</td>
</tr>
<tr>
<td>NUCATS, Deans Office, &amp; Others offer resources/services that are underused&lt;br&gt;Space is always in limited supply</td>
<td>Connect</td>
<td>Member Database <em>(TBN)</em>&lt;br&gt;Share Funding Opps&lt;br&gt;Pilot Programs&lt;br&gt;Office Spaces</td>
</tr>
<tr>
<td>CDPH, NMHC, &amp; Others are recurring partners but steps for forming new areas of collaboration are not clear&lt;br&gt;Many strong “dry lab” resources already exist at FSM but are still underused by IPHAM members</td>
<td>Enable</td>
<td><em>(TBN)</em></td>
</tr>
<tr>
<td>NM EDW is one of the largest academically accessible clinical data repositories (but not readily “researchable”)</td>
<td>Leverage</td>
<td><em>(TBN)</em></td>
</tr>
<tr>
<td>Our goal is to impact policy and practice but many don’t have knowledge of how best to disseminate their work</td>
<td>Extend</td>
<td>Communications&lt;br&gt;<em>Linking to D&amp;I Consultant (TBN)</em></td>
</tr>
<tr>
<td>We have an opportunity to train professionals in a multi/trans-disciplinary way, particularly around clinical CER, PRO’s, and within a learning health system</td>
<td>Train</td>
<td>Seminars&lt;br&gt;Certificates, Master, PhD&lt;br&gt;K12 NUPATIENT</td>
</tr>
</tbody>
</table>
Organization of What IPHAM Offers

**General Administrative Support**
- Strategy & Planning
- Human Resource Management
- Budget/Finance
- Communications

**Space**
- Co-Location
- Teams / Networking
- Resource Sharing

**Research Admin Pod**
- Multi-departmental Projects
- Basic Services when Needed
- Boilerplate maintenance

**Catalytic Resources**
- Imbedded EDW Analyst
- Vouchers for Core Access
- Improved Member Portal

**Combined work of All Centers...**

**Leadership Committee**

**IPHAM Resources**
New Strategic Areas
...Under development...
Examples of Areas Where We Need New Strategies

<table>
<thead>
<tr>
<th>Need Areas</th>
<th>FSM/NU Strengths</th>
<th>New Areas of IPHAM Work</th>
<th>Likely Partner(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong partnerships with stakeholders &amp; decision makers</td>
<td>Inroads at NM; CCH</td>
<td>Execute “intent to collaborate” agreements; vouchers for ShARPs</td>
<td>CDPH; Alliance; Access; NMHC; others</td>
</tr>
<tr>
<td>Designing research to be “implementable”</td>
<td>CePIM; Interest of NM &amp; of NUCATS</td>
<td>Define consultative needs &amp; resources; voucher funding</td>
<td>CePIM; NUCATS</td>
</tr>
<tr>
<td>Practical use of the NM EDW for research</td>
<td>Past experience; EDW team; NUCATS</td>
<td>Full FTE Imbedded IPHAM EDW Analyst</td>
<td>NMEDW; NUCATS</td>
</tr>
<tr>
<td>Joining &amp; analyzing public health, clinical, &amp; research data</td>
<td>CHIP; Health LNK; CAPriCORN</td>
<td>IPHAM EDW Analyst to develop standard data queries; visualizations</td>
<td>NMEDW</td>
</tr>
<tr>
<td>PRO development &amp; analysis</td>
<td>PROMIS</td>
<td>Scope out consultative resources for possible voucher funding</td>
<td>MSS/PROMIS</td>
</tr>
<tr>
<td>Qualitative research</td>
<td>Qualitative Res. Interest Group</td>
<td>Scope out possible consultative resources for voucher funding</td>
<td>QRIP; FAME; Faculty Affairs</td>
</tr>
<tr>
<td>Quasi-experimental study design &amp; statistical methods</td>
<td>Several separate groups</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Mentored training programs</td>
<td>T32s; NUPATIENT</td>
<td>Identify strategies to strengthen mentoring; K12 Learning HS</td>
<td>NUCATS; TGS</td>
</tr>
</tbody>
</table>
Examples of Activity of IPHAM Centers
Functional Units: What is an IPHAM Center?

• People and/or research programs that share common goals, methods, & partners
  – Gain efficiency by sharing space, staff, and administrative resources
  – Improve collective growth and impact under shared leadership and strategy
• Different output areas of IPHAM centers
  – Research focused centers
  – “Resource” focused centers
• Different support mechanisms
  – “Direct” – Space & administrative support from IPHAM
  – “Affiliated” – Space & administrative support from a Department or other School
IPHAM Centers by Outputs & Center Funding

- Primarily Research Outputs
  - CBH
  - CPHS
  - CEnH
  - CPCO
  - BCHPE
  - CPCI
  - COM
  - CBMH
  - CTMH
  - CGH
  - CHIP
  - CCH

- Primarily Funded by Other Sources
  - CHCS
  - CEHS

- Primarily Resource Outputs
  - Primarily Funded by IPHAM
Mission to bring people, communities, and data together to enable everyone to live their healthiest lives

CHIP has a vision for “information-driven health for all”

To make this vision a reality for patients and communities, our focus areas include:

- **Data Collection & Aggregation** – Integrating clinical data from EHRs and other sources to provide big-picture views of health.
- **Data Analysis** – Developing and applying novel data extraction, linkage, and analysis methods to generate valuable insights for our partners.
- **Practice Coaching** – Engaging with health-care providers as they participate in quality improvement and practice transformation initiatives to make the most of health information technology.
Center for Healthcare Studies

- Generates impactful research about the delivery, equity, safety and quality, efficiency, and effectiveness of healthcare in order to inform and shape healthcare policy, enhance healthcare practice, and improve the health of populations
- Provides a home for investigators conducting research under the broad health services and outcomes research umbrella of healthcare delivery, clinical, and translational outcomes, comparative effectiveness, and dissemination and implementation

Example Program Areas
- Surgical Outcomes and Quality Improvement Center (SOQIC)
- Northwestern Stroke Quality and Outcomes Research Enterprise (SQORE)
- Northwestern University Transplant Outcomes Research Collaboration (NUTORC)
- RWJF Aligning Forces for Quality
- Chronic Disease Care and Outcomes Program (CDCOP)
Center for Community Health

• CCH's mission is to catalyze and support meaningful community and academic engagement across the research spectrum to improve health and health equity

• Example Resources & Services (sponsored by NUCATS)
  – Since 2007, CCH has assisted 334 projects involving over 300 community partners, 92 healthcare practice locations, and 100 faculty members from 22 different NU departments and schools
  – **Alliance for Research in Chicagoland Communities (ARCC)** – support resources for engaged research with community- and faith-based organizations, public agencies, and patient advocacy groups (resource directory at: [www.ARCCresources.net](http://www.ARCCresources.net))
  – **Practice-based Research Program (PBRP)** – support resources for engaged research involving primary care practice-based research
  – **Stakeholder Academic Resource Panels (ShARPs)** – facilitated group consultation with a customized panel of patient, community, and other stakeholders to guide the planning & conduct of research

• Research Programs
  – Teams housed within the Center’s main offices focus on maternal depression, food allergy in children and adolescents, asthma, cardiovascular health, and community resources for diabetes prevention.
  – Collaborations among the broader membership span faith communities, neighborhoods, ethnic groups, gender issues, people living with disabilities, specific health conditions, and ways to improve community health care
Center for Global Health

• Promotes health equity issues and builds upon the knowledge base in the field of global health through translational research and interdisciplinary education initiatives in both the US and globally

• Current training grants
  – Building Research And Innovation in Nigeria’s Science (BRAINS)
  – Developing Innovative Interdisciplinary Biomedical Engineering Programs in Africa (D43)
  – HIV and Mycobacterial Disease in Mali (D43)
  – Medical Education Partnership Initiative in Nigeria (MEPIN)
  – Multidisciplinary NeuroAIDS Research Training to Improve HIV Outcomes in Nigeria (D43)
  – Northwestern and Jos University Research Training Program in HIV and Malignancies
  – Support of Training and Mentoring in Nigeria for Academics (STAMINA)
  – University of Ibadan MEPI Junior Faculty Research Training Program: UI-MEPI-J

• Research Catalyzer Funding for Faculty

• Examples of Research Programs
  – Active Viral Hepatitis Diagnostics to Support Prevention/Treatment of HCC
  – Enhancement of Retrovirology and Tuberculosis Laboratory Capabilities in Mali
  – Host-Pathogen Interactions in a Failing Global lineage of MTBC:M.africanum
  – Integrating Community Pharmacists and Physicians to Improve HIV Outcomes
  – Liver Disease in HIV/HBV Co-Infected Nigerians
  – President's Emergency Program for AIDS Relief (PEPFAR)
Center for Translational Metabolism and Health

- Investigates the pathogenesis of complex biomedical problems to improve lives of individuals and enhance public health
- Combines basic, population and clinical investigators to conduct translational research and to train next generation of scientists
- Scope of inquiry spans molecular biology, animal models, therapeutic target discovery, patient-oriented investigation, epidemiology, genetics, clinical trials, health disparities, and health policy research
- Currently focused on studying impact of phosphate and fibroblast growth factor 23 (FGF23) elevation in patients with chronic kidney disease
Center for Population Health Sciences

• AHA Center Grants Funded
  – Prevention
  – Disparities
  – Children
  – Applied for another on PAD
• Illinois Precision Medicine Consortium (All of Us Study)
• International studies (India) on improving care for myocardial infarction
• U grant planning on aging and compression of morbidity
1. Serves as an interdisciplinary incubator for patient-centered outcomes research at FSM and across the university
   - Link clinician scientists interested in patient outcomes with outcome science methodologists
   - Promote innovative outcome science research
   - Build scientific capacity for patient-centered outcomes research at NU including strategic alignment with the research priorities of PCORI and facilitation of large scale integrated initiatives such as centers and program projects
   - Utilize MSS’s well-developed research infrastructure to support and enable investigators and clinician-scientists throughout FSM engaged in patient-centered outcomes research

2. Promotes scientific discourse and training in patient-centered outcomes research
   - Foster scientific exchange via seminars and work-in-progress meetings
   - Create opportunities for engagement with key stakeholders for patient-centered research
   - Provide mentorship and apprenticeship opportunities for trainees interested in patient-centered outcomes research in partnership with the Center for Public Health Education and FSM and Arts and Sciences training programs

Home to Northwestern University-Patient-centered Intervention and Engagement Training (NU-PATIENT) K12 Faculty Scholars Training Program

Successful Consultations for PCORI Awards, 2017
- Katherine Barsness, MD (2017) - Developing a Pediatric Surgical Collaborative – Tier II
- Lee Lindquist (2017) - Leveraging a Patient Partner/Stakeholder Engagement to Implement PCOR – PlanYourLifespan.org
• Goals
  – Understand determinants that cause the onset and maintenance of health risk behaviors
  – Understand biobehavioral mechanisms whereby unhealthy behaviors "get under the skin" to affect health
  – Develop, optimize, and evaluate interventions that promote healthy lifestyle behaviors
• Workshop Sponsored with American Statistical Association
  “Novel Experimental Approaches to Designing Effective Multi-component Interventions”
  Linda Collins, Inbal Nahum-Shani, and Susan Murphy
• Current work in mHealth Technologies
  – Integrating technology into the study of behavior through smartphone apps and wearable sensors
  – Designing and optimizing innovative technology-supported interventions that catalyze healthy behavioral change (Examples: MOST, SMART, JITAI)
Center for Primary Care Innovation (CPCI)

• Mission
  – To improve the health of our communities by developing innovations to transform primary care clinical education, research, leadership training, and clinical practice

• Spans family medicine, general internal medicine and pediatrics
  – Director: Stephen Persell (general internal medicine)
  – Associate Directors: Deborah Clements (family medicine); Barbara Bayldon (pediatrics)

• National Collaborative for Education to Address the Social Determinants of Health (NCEAS)
  – 5-year (2016-2021) HRSA funded academic unit to conduct original research and build a community of practice to improve health professions training to address the social determinants of health

• Primary Care Research Catalyzer Funding through CPCI
  – Ongoing funding opportunity funded by the Feinberg School of Medicine’s Global Health Initiative to support research related to primary care

• Recent Awards and Contracts
  – Behavioral Economics Applications to Geriatrics Leveraging EHRs (BEAGLE), 1R21AG057383, NIA
  – Reducing High-Risk Geriatric Polypharmacy via EHR Nudges, 1R21AG057396, NIA
  – Improving Hypertension Using a Smartphone-Enabled Personal Control Program: The Smart Hypertension Control Study, Omron Healthcare
Center for Bioethics and Medical Humanities

• To advance bioethics and medical humanities at Northwestern and beyond through education, innovation, clinical application and thought leadership

• McGaw Bioethics Clinical Scholars Program
  – A two-year program for Northwestern University’s McGaw Graduate Medical trainees (residents and fellows) to obtain advanced training in the theory of bioethics and its application to clinical medicine
  – 9 Scholars (in 7 clinical disciplines) involved in the first cohort

• Research Program Development
  – Pilot/Exploratory Grant Recipients
    • Erin Paquette, MD, JD, M. Bioethics – Project title: ABCs in Pediatrics: Engaging Parents in the Development and Legally Valid Approaches to Biorepository Consent in Critically Ill Pediatric Patients
    • Eric Keller, MA – Project title: Humanism in Interventional Radiology: Helping a New Specialty Find Its Clinical Identity
    • Jacqueline Kruser, MD – Project title: Pathways to Chronic Critical Illness: A Qualitative Evaluation
  – Program Development Grant Recipient
    • Kathy Johnson Neely, MD, MA – Program title: Nurse Ethics Champion Program

• Community Engagement – SAVE THE DATE!
  – Bioethics and Medical Humanities Annual Conference – May 10, 2018
  – 9th Annual Hippocrates Poetry and Medicine Symposium – May 11, 2018
Applying solutions based in major engineering disciplines, the center addresses major deficiencies in current health delivery organizations, while developing a better system for the future.
• Strives to increase our understanding of the economic impact of public health and social policy, healthcare policy, healthcare quality improvement programs, and community and clinical interventions on human health and disease

• Example of the use of BCHPE research to inform policies
  – Based on research in 22 poorest countries in the world from USAID-funded study
  – Dr. Post testified before state Senate judiciary committee on US female genital mutilation (FGM) for four bills that were passed into laws:
    • 5 Year federal prison sentence plus 15 year additional state prison sentence for mutilating or removing female genitalia with no medical benefit for doctor. Medical license revoked
    • Education bill for refugees coming from countries where FGM is practiced why FGM is a violation of civil rights and a form of child abuse
    • Federal Prison sentence for crossing state or country lines for FGM vacation surgeries
    • Criminal Sexual Conduct 1- felony mandating that perpetrators of FGM must register on Sexual Offenders Registry
Center for Education in Health Sciences

• Primary home for education and training within IPHAM
• Expands opportunities for students and trainees with innovative content and formats
• Assists in the creation of new programs, as well as evaluation & reporting on novel graduate education methods and approaches
• Organize and support IPHAM’s Seminar Series
• Example Programs
  – Health Sciences Integrated PhD
  – Master of Public Health
  – Master of Science in Health Services and Outcomes Research
  – Master of Science in Healthcare Quality and Patient Safety
  – Master of Science in Biostatistics
  – Integrated Postdoctoral Fellowship
    • Agency for Healthcare Research and Quality (AHRQ) T-32 National Research Service Award (NRSA);
    • Project award from the Department of Health and Human Services, Administration for Community Living, (NIDILRR)
Trends in Standard Metrics of Research Productivity in IPHAM
Measuring Research Productivity

- IPHAM members who use our centralized Research Administrative Services
- IPHAM members who are assigned IPHAM Center Office Space
- All IPHAM members
- All NU-affiliated “Dry Lab” researchers

**How productive is IPHAM’s Research Administration?**

**What is the “research productivity” of IPHAM-supported space?**

**How much has research productivity increased among IPHAM members?**

**How much has “dry lab” research grown overall since the launch of IPHAM?**
Research Awards by Center and Year, 2015-17

Total Award Numbers, By Year

Total Award Dollars, By Year
Research Productivity of IPHAM-Supported Office Space, 2015-17

Total Award Dollars Per SqFt of IPHAM Research Space*, by Year

*Reflects total award dollars per square foot of IPHAM supported research space for members using that space
Research Productivity of IPHAM Research Administration, 2015-17

Total Awards via Research Pod, by Year

Total Award Dollars via Research Pod, by Year

FY15  FY16  FY17
Novel Analytics of Research & Scholarship in IPHAM

- Powered by Galter Health Sciences Library!
Areas of Research for the Institute for Public Health and Medicine

A map of term co-occurrence in titles and abstracts from 2012 to 2017

1) RED: Healthcare Provision and Public Health
2) GREEN: Cellular and Molecular Processes
3) DARK BLUE: Metabolism and Cardiovascular Health
4) YELLOW: Imaging and Measurement
5) PINK: Immunology and Oncology
6) LIGHT BLUE: Genetics and Genomics
7) TURQUOISE: Miscellaneous

Areas of Research: The Institute for Public Health and Medicine has over 940 members who have published more than 15,255 publications from 2012-2017 (Scopus). This term co-occurrence map displays 3,742 terms from the titles and abstracts of those publications. Two terms co-occur if they both occur at least once in the title or abstract of the publication. The distance between two terms indicates how often the terms co-occur in a title or abstract; the smaller the distance, the larger the number of co-occurrences and the stronger the terms are related to each other. The size of the term bubble indicates the number of occurrences of the term in all of the titles and abstracts; the larger the bubble the more occurrences. All terms are assigned to (and colored accordingly) a cluster by a computer algorithm. (Visualization created using VOSViewer.)
# Areas of Research for the Institute for Public Health and Medicine

Top 10 terms (i.e. most intensely used) in each cluster by number of occurrence

<table>
<thead>
<tr>
<th>Cluster 1: Healthcare Provision and Public Health</th>
<th>Cluster 3: Metabolism and Cardiovascular Health</th>
<th>Cluster 5: Immunology and Oncology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term</td>
<td>Number of occurrences</td>
<td>Term</td>
</tr>
<tr>
<td>item</td>
<td>326</td>
<td>body mass index</td>
</tr>
<tr>
<td>provider</td>
<td>277</td>
<td>adjustment</td>
</tr>
<tr>
<td>physical activity</td>
<td>270</td>
<td>cardiovascular disease</td>
</tr>
<tr>
<td>researcher</td>
<td>268</td>
<td>heart failure</td>
</tr>
<tr>
<td>skill</td>
<td>264</td>
<td>diabete</td>
</tr>
<tr>
<td>hospitalization</td>
<td>260</td>
<td>obesity</td>
</tr>
<tr>
<td>validity</td>
<td>257</td>
<td>hazard ratio</td>
</tr>
<tr>
<td>american college</td>
<td>239</td>
<td>bmi</td>
</tr>
<tr>
<td>chicago</td>
<td>233</td>
<td>smoking</td>
</tr>
<tr>
<td>instrument</td>
<td>217</td>
<td>blood pressure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cluster 2: Cellular and Molecular Processes</th>
<th>Cluster 4: Imaging and Measurement</th>
<th>Cluster 6: Genetics and Genomics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term</td>
<td>Number of occurrences</td>
<td>Term</td>
</tr>
<tr>
<td>cell</td>
<td>1252</td>
<td>loss</td>
</tr>
<tr>
<td>mechanism</td>
<td>1117</td>
<td>property</td>
</tr>
<tr>
<td>expression</td>
<td>909</td>
<td>experiment</td>
</tr>
<tr>
<td>protein</td>
<td>830</td>
<td>signal</td>
</tr>
<tr>
<td>pathway</td>
<td>705</td>
<td>brain</td>
</tr>
<tr>
<td>activation</td>
<td>579</td>
<td>mri</td>
</tr>
<tr>
<td>mouse</td>
<td>574</td>
<td>human</td>
</tr>
<tr>
<td>tissue</td>
<td>563</td>
<td>neuron</td>
</tr>
<tr>
<td>phenotype</td>
<td>461</td>
<td>sequence</td>
</tr>
<tr>
<td>mutation</td>
<td>446</td>
<td>muscle</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Term</th>
<th>Number of occurrences</th>
<th>Term</th>
<th>Number of occurrences</th>
</tr>
</thead>
<tbody>
<tr>
<td>tumor</td>
<td>490</td>
<td>toxicity</td>
<td>195</td>
</tr>
<tr>
<td>toxicity</td>
<td></td>
<td>malignancy</td>
<td>175</td>
</tr>
<tr>
<td>malignancy</td>
<td></td>
<td>prostate cancer</td>
<td>163</td>
</tr>
<tr>
<td>suppression</td>
<td></td>
<td>antigen</td>
<td>125</td>
</tr>
<tr>
<td>antigen</td>
<td></td>
<td>antiretroviral therapy</td>
<td>122</td>
</tr>
<tr>
<td>overall survival</td>
<td></td>
<td>tolerance</td>
<td>114</td>
</tr>
<tr>
<td>tolerance</td>
<td></td>
<td>t cell</td>
<td>107</td>
</tr>
</tbody>
</table>

| Cluster 7 is not defined.                 |                                               |                                 |                        |
Areas of Research for the Institute for Public Health and Medicine

*a tree map of Web of Science subject categories from 2012 to 2017 for top 15 subject categories by number of documents*

**Areas of Research.** The Institute for Public Health and Medicine has over 940 members who have published more than 11,059 publications from 2012-2017 (Web of Science). This tree map displays the top 10 subject areas according to Web of Science Categories (assigned to journals) with squares sized by number of Web of Science documents. (Visualization created using InCites.)
Publication Analytics for the Institute for Public Health and Medicine

- A break down of publication metrics for Top 15 Research Areas by number of documents from 2012 – 2017 using Clarivate Analytics InCites database

**IPHAM Documents in Top 10% globally by Research Area**

- **149** for **CLINICAL NEUROLOGY, 792**
- **137** for **CARDIAC & CARDIOVASCULAR SYSTEMS, 859**
- **136** for **PEDIATRICS, 614**
- **119** for **PUBLIC, ENVIRONMENTAL & OCCUPATIONAL HEALTH, 652**
- **114** for **OBSTETRICS & GYNECOLOGY, 416**
- **107** for **NEUROSCIENCES, 744**
- **96** for **HEALTH CARE SCIENCES & SERVICES, 449**
- **93** for **IMMUNOLOGY, 547**
- **73** for **BIOCHEMISTRY & MOLECULAR BIOLOGY, 446**
- **71** for **PERIPHERAL VASCULAR DISEASE, 366**
- **65** for **RADIOLOGY, NUCLEAR MEDICINE & MEDICAL IMAGING, 344**
- **61** for **PSYCHIATRY, 328**
- **59** for **CELL BIOLOGY, 406**
The Global Influence of the Institute for Public Health and Medicine

a map of citing author affiliations from 2012 to 2017

Global Influence. The Institute for Public Health and Medicine has over 940 members who have published more than 15,255 publications which have been cited over 227,226 times from 2012-2017 (Scopus). This map displays the country affiliations of the citing authors in shades of color based on a logarithmic scale. Darker colors indicate more citing author affiliations. Minimum and maximum citing affiliations are provided in the legend. Data was collected using Elsevier’s Scopus. Data analysis and visualization were performed using the Sci2 tool (cns.iu.edu) on 09/18/2017.
Alternative metrics for IPHAM documents

Top 50 documents from 2017

- 1,961 news stories
- 5,953 tweets
- 384 Facebook posts

Plus, citations and/or mentions in:
- 119 blog posts
- 3 policy documents
- 6 Wikipedia pages
- 1347 Mendeley readers
Conversation

• What additional problems should IPHAM attempt to address?
• What strategies should we consider?
• What other measurement and analytic approaches could show our impact better?

Feedback: R.Ackermann@northwestern.edu