The NIH Public Access Policy

[Long Presentation]
June 2013

Posted at http://publicaccess.nih.gov/communications.htm
Today’s Discussion: The NIH Public Access Policy

1. The Basics
2. Awardee Tasks
3. Updates
4. My NCBI Features: A Primer
5. Ways Institutions Can Ensure Compliance
6. Appendices
1) The Basics:

- The Policy
- It’s Implication
The NIH Public Access Policy Is Mandatory

• The Policy implements Division G, Title II, Section 218 of PL 110-161 (Consolidated Appropriations Act, 2008) which states:

   The Director of the National Institutes of Health shall require that all investigators funded by the NIH submit or have submitted for them to the National Library of Medicine’s PubMed Central an electronic version of their final, peer-reviewed manuscripts upon acceptance for publication, to be made publicly available no later than 12 months after the official date of publication: Provided, That the NIH shall implement the public access policy in a manner consistent with copyright law.

• NIH Guide Notice NOT-OD-08-033

• NIH Guide Notice NOT-OD-09-071 announces the policy is permanent, per the Consolidated Appropriations Act, 2009
Free resources developed by the U. S. National Library of Medicine

- Database of biomedical journal citations, abstracts, and
- Links to some full text articles from PMC and publisher websites.
- Unique identifier: PMID followed by a series of numbers.

- Digital archive of full-text, peer-reviewed journal papers.
- Unique identifier: PMCID followed by a series of numbers.
Final Peer-Reviewed Manuscript:
- Author’s final manuscript of a peer-reviewed paper accepted for journal publication
- Includes all modifications from the peer review process
- Submitted by Authors and Publishers/Journals to PMC

Final Published Article
- Journal’s authoritative copy of the paper
- Includes all modifications from peer review and the publishing process: copyediting, stylistic edits, and formatting changes
- Submitted by Publishers/Journals to PMC
Implications of a Successful Public Access Policy

Easy access to published research funded by NIH will help advance science and improve human health.

- Meets the public’s expectation that articles based on NIH-funded research are publicly available\(^1\). Over 2.6 million articles are now in PMC. Every weekday, 800,000 users access the database, retrieving over 1.5 million articles.

- NIH can monitor, mine, and develop its portfolio of taxpayer funded research more effectively.

- NIH-funded research becomes more prominent, integrated and accessible, making it easier for all scientists to pursue NIH’s research priority areas competitively.

2) Awardee Tasks

- Applicability
- Posting Papers
- Documenting Compliance
The NIH Public Access Policy Applies to Any Final Manuscript That…

Is peer-reviewed;

And, is accepted for publication in a journal on or after April 7, 2008;

And, arises from:
  – Any direct funding from an NIH grant or cooperative agreement active in Fiscal Year 2008 or beyond, or;
  – Any direct funding from an NIH contract signed on or after April 7, 2008, or;
  – Any direct funding from the NIH Intramural Program, or;
  – An NIH employee.
How Awardees Comply

1) Address Copyright
   - Institutions and investigators are responsible for ensuring full compliance with the Public Access Policy (e.g., that any publishing or copyright agreements are consistent with submitting to PMC).

2) Deposit Paper Upon Acceptance for Publication
   - **Method A**: Publish in a journal that deposits all NIH-funded final published articles in PMC without author involvement.
   - **Method B**: Make arrangements to have a publisher deposit a specific final published article in PMC.
   - **Method C**: Deposit the final peer-reviewed manuscript in PMC yourself via the NIHMS.
   - **Method D**: Complete the submission process for a final peer-reviewed manuscript that the publisher has deposited via the NIHMS.

3) Cite Article
   - **Include the PMC number (PMCID)** for applicable papers in applications, proposals and reports, as described at http://publicaccess.nih.gov/citation_methods.htm.
1) Address Copyright

Before an author signs a publication agreement or similar copyright transfer agreement, make sure that the agreement allows the final peer-reviewed manuscript to be submitted to NIH in accordance with the Public Access Policy.

We encourage authors to consider

- What submission method will be used?
- What version of the paper will be made available on PMC?
- Who will submit the paper?
- When will it be submitted?
- Who will approve the submission?
- When can the paper be made public on PMC?
2) How to Submit Manuscripts

• Four different submission methods are available, which vary in:
  – Version posted
  – Use of the NIH Manuscript Submission System (NIHMS)
  – Role of Publishers
  – Role of Authors
  – Participating Journals

• Authors may use the method that is most appropriate for them and is consistent with their publishing agreement.

http://publicaccess.nih.gov/submit_process.htm
PubMed Central Submission Methods

**Method A – Journals (> 1200)** submit NIH-funded articles to PMC without author involvement.

**Method B – Publishers** deposit an individual article in PMC upon author request, generally for a fee.

- Final published article submitted to PMC at time of publication, assigned a PMCID
- Text available in PMC generally 12 months after the date of publication

1. Journal list at [http://publicaccess.nih.gov/submit_process_journals.htm#journals](http://publicaccess.nih.gov/submit_process_journals.htm#journals)
Methods C and D- Using the NIHMS

Who can deposit manuscripts in the NIHMS?

- Author
- Delegate: anyone given access to the author's files: administrative personnel, graduate students, librarians, etc.
- Publisher

Remember:

- Only Authors can approve of the submission and web version of the manuscript
- Awardees need an NIHMSID upon acceptance for publication

Three steps to complete NIHMS submission process
NIH Manuscript Submission system (NIHMS)

1. Deposit manuscript files - NIHMSID created and sent to the submitter

Method C - submission by author or delegate
Method D - submission by publisher

C

Author or delegate submits final peer reviewed manuscript to the NIHMS.

NIHMS sends author an email asking author to approve the submitted materials for processing.

Author reviews and approves the PMC-formatted manuscript.

D

Journal publisher submits final peer reviewed manuscript to the NIHMS.

NIHMS sends author an email asking author to approve the submitted materials for processing.

Author reviews and approves the PMC-formatted manuscript.
2. **Author approves PDF receipt**, gives permission to NIH to process the manuscript.

**Method C** – at time of submission, author identifies PD/PI and NIH award(s), confirms copyright or permission, specifies delay period.

**Method D** – NIHMS email: author receives NIHMSID, identifies PD/PI and NIH award(s), approves PDF receipt/submission.

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**Author Approval**

- **C**
  - **Author or delegate** submits final peer reviewed manuscript to the NIHMS.
  - NIHMS sends **author** an email asking author to approve the submitted materials for processing.
  - Author reviews and approves the PMC-formatted manuscript.

- **D**
  - Journal publisher submits final peer reviewed manuscript to the NIHMS.
  - NIHMS sends **author** an email asking author to approve the submitted materials for processing.
  - Author reviews and approves the PMC-formatted manuscript.
3. **Author** approves PMC-formatted manuscript for public display: Methods C and D.

**Author Approval**

**C**

Author or other submits final peer reviewed manuscript to the NIHMS.

NIHMS sends author an email asking author to approve the submitted materials for processing.

Author reviews and approves the PMC-formatted manuscript.

**D**

Journal publisher submits final peer reviewed manuscript to the NIHMS.

NIHMS sends author an email asking author to approve the submitted materials for processing.

Author reviews and approves the PMC-formatted manuscript.

After submission is complete, NIHMS emails the citation with PMCID to author and PIs.
Overview

The NIH Public Access Policy ensures that the public has access to the published results of NIH funded research. It requires scientists to submit final peer-reviewed journal manuscripts that arise from NIH funds to the digital archive PubMed Central upon acceptance for publication. To help advance science and improve human health, the Policy requires that these papers are accessible to the public on PubMed Central no later than 12 months after publication.

Preparation is Key to Avoiding Delays in Funding. Some suggestions:

- Use My NCBI’s My Bibliography feature to monitor Public Access compliance for all the applicable papers that you author or arise from your NIH award. Be sure to create an account using your eRA Commons ID, or link your current account with your eRA Commons account.
- As you plan a paper or support one with your NIH award, discuss with the authors how the paper and the NIH awards that support it will comply with the Public Access Policy.

How to Comply

All of your papers that fall under the NIH Public Access Policy, whether in press or in print, must include evidence of compliance in all of your NIH applications and reports.

1. **Determine Applicability**
   Does the NIH Public Access Policy apply to your paper?

2. **Address Copyright**
   Ensure your publishing agreement allows the paper to be posted to PubMed Central in accordance with the NIH Public Access Policy.

3. **Submit paper to PMC**
   Submit papers to PubMed Central (PMC) and approve public release. Enter your journal name into the box on the right side of the screen to determine how your paper will be posted to PMC.
Cite Articles Using PMC Numbers (PMCID)

Cite Paper

– When citing a paper in NIH applications, proposals, and progress reports, include the PMCID at the end of the full citation.

– This requirement only applies to papers that fall under the Policy and are authored or co-authored by you or arose from your NIH award.

– For more information see http://publicaccess.nih.gov/citation_methods.htm.

Example

How to cite papers *in press*, or within 3 months of publication…

For Method A and B Journals, use “PMC Journal - In Process”.

- Example: Sala-Torra O, Gundacker HM, Stirewalt DL, Ladne PA, Pogosova-Agadjanyan EL, Slovak ML, Willman CL, Heimfeld S, Boldt DH, Radich JP. Connective tissue growth factor (CTGF) expression and outcome in adult patients with acute lymphoblastic leukemia. *Blood*. [a publication date within 3 months of when the application, proposal or report was submitted to NIH].

  PMCID: PMC Journal - In Process

For Method C and D Journals, use the NIHMSID.


**NIHMSIDs will not be accepted 3 months after publication.**

- PMCID$s$ are assigned around the time of publication.
- Please use the PMCID once it is assigned.
3) Updates

• What’s New?
• My NCBI, RPPR and PHS 2590
For non-competing continuation with a start date of July 1, 2013 and beyond (NOT-OD-12-160)

• Awards) will be placed on hold until grantees have demonstrated compliance

• Use of My NCBI will be required to report papers, when electronically submitting progress reports using the Research Performance Progress Report (RPPR)

• PDF report generated from My NCBI will be required, when submitting paper progress reports using the form PHS 2590 (replaces publication section)
A tool integrated with PubMed to track literature searches, collections of citations, and public access compliance.

Key features for our discussion:

- Can be linked to eRA Commons accounts
- Commons linked users can associate publications with NIH grants
- Tracks NIH Public Access compliance
- The only way to enter publications into RPPR
- Creates the publications section (Section E) of PHS 2590s
- Other time savers: Delegation, options to share and publish bibliographies, automate searches, etc.
### C.1 Publications

Are there publications or manuscripts accepted for publication in a journal or other publication (e.g., book, one-time publication, monograph) during the reporting period resulting directly from this award?  
- [ ] Yes  
- [ ] No

If yes, select from the table below to affiliate publications with this progress report.

If you need to login to My NCBI account please use this link: [My NCBI](http://grants.nih.gov/grants/rppr/#resources)

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### All publications associated with this project in My NCBI

<table>
<thead>
<tr>
<th>Associate with this RPPR</th>
<th>NIH Public Access Compliance</th>
<th>Citation</th>
</tr>
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<tr>
<td>Hide publications from My NCBI</td>
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</tbody>
</table>

No items found.

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### Publications not associated with this project in My NCBI

9 items found, displaying all items.

<table>
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<tr>
<th>Associate with this RPPR</th>
<th>NIH Public Access Compliance</th>
<th>Citation</th>
</tr>
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<tr>
<td>Atcher SA, Hermes SM, Whitter KL, Hegarty DM. Descending projections from the rostral ventromedial medulla (RVM) to trigeminal and spinal dorsal horns are morphologically and neurochemically distinct J Chem Neuroanat. 2011 Nov 20; PubMed PMID:22119513; PubMed Central PMCID:PMC3319838.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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http://grants.nih.gov/grants/rppr/#resources

http://publicaccess.nih.gov/
**Trigger**: When a grantee submits a RPPR to NIH that associates 1 or more publications with the award for which the public access compliance status is “Noncompliant”.

**Recipients**: to the PD/PI, with a cc to the AO, SO, GMS, IC mailbox, and PO.

**Response**: The grantee may respond to the eNotification via email or through the Progress Report Additional Materials (PRAM) link.
Example: PDF of PRAM for Public Access

Progress Report Additional Materials

Public Access Compliance

<table>
<thead>
<tr>
<th>Grant Number:</th>
<th>5K23HD123456:03</th>
</tr>
</thead>
<tbody>
<tr>
<td>PD/PI Name:</td>
<td>JEFFERSON, THOMAS</td>
</tr>
<tr>
<td>Project Title:</td>
<td>A New Model for the Delivery of Well-Child Care</td>
</tr>
<tr>
<td>PRAM submitted on:</td>
<td>10/04/2012 01:19 PM</td>
</tr>
</tbody>
</table>

This is a sample of text entered in response to noncompliant publications submitted as part of the RPPR...

http://publicaccess.nih.gov/
### Publications Reported for this Reporting Period

<table>
<thead>
<tr>
<th>NIH Public Access Compliance</th>
<th>Citation</th>
</tr>
</thead>
</table>
4) My NCBI: a Primer
Display Settings: Summary. 20 per page. Sorted by Recently Added

Results: 1 to 20 of 404989

1. Dietary carotenoid-rich pequi oil reduces plasma lipid peroxidation and DNA damage in runners and evidence for an association with MnSOD genetic variant -Val9Ala.
   Miranda-Vilela AL, Akimoto AK, Alves PC, Pereira LC, Gonçalves CA, Klautau-Guimarães MN, Grisolla CK.
   PMID: 20082261 [PubMed - as supplied by publisher]

2. Predictors of 3-Year Mortality in Subjects over 95 Years of Age. The NonaSanteliu Study.
   Formiga F, Ferrer A, Montero A, Chivite D, Pujol R.
   PMID: 20082056 [PubMed - as supplied by publisher]

Filter your results:
- All (404989)
- Review (19825)
- Free Full Text (53176)

Also try:
- dog cat
- cat scratch disease
- lymphoma cat
- cat eye
- carcinoma cat
Adding PubMed Citations

Results: 1 to 20 of 207  Selected: 2  First  Prev

1. Predicting microRNA modulation in human prostate IDentifier (SID1.0).
PMD: 21334455 [PubMed - as supplied by publisher]
Related citations

Leung BM, Wiens KP, Kaplan BJ.
BMC Pregnancy Childbirth. 2011 Feb 3;11:12.
Free full text  Related citations
NIH Public Access View

My NCBI — My Bibliography

Display Settings: List view, Sort by date, group by citation type

View
- List
- Print
- Award

Sort by
- Date
- Author
- Title
- Public Access Compliance
- Reverse

Grouping
- None
- By citation type
- Award

Apply
Public access status codes

- **Public Access Compliance: Non-compliant. No PMCID 3 months post publication.**
  - NIHMS ID: NIHMS70841
  - NIH Funding: No funding has been associated with this citation.

- **Public Access Compliance: PMC Journal – In Process**
  - NIH Funding: No funding has been associated with this citation.

- **Public Access Compliance: Complete. PMCID: PMC2632597**
  - NIH Funding: No funding has been associated with this citation.

- **N/A Public Access Compliance: Not applicable**
  - NIH Funding: No funding has been associated with this citation.

- **Public Access Compliance: Edit Status**
  - NIH Funding: No funding has been associated with this citation.
Basic applicability

NIH Funding

Start Method C

Link to Method C/D

Claim Method B

Claim Exemption

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The NIH Public Access Policy requires scientists to submit final, peer-reviewed journal manuscripts that arise from NIH funds to the digital archive PubMed Central upon acceptance for publication. (See Determine Applicability for full details.) Please submit the final manuscript sent to your publisher or indicate that this publication is exempt from the policy.

This citation has been submitted to NIHMS and is being processed. If this has changed, please make a new selection below.

- Begin submission in the NIHMS.
- This citation has been submitted. NIHMS ID: **48966**
- Arrangements have been made for a publisher on this list to send the final article directly to PubMed Central.
- This citation does not need to be submitted under NIH Public Access because:
  - Publication was not peer reviewed.
  - Publication was accepted for publication before April 7, 2008.
  - Publication was written in a script other than Latin (e.g., Russian, Japanese).
  - Publication was not directly supported by NIH.

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Save & Close  Cancel
Delegation in My Bibliography

We may have found 1 PubMed citation for your manual citations. Please click here to review the suggestions.

Nucleic acids research. Forthcoming:


http://publicaccess.nih.gov/
PI/author collaboration

Grant owner
- R01 GM028039 DNA 1
- R01 GM028047 DNA 2

Author
- R01 GM028047 DNA 2

Assign Awards

My awards:
- R21 CA161169 - Testing the Effectiveness of Targeted Smoking Cessation Messages in Construction
- TL1 RR024995 - Washington University Institute of Clinical and Translational Sciences (TL1)
- TL1 TR000449 - Washington University Institute of Clinical and Translational Sciences
- UL1 RR024992 - CTSA Infrastructure for AIDS Research
- UL1 TR000448 - Washington University Institute of Clinical and Translational Sciences

Other awards:
- K01 DA024758 - Mapping Genes for comorbidity of SUDs and Depression
- K01 DK080868 - Caloric restriction, exercise, and glucoinosylation in humans
- K02 DA021237 - Human Genetics of Addiction: A Study of Common and Specific Factors
- K05 CA139871 - Training in Translational Tobacco Science
- K07 CA118412 - The Genetic Epidemiology of Nicotine Dependence
- K23 HL004385 - Atypical Bacterial Infection as an Asthma Risk Factor

Note:
Grants with disabled checkboxes are locked to one or more of the selected citations.

http://publicaccess.nih.gov/
How My NCBI Reduces PI Workload

• **Automated and Collaborative Methods to Track Publications**
  – Import citations directly from PubMed
  – Automated matches of manuscript citations to PubMed records
  – NIHMS paper-grant suggestions
  – Recommendations from other authors
  – Paper-grant associations by other PI authors

• **Year round management**

• **Live Public Access compliance status for every record**

• **Delegation**
5) Ways institutions can ensure compliance
Do you have a plan that can withstand

- Miscommunication among authors, and between publishers and authors?
- Forgetfulness?

Encourage your investigators to:

- Use My NCBI now to track public access compliance
- Associate papers with awards today
- Ensure compliance well before their annual reports are due, to avoid a last minute scramble
- Determine their compliance plan as they write their papers

Resources at http://publicaccess.nih.gov/
Ways Institutions Can Ensure Compliance

Training
– Policy awareness, submitting papers, preparing citations

Author Support
– Submitting manuscripts
– Answering questions
– Sending out reminders for reports early
– Means to ensure collaborators do not prevent compliance

Support on Publishing Agreements
– Policies
  • Coversheets/ Addenda (NIH’s Example: http://publicaccess.nih.gov/nih_employee_procedures.htm)
– Questions/discussion with publishers

Ensuring compliance
– Checking applications, proposals and reports
About the Public Access Policy:
- For Sponsored Programs: [http://publicaccess.nih.gov/sponsored.htm](http://publicaccess.nih.gov/sponsored.htm)
- Training materials for PIs and other communications: [http://publicaccess.nih.gov/communications.htm](http://publicaccess.nih.gov/communications.htm)
- Questions: [PublicAccess@NIH.GOV](mailto:PublicAccess@NIH.GOV)

The NIH Manuscript Submission System:

PubMed Central:
- Information for Publishers: [http://www.pubmedcentral.nih.gov/about/pubinfo.html](http://www.pubmedcentral.nih.gov/about/pubinfo.html)
6) Appendices
Using the NIH Manuscript Submission System
Each Login route has its own NIHMS account
Submitters must continue to use the same login method for subsequent visits to NIHMS.
“Please designate a reviewer for the submission. The reviewer must be an author of the manuscript”...
Yes! Publishers may submit manuscripts to NIHMS on behalf of authors (Method D).

- Ensure your publisher will submit they manuscript to NIHMS upon acceptance for publication.

Manuscripts submitted to NIHMS by publishers require two approvals by an author:

1) Approval of the submission/PDF receipt and

2) Approval of the final PubMed Central web version of the manuscript.
PubMed Central
What is PubMed Central?

http://www.pubmedcentral.nih.gov/

PubMed Central (PMC) is the U.S. National Institutes of Health (NIH) free digital archive of biomedical and life sciences journal literature.

Receive notice of new journals and other major updates to PMC: join the PMC News mail list or subscribe to the PMC News RSS feed.

All the articles in PMC are free (sometimes on a delayed basis). Some journals go beyond free, to Open Access. Find out what that means.

PMC’s utilities include an OAI service that provides XML of the full-text of some articles, functions for scripting PMC searches and linking to specific PMC articles from your site, and more...

Looking for a modern journal article DTD? Take a look at NLM's Journal Publishing XML DTD and schema.

The PMC journal list comprises journals that deposit material in PMC on a routine basis and generally make all their published articles available there. Find out how to include your journal in PMC.

PMC also has the author manuscripts of articles published by NIH-funded researchers in various non-PMC journals. Increasing free access to these articles is the goal of the NIH Public Access policy. Similar manuscripts from researchers funded by the Wellcome Trust are available in PMC as well.

Eligible researchers should use the NIH Manuscript Submission system to deposit manuscripts.

Search the PMC database
View the PMC Journal List
Submit manuscripts to NIHMS for inclusion in PMC
Search all articles by name

151 Results

1. Meta-Analysis of 13 Genome Scans Reveals Multiple Cleft Lip/Palate Genes with Novel Loci on 9q21 and 2q32-35

Mary L. Marazita, Jeffrey C. Murray, Andrew C. Lidral, Mauricio Arcos-Burgos, Margaret E. Cooper, Toby Goldstein, Brion S.
1: Meta-Analysis of 13 Genome Scans Reveals Multiple Cleft Lip/Palate Genes with Novel Loci on 9q21 and 2q32-35

PMCID: PMC1216052

2: The Gene, Environment Association Studies Consortium (GENEVA): Maximizing the Knowledge Obtained from GWAS by Collaboration Across Studies of Multiple Conditions

*Genet Epidemiol.* Author manuscript; available in PMC 2010 May 1.  
PMCID: PMC2880056  
Published in final edited form as: Genet Epidemiol. 2010 May; 34(4): 364–372.  
Manuscript: Abstract | Full Text | PDF−57K | Supplementary Material |
Face shape of unaffected parents with cleft affected offspring: combining three-dimensional surface imaging and geometric morphometrics

SM Weinberg,1 SD Naidoo,2 KM Bardi,1 CA Brandon,1 K Neiswanger,1 JM Resick,1 RA Martin,3 and ML Marazita1,4,5

Center for Craniofacial and Dental Genetics, School of Dental Medicine, University of Pittsburgh, Pittsburgh, PA, USA
Department of Plastic and Reconstructive Surgery, Washington University School of Medicine, St. Louis, MO, USA
Department of Pediatrics, School of Medicine, St. Louis University, St. Louis, MO, USA
Department of Human Genetics, Graduate School of Public Health, University of Pittsburgh, Pittsburgh, PA, USA
Department of Psychiatry, School of Medicine, University of Pittsburgh, Pittsburgh, PA, USA

Correspondence to: Seth M. Weinberg, PhD, University of Iowa, 200 Hawkins Drive, W278 GH, Iowa City, IA 52242, Phone: 319-353-8536, Fax: 319-384-5532, Email: seth-m-weinberg@uiowa.edu

The publisher’s final edited version of this article is available at Orthod Craniofac Res.

Link to publisher’s final edited version online
Grand Challenges in Global Health


O n 26 January 2003, at the World Economic Forum in Davos, Switzerland, Bill Gates announced a $250 million research initiative—the Grand Challenges in Global Health—based on a century-old model, the grand challenges formulated by the mathematician David Hilbert (1). Hilbert’s list of important unsolved problems in mathematics (1) has spurred major research innovations in the field.

The Global Health Initiative was inspired by the Bill & Melinda Gates Foundation (B&MGF) on the assumption that with greater encouragement and funding, contemporary science and technology could remove some of the obstacles to more rapid progress against diseases that disproportionately affect the developing world.

The efforts to identify Grand Challenges in Global Health rely on financial and administrative resources of two collaborating foundations, the B&MGF and the Foundation for the National Institutes of Health (FNIH), on a selection panel (scientific board) of 20 scientists and public health experts from 13 countries, including several from the developing world (2), and on the scientific community to supply ideas for challenges. In this Policy Forum, some of us involved in these events (H.V., R.K., and E.Z.) as members of the Scientific Board’s Executive Committee and P.A.S., T.A., and A.S.D. as scholars who provided support to the selection process) describe the deliberations that led up to this week’s announcement of an initial list of Grand Challenges in Global Health (see Table). We also outline the next steps that will be taken to find research that addresses these challenges and plans to formulate additional grand challenges in subsequent years.

What Is a Grand Challenge?
On 1 May 2003, in a solicitation widely advertised in the developed and developing world, a grand challenge was described as “a call for a specific scientific or technological innovation that would remove a critical barrier or address an important health problem in the developing world with a high likelihood of global impact and feasibility.” Throughout the process of developing the grand challenges, the board struggled with how best to define them. A grand challenge is envisioned as distinct from a simple statement of one of the many “big problems” in global health, such as HIV/AIDS, malaria, the lack of access to medical care, or the lack of adequate resources. A grand challenge is meant to define investigations to a specific scientific or technical breakthrough that would be expected to overcome one or more bottlenecks in an integrated path toward a solution to one or preferably several significant health problems. To satisfy this intent, a successful proposal would need to foresee a critical path of this type to get past a clearly defined roadblock. This formulation worked most effectively for those medical problems that are well enough understood to allow a description of what needs to be done, even if we do not yet know precisely how to do it. Thus, although the Grand Challenges Initiative would ideally inspire unexpected and even radical solutions, the board also recognized the advantages of being able to envision solutions that have a high likelihood of being successful. The constraint of describing a “critical path past a bottleneck” ruled out the broad field-building and exploratory research that usually underlies breakthroughs. Capacity building is another important approach for expanding the number of biomedical research laboratories in the developing world, providing greater financial support for the study of global health or expanding professional mining programs in global health but beyond the purview of the program.

The scope of the initiative is broad, potentially encompassing many strategies for improving health through surveillance, prevention, detection, diagnosis, and treatment of diseases. Scientific disciplines underlying these strategies are also likely to be diverse, including immunology, microbiology, genetics, molecular and cellular biology, virology, agricultural sciences, clinical sciences, epidemiology, population and behavioral sciences, and ecology and evolutionary biology. For example, control of pathogen-transmitting insect vectors is likely to make a big difference in reducing the incidence of diseases such as malaria and dengue fever that are common in the developing world. Chemical interventions, e.g., insecticides, have been thwarted by the emergence of insecticide resistance and constrained by environmental concerns. Two of the selected grand challenges are meant to encourage the development of novel chemical or genetic strategies for rendering mosquitoes incapable of transmitting disease agents, without adverse ecological or other environmental effects (3).

How Were Grand Challenges Selected?
The announcement of the Call for Ideas on 1 May 2003 was accompanied by a dissemination campaign that included a Web site (4), advertisements in scientific journals, and e-mail notifications, with the intent of engaging and eliciting ideas from scientists throughout the world. Between 1 May and 20 July, 1015 submissions were received from scientists and institutions in 75 countries. The large volume was gratifying but also required categorization according to topical content and the extent to which each submission met the criteria. (4) The number of proposals in various categories that met the criteria is reflected in the distribution of topics in the selected list of grand challenges.

The scientific board met on 17 and 18 August to expedite discussion, the executive committee aggregated multiple, highly regarded, and closely related submissions into single proposals in advance of the meeting. The format chosen for presentation was the following: a brief statement of the background of the problem, followed by descriptions of the “roadblock” (the obstacle to progress) and the challenge itself, supplemented by lists of potential benefits, and, if appropriate, diseases or health conditions that are likely to be priority areas for study and application of findings. Each candidate was presented orally by two or more board members and then discussed by the full board. Wide participation was encouraged, so that ultimately all decisions were reached by oral consensus.

Questions raised during the discussions reflected the criteria that the board had proposed earlier but also illustrated the difficulties of defining grand challenges in global health. Does the proposal describe a critical path or are they also likely to be diverse? What is the likelihood that creative solutions are required and that grand proposals worthy of funding will be received to address it? Is there already substantial scientific activity aimed at solving the problem, which would make the intent of a grand challenge redundant?
Finding PMCID\$s and Using Them in Searches
Look up articles with PMCID in PubMed

Use the ‘PMC’ Prefix

Full text available in PMC
Look up articles with PMCID in PubMed/PMC

Look up articles with PMCIDs in PubMed

Use the ‘PMC’ Prefix

Full text available in PMC
Maternal serum 25-hydroxyvitamin D concentrations are associated with small-for-gestational age births in white women.

Bodnar LM, Çatov JM, Zmuda JM, Cooper ME, Parrott MS, Roberts JM, Marazita ML, Simhan HN.

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Abstract
Maternal vitamin D deficiency has been associated with numerous adverse health outcomes, but its association with fetal growth restriction remains uncertain. We sought to elucidate the association between maternal serum 25-hydroxyvitamin D [25(OH)D] concentrations in early pregnancy and the risk of small-for-gestational age birth (SGA) and explore the association between maternal single nucleotide polymorphisms (SNP) in the vitamin D receptor (VDR) gene and the risk of SGA. We conducted a nested case-control study of nulliparous pregnant women with singleton pregnancies who delivered SGA infants (n = 77 white and n = 34 black) or non-SGA infants (n = 196 white and n = 105 black). Women were followed from <16 wk gestation to delivery. Women’s banked sera at <22 wk were newly measured for 25(OH)D and DNA extracted for VDR genotyping. SGA was defined as live-born infants that were <10th percentile of birth weight according to nomograms based on gender and gestational age. After confounder adjustment, there was a U-shaped relation between serum 25(OH)D and risk of SGA among white mothers, with the lowest risk from 60 to 80 nmol/L and the highest risk at 125 nmol/L. Women with 25(OH)D concentrations less than 37.5 nmol/L had increased SGA risk among black women compared with those with 25(OH)D concentrations greater than 75 nmol/L and SGA risk among black women was significantly associated with SGA. Our results suggest that vitamin D has a complex relation with fetal growth that may vary by race.

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