

PMC PubMed Central

***Repositories in Science & Technology:
Preserving Access to the Record of Science***

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November 30, 2011

Origins of PMC

May 1999

Harold Varmus, NIH Director, proposes E-Biomed

- ◉ Permanent, free repository, operating in conjunction with established journals
- ◉ Include articles accepted for publication by journals, as well as articles approved by two independent reviewers associated with the system
- ◉ Community-based: governed by scientists, editors, research funders

- ◉ It is time for evolutionary change in publication process
- ◉ Technology allows faster, cheaper publication of research results

E-Biomed ?????

- ◉ Varmus proposal is modified in response to publisher objections

February 2000

- ◉ PubMed Central debuts
- ◉ Limited to content from established journals

PubMed Central – Then (2000) ...

Life Sciences Journal Archive

- ◉ Complete journal issues
- ◉ Voluntary deposit of content by publishers*
- ◉ Free access, usually within 12 months of publication
- ◉ Publisher (or authors) still hold copyright
- ◉ NLM receives non-exclusive, perpetual use license

* Only published journal literature. No deposit by individual authors.

... and Now

Also a repository for Author Manuscripts from funding agency mandates

- ◆ NIH
- ◆ Wellcome Trust and other UK funders
- ◆ Canadian Institutes of Health Research
- ◆ Howard Hughes Medical Institute
- ◆ Private foundations

Same software infrastructure now supports archiving of books and other documents, e.g., practice guidelines

PMC Mandate

1956: NLM Act – 42 USC 286 (b)

Contains general authority to acquire, preserve, organize, publish and disseminate biomedical information

2000: Congressional Report Language

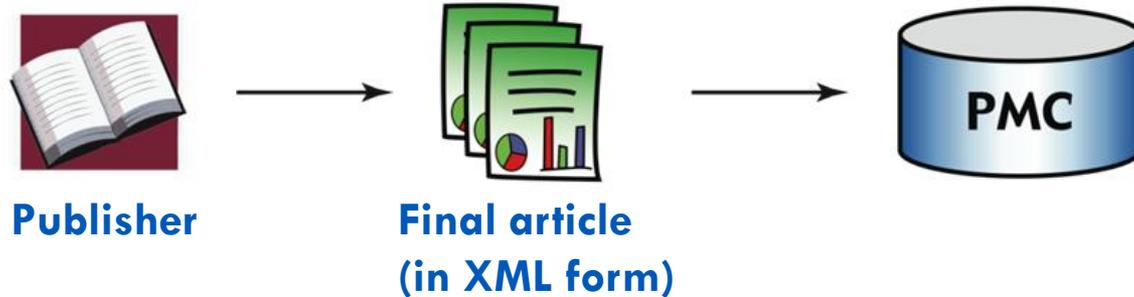
The Committee commends the NLM for its leadership in establishing PubMed Central, an electronic online repository for life sciences articles. PubMed Central holds great promise for increasing access to health care literature by health professionals, students, educators, researchers, and the general public.....

PMC Philosophy

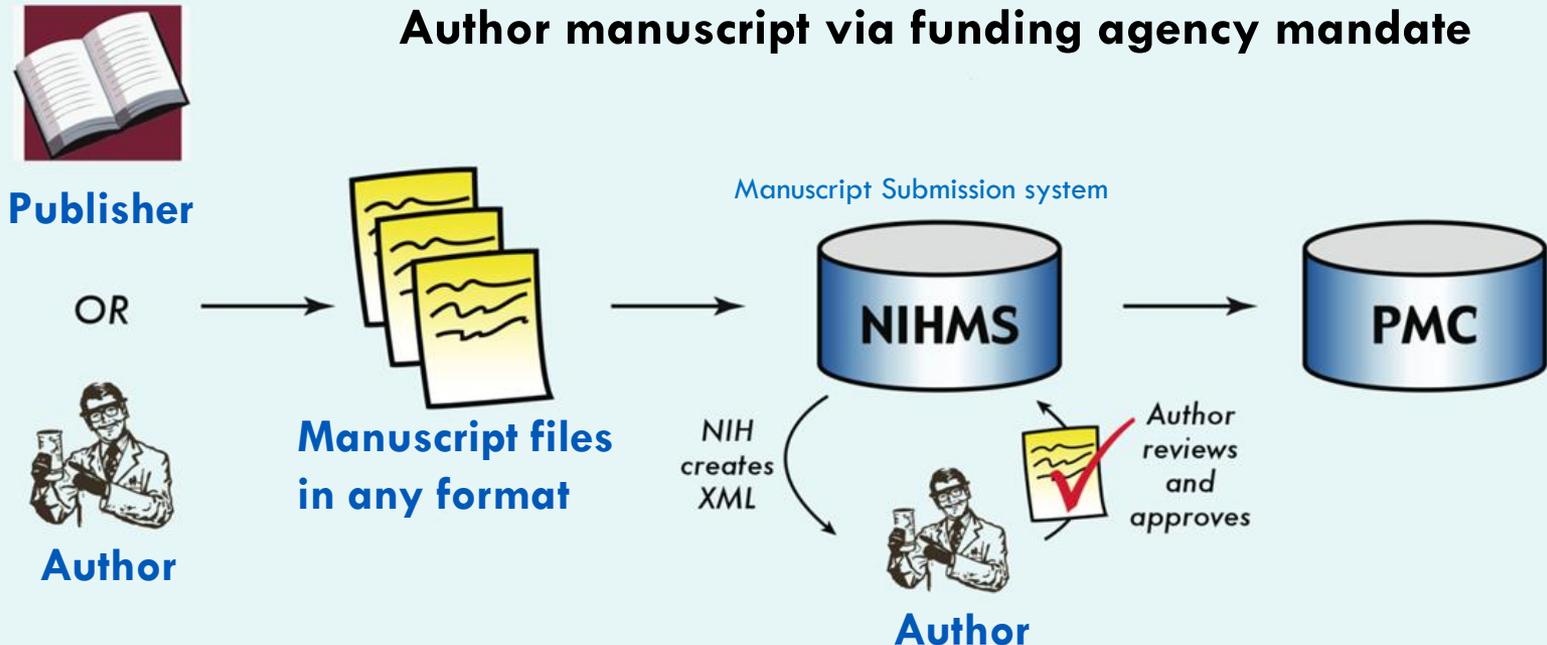
- ◉ Electronic extension of NLM's print journal archive
- ◉ Free access to PMC encourages use, which ensures durability and utility of the archive as technology changes over time
- ◉ Foster discovery by integrating the literature with other information resources available at NLM

PMC Deposit Paths

Final published article via PMC participation agreement



Author manuscript via funding agency mandate



PMC Participation Agreements

- ◉ Journal must meet NLM standards
 - ◆ Scientific quality
 - ◆ Technical data quality – XML files and images
- ◉ Formal, legal agreement with NLM
 - ◆ Final published version of article
 - ◆ Deposits are permanent
 - ◆ Journal may stop depositing new material but may not withdraw material already deposited

PMC Participation : 3 Levels

Full participation

- ◆ Complete issues of the journal in PMC

NIH Portfolio

- ◆ At minimum, all NIH-funded articles, with free access within 12 months of publication
- ◆ Other articles (e.g. UK-funded) at the journal's discretion; no specific commitment

Selective Deposit

- ◆ Publisher's choice of articles
- ◆ Typically, the OA articles from a slate of "hybrid" journals

Support for Participating Publishers

- ◉ Detailed instructions and technical specifications on PMC site (<http://www.ncbi.nlm.nih.gov/pmc/pub/pubinfo/>)
- ◉ Online tools for validating XML before submission
- ◉ Interaction with journal managers at PMC
- ◉ Automated monitoring to inhibit bulk downloading of content by users (copyright protection)

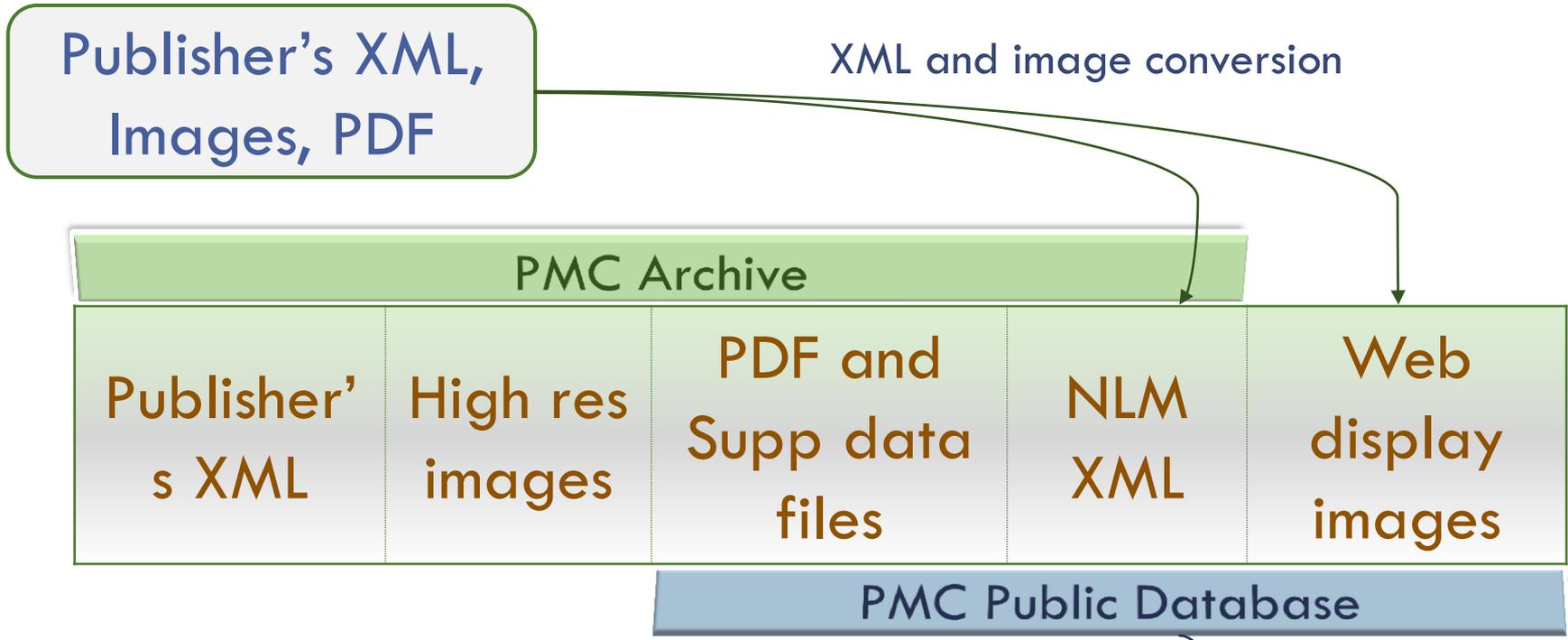
Manuscript Deposit

- ◉ Eligibility: any article covered by ‘approved’ funding agency’s policy
- ◉ Delay on free access is subject to funding agency’s and publisher’s policies
- ◉ NLM creates standard PMC-formatted (XML) version from manuscript files supplied by author or publisher
- ◉ Author must sign off on PMC-formatted version before release

Manuscript Deposit Rights

- ◉ Based on author retaining rights to manuscript before signing publication agreement
- ◉ NLM has no legal agreement with publisher, even if publisher supplies 'raw manuscript' files
- ◉ NLM will remove article from PMC if publisher claims copyright violation

PMC Archive Model



HTML rendered dynamically from XML and images

NLM Journal Article DTD

- ◉ The standard *archival* XML format for PMC since 2003
 - ◆ Originally developed in cooperation with Mellon Foundation e-journal archiving program
- ◉ “NLM DTD” actually is a suite of XML modules
- ◉ XML modules + Content model = DTD / Schema
 - ◆ Archiving-Interchange model: very flexible, to provide common structure for holding content from other DTDs
 - ◆ Publishing and Authoring models: progressively more constrained structure
- ◉ Extended to also handle book content at NLM

NLM DTD → NISO Standard

- ◉ NLM DTD has been adopted by many publishers, as well as Library of Congress, British Library and Portico
- ◉ Now a NISO draft standard
- ◉ Standard defines XML tag suite and three article content models
- ◉ NLM will continue to manage ‘working’ DTDs / Schemas, documentation, and guidelines for practical use

NISO Standards Timeline

- ◉ *March 2011*: NISO working group submits Journal Article Tag Suite (JATS) as NISO draft standard Z39.96
- ◉ Open for public comment until *Sep. 30, 2011*
 - ◆ Working group makes necessary revisions
 - ◆ NISO members vote on revised version
- ◉ *Early 2012?*: JATS v1.0 released as NISO standard
- ◉ NLM will make a Book content model available for experimental use after v1.0 is released

The Various Flavors of Access

- ◉ Free (PMC default)
 - ◆ Normal “fair use” copyright provisions
- ◉ Open Access
 - ◆ Author pays publication fee
 - ◆ Creative Commons or similar license to reuse / redistribute content, with attribution
 - ◆ Article files freely available from PMC via OAI or FTP
- ◉ open access
 - ◆ Free + Author pays
- ◉ Public Access: the government had to come up with its own label

Interoperability

- ◉ How do you manage rights?
 - ◆ Do you have the right to redistribute?
 - ◆ Do you have the right to receive?
- ◉ Standards and other technical issues

PMC International

- ◉ Network of archives similar to PMC
 - ◆ Initially, simply mirror some or all PMC content
 - ◆ Long term, PMCI archive brings in new content
- ◉ Legal agreements for redistributing PMC content
Publishers ↔ NLM ↔ PMCI Archives

PMCI Operations

- ◉ NCBI develops base software
 - ◆ Address publishers' concerns about content integrity, presentation
 - ◆ Standard displays for articles and related pages
 - ◆ System monitoring and usage data

- ◉ Host organization
 - ◆ Develops local complement: search system; integration with relevant local information resources
 - ◆ Manages manuscript submission
 - ◆ Handles all operations and user support

Why Multiple Archiving Centers?

- ◉ Better long term preservation
- ◉ Pooled content gives everyone better access to more material
- ◉ Country / Region has more control over its research output
- ◉ More opportunities for innovation in use of literature – integration with other resources
- ◉ Common archiving standards facilitate collaboration on use of content

UK PubMed Central



- ◉ Went live in Jan 2007 (<http://ukpmc.ac.uk/>)
- ◉ Sponsored by Wellcome Trust, UK Medical Research Council and other UK research funders
- ◉ Now also accepts manuscripts from a few other European funding agencies
- ◉ Operated by European Bioinformatics Institute (EMBL/EBI) with University of Manchester and British Library

Modular PMC - US

Fixed elements (identical on all PMC sites):

- Journal banner, watermark, actual article content, links within article.
- Driven by agreements with publishers

Customized elements:

- Appear outside the article space
- Allow integration with resources of local interest
- Are under the control of each PMC site

The screenshot shows the Open Medicine journal interface. At the top, there is a PubMed Central logo and the journal title 'Open Medicine' with the tagline 'A peer-reviewed, independent, open-access journal.' Below this is a navigation bar with 'Journal List > Open Med > v.3(2); 2009'. The article title is 'Failure of psychological interventions to lower blood pressure: a randomized controlled trial' by Marco I Perez, Wolfgang Linden, Thomas Perry Jr., Lorri J Puil, and James M Wright. The page includes a 'Background' section, a 'Methods' section, and a 'PubMed articles by these authors' sidebar. The 'Background' section discusses previous studies on psychological interventions for blood pressure reduction. The 'Methods' section describes a prospective, open-label randomized controlled trial (RCT) involving 65 adult patients with mild hypertension, comparing pharmacotherapy with two different psychological interventions: individualized behavioural psychotherapy and self-help psychotherapy. The primary outcome was the mean change in ambulatory blood pressure from baseline to week 12.

Open Med. 2009; 3(2): e92–e100. PMID: PMC2765772
Published online 2009 June 9.

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Failure of psychological interventions to lower blood pressure: a randomized controlled trial

Marco I Perez, Wolfgang Linden, Thomas Perry Jr., Lorri J Puil, and James M Wright

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Abstract **Other Sections ▾**

Background

Previous studies have suggested that psychological interventions may be effective in reducing blood pressure. Using rigorous methodology and 24-hour monitoring of ambulatory blood pressure, we compared 2 psychological interventions with treatment using a first-line antihypertensive drug in terms of their efficacy in lowering blood pressure in patients with mild primary hypertension.

Methods

In this prospective, open-label randomized controlled trial (RCT), 65 adult patients with mild, uncomplicated hypertension were randomly assigned to receive one of the following interventions for 12 weeks: (1) pharmacotherapy with hydrochlorothiazide 12.5 titrated to 25 mg/d ; (2) individualized behavioural psychotherapy, consisting of ten 1-hour sessions of stress reduction training with a psychologist; or (3) self-help psychotherapy, consisting of a 1.5-hour session with a psychologist and then daily sessions that involved reading a self-help manual and listening to an audiotape. The primary outcome measure was mean change in ambulatory blood pressure from baseline to week 12.

Formats: [Abstract](#) | [Full Text](#) | [PDF \(3.1M\)](#)

PubMed articles by these authors

- ▶ Perez, M.
- ▶ Linden, W.
- ▶ Perry Jr., T.
- ▶ Wright, J.

PubMed related articles

- ▶ Antihypertensive treatment based on conventional or ambulatory blood pressure measurement. A [JAMA. 1997]
- ▶ **Review** Interventions for improving adherence to treatment in patients [Cochrane Database Syst Rev. 2004]
- ▶ Antihypertensive treatment efficacy in type II diabetes mellitus. Dissociation between casus [Hypertension. 1995]
- ▶ [Investigations of the antihypertensive long-term action of candesartan cilexetil in differ [Arzneimittelforschung. 2005]
- ▶ **Review** Blood pressure lowering efficacy of beta-blockers as sec [Cochrane Database Syst Rev. 2010]

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- Registering New Drugs for Low-Income Countries: The African Challenge
- Functional variants of the dopamine receptor D2 gene modulate prefronto-striatal phenotype...

Links

- ▶ PubMed

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Failure of psychological interventions to lower blood pressure: a randomized controlled trial.
(PMCID:PMC2765772)

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Open Medicine

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Abstract

[Other Sections](#)

Background

Previous studies have suggested that psychological interventions may be effective in reducing blood pressure. Using rigorous methodology and 24-hour monitoring of ambulatory blood pressure, we compared 2 psychological interventions with treatment using a first-line antihypertensive drug in terms of their efficacy in lowering blood pressure in patients with mild primary hypertension.

Methods

[Back to results](#)

Formats

- Abstract
- Full Text**
- PDF (3.1M)
- Export citation (RIS)
- Email citation

Journal and Issue

Journal List
Open Med
v.3(2); 2009

BioEntities in Full Text

Gene Ontology (GO)

learning (1)

Diseases

Hypertension (21)

primary hypertension (7)

psychological stress (3)

5 more...

Chemicals

antihypertensive drug (7)

thiazide (6)

potassium (2)

4 more...

Current PMC Content (Nov 2011)

- ◉ Available in PMC: > 2.3 million articles
 - ◆ ~ 50 percent from back issue digitization
 - ◆ Total includes ~ 170,000 author manuscripts
- ◉ Participating Journals
 - ◆ Full participation: > 940 titles
 - ◆ NIH Portfolio: 300 titles
 - ◆ Selective deposit: > 1,500 titles
 - At April 2008 start of mandatory NIH Public Access policy: 330 full participation titles; 4 NIH portfolio titles

PMC articles available and retrieved, by month, Jan 2008 - Sept 2011

Articles Retrieved Articles Available

