

**Chicago**  
Collaborative

# **Biomedical Publishing 101**

Communicating research findings through the  
publication process

*A Webinar sponsored and hosted by:*

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***DECEMBER 7, 2010***

**John Tagler, Association of American Publishers**

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# Course Objectives

- Learn about the publishing cycle of STM journals
- Gain knowledge of the value added by publishers to scholarly communication
- Examine the complexities of publishing in a dual format and multimedia environment
- Appreciate that no two publishers are alike in their approaches to publishing



# Outline of Today's Program

- The Current Biomedical Publishing Landscape
- The Publishing Process
- Publication Ethics
- Production & Delivery
- Practical Considerations



# The Current Biomedical Publishing Landscape



# The Current Biomedical Publishing Landscape

- Society publishers (*not-for-profit*)
- Commercial publishers
- University presses (*not-for-profit*)
- Hybrid model (contract publishing)
  - society retains editorial control
  - production, marketing and distribution outsourced to commercial, society or university press publisher



# The Role of Biomedical Journal Publishers: Core Responsibilities

- Validate and disseminate research results
- Establish a quality standard
  - ethical policies
  - peer review
  - selection
  - editing
- Facilitate access to and maximize usability of content
  - maintain state-of-the art delivery and file format
  - collaborate in the development of community tools



# The Role of STM Journal Publishers: Associated Responsibilities & Functions

- Manage author and publisher rights and permissions
- Comply with industry standards and government policies
- Maintain digital archiving and preservation strategies
- Partner with authors, readers and librarians to develop and implement techniques to improve and expedite scientific communication and discovery
- Ongoing investment in publication process innovation



# The Role of STM Journal Publishers: Community Benefits

- Create a unique community for authors/readers
  - defined scope
  - quality seal of approval
  - discoverability
- Provide a measure of the researcher's productivity and influence
  - vital to career path
  - vital for funding of continuing research



# Biomedical Publishing: The Key Players

- Authors
- Scientific editors
- Editorial board
- Peer reviewers/referees
- Editorial department
  - copyeditors
  - journal supervisors
- Art/design department
- Compositor/printer
- Online host
- Marketing and sales departments
- Rights and permissions
- Archivists (third party)



# THE PUBLISHING PROCESS

The following processes and staffing vary from publisher to publisher



# The Editorial Team

*(responsible for content selection)*

- Editor
- Associate/deputy/regional editors
- Editorial board
- Reviewers/referees
- Editor's assistant/managing editor

***NB: The editor and editorial board have editorial independence and are solely responsible for content selection.***



# The Author: Manuscript Submission

- Submits/uploads manuscript to publisher-provided web-based peer review system
- Comply with Publisher's *Instructions to Authors*, which provide detailed manuscript submission and preparation guidelines, e.g.
  - authorship
  - ethical policy and COI disclosure
  - figure and data submission
  - manuscript type
  - content suitability

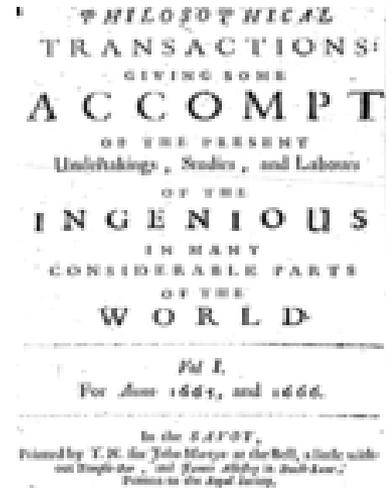


# A Peek at Peer Review

- More than three centuries old
- Attributed to Henry Oldenburg, Secretary of the Royal Society of London, and founder of *Philosophical Transactions* (1665), the “world’s oldest scientific journal in continuous existence,” who introduced the practice of soliciting opinions on manuscripts from colleagues who were more knowledgeable in the area in question
- Peer review norm adopted at different times in different fields, and different locations
- Today essentially synonymous with scholarly journal publishing
- In medicine dates only from the post-WWII era



# The Culprit!



- Henry Oldenburg and *Philosophical Transactions*, (1665)
- Journal content now available through JSTOR



# The Typical Peer Review Process

- Manuscript submission
  - usually via online system
  - date-stamp the research of a particular author to establish priority and precedence
- Step one: initial review by intake editor
  - fundamental questions:
    - Is it appropriate for the scope of the journal?
    - Does it present new research findings?
    - Other articles on the same topic?
    - What is the journal's capacity at present?
  - may either reject or move forward



# The Typical Peer Review Process

- Step two: assignment to 'decision' editor
  - assigns article to 2-3 reviewers
  - may use plagiarism software
  - art, statistics and text reviewed for quality and authenticity
- The final step: outcome options w/ final decision made by editor
  - acceptance
  - rejection (on scientific or ethical grounds)
  - acceptance (w/minor or major revisions)



# Article Revision & Resubmission

- Upon conclusion of review . . .
  - authors may be asked to revise their manuscript before it receives further consideration
- Typical requests:
  - rewriting
  - additional research
- Author's options:
  - revise and resubmit
  - submit to another journal



# An Example: Peer Review Failure?

- *The peer review process is not designed to detect deliberate fraud*
- Failure occurs when a published article that has been subjected to peer review contains obvious, or detectable, errors that undermine one or more of its main conclusions
- Thus many newsworthy scientific controversies are examples of fraud, not peer review failure



# PUBLICATION ETHICS



# Publication Ethics: What Are the Issues?

- Data fabrication/falsification
  - changing or making up data in a manuscript; intended to “improve” the results; includes digital image manipulation
- Unacceptable figure manipulation
  - improper grouping, adjustment
  - moving, removing, introducing, obscuring, enhancing any specific feature within an image
- Duplicate/redundant publication
  - submission of or publication of the same paper or substantial parts of a paper in more than one place
  - data; extended verbatim text passages; tables or illustrations
- Human/animal welfare concerns
  - treatment of experimental subjects that does not conform with accepted standards and journal policy



# Publication Ethics: What Are the Issues?

- Authorship disputes
  - disputes arising from the addition, deletion or change of authors
- Plagiarism/self-plagiarism
  - taking the work of another or copying one's own work
  - copying a figure, table or even wording from a published or unpublished paper without attribution to one's own or another's work
- Conflicts of interest
  - real or perceived conflict due to employment, consulting, or investment in entities with an interest in the outcome of the research
- Others
  - reviewer bias; reviewer misappropriation of privileged information
  - duplicate submission



# Recommended Resource

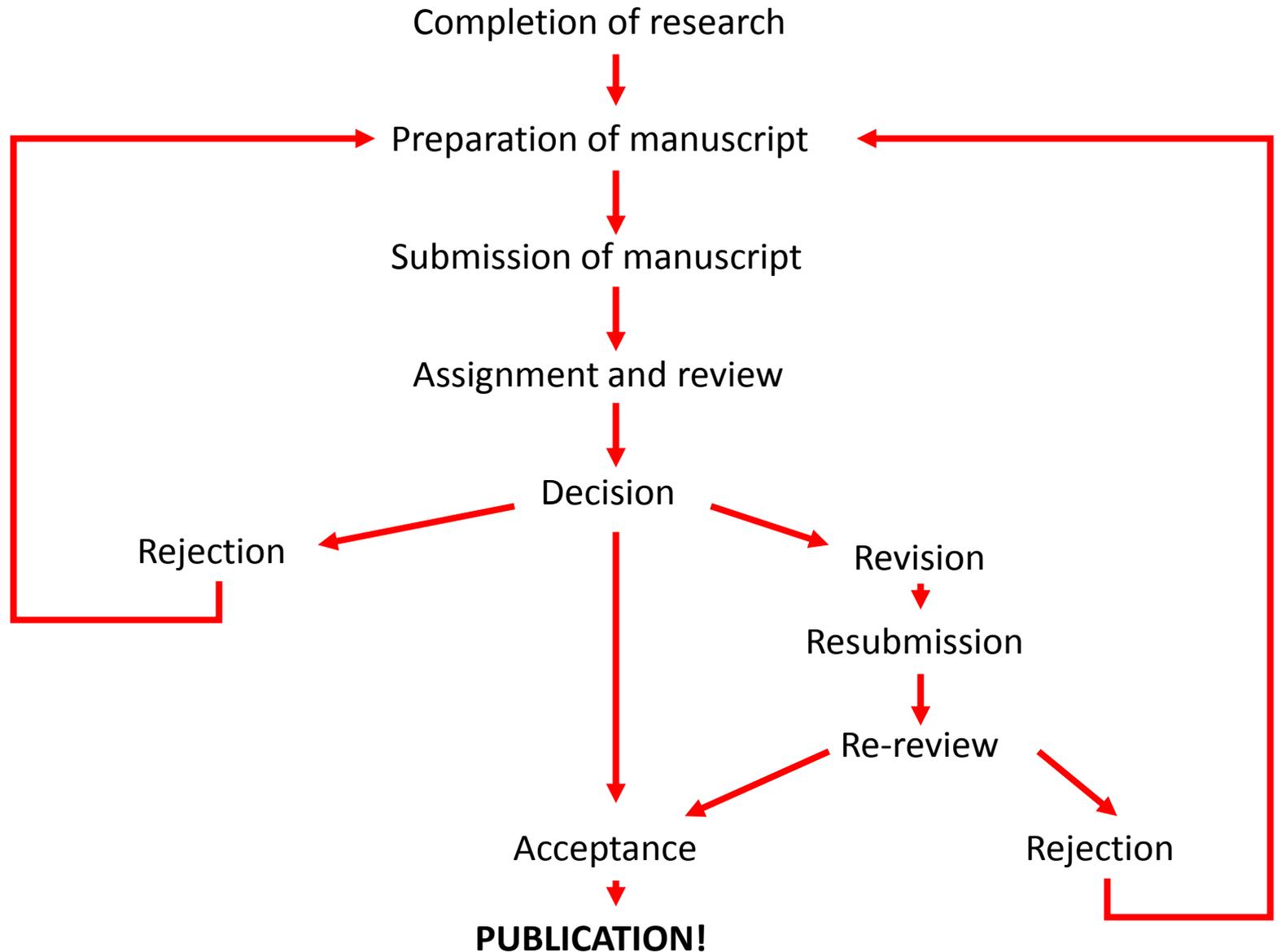
CSE's White Paper on Promoting  
Integrity in Scientific Journal  
Publications

2009 Update

[www.CouncilScienceEditors.org](http://www.CouncilScienceEditors.org)

*(available free of charge)*

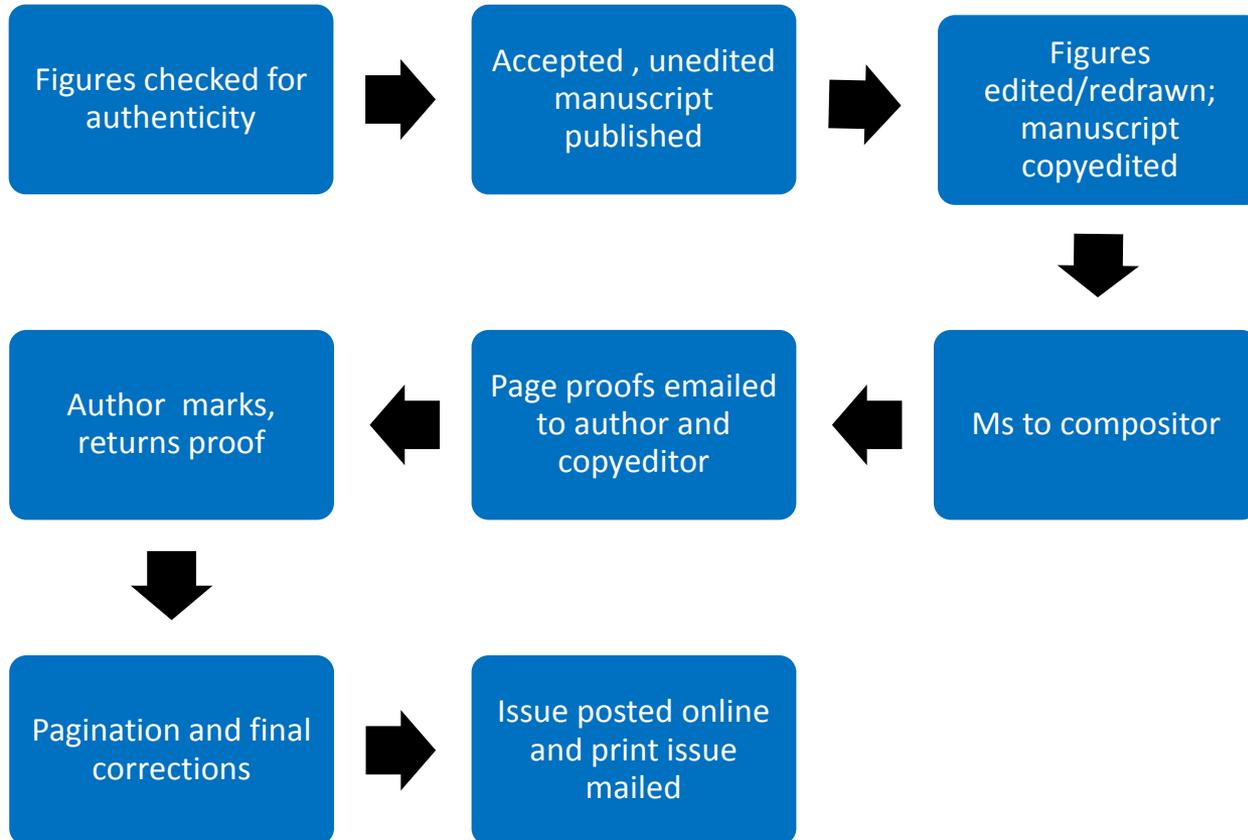




# PRODUCTION & DELIVERY



# Post-acceptance Publication Process



# Copyediting/Quality Control

- Transfer of accepted manuscript from journal editor to publisher to put into production
- May be internal or outsourced
  - cost vs. speed vs. quality control
- Assign DOI
- Quality & processing control tasks
  - style consistency, minor rewriting
    - require author & reviewer approval
  - attention to grammar, spelling, punctuation, prose
  - XML format for text
  - non-text elements
    - math & formulas
    - tables & charts
    - halftones
  - proofreading

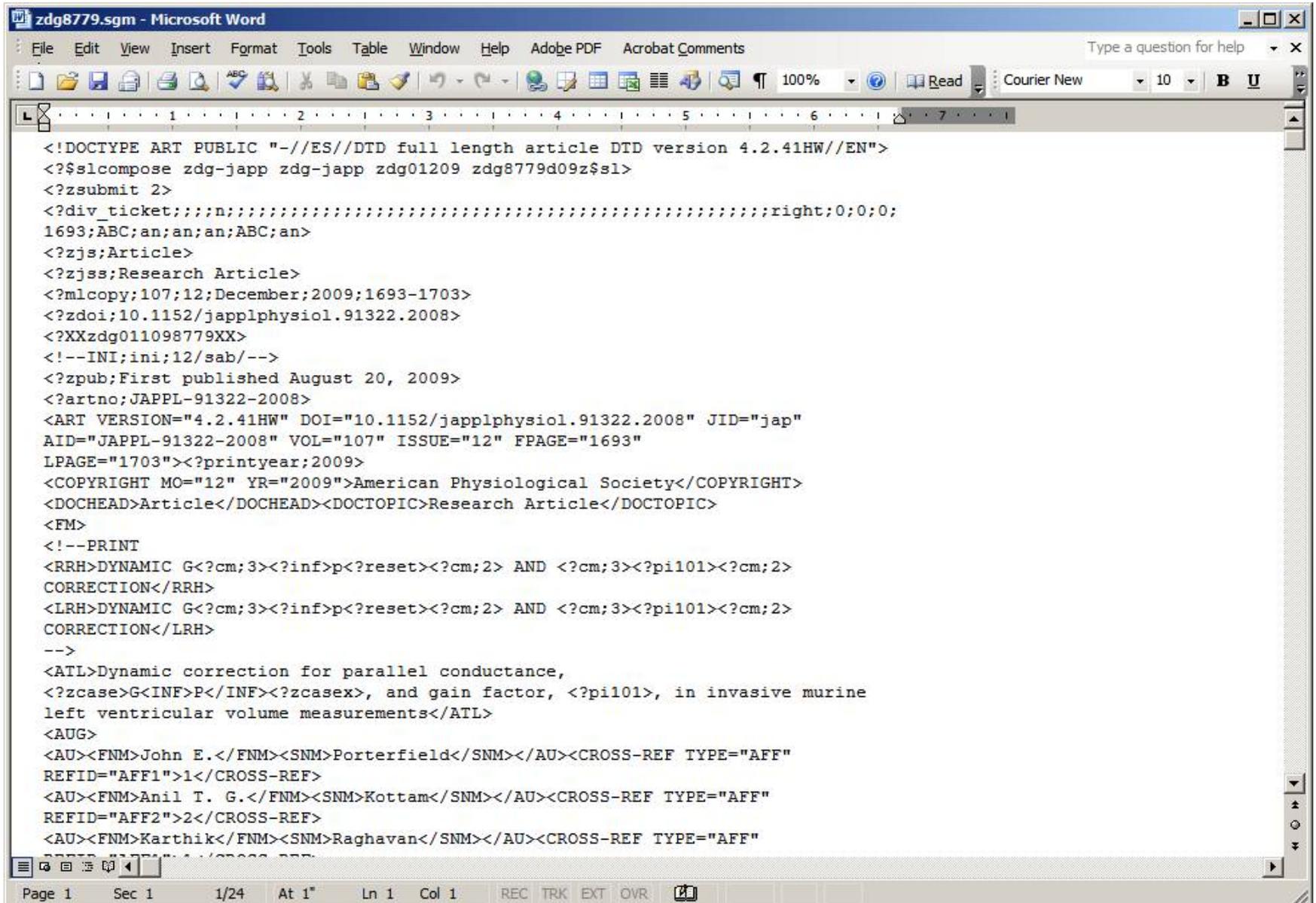


# Production

- Proceeding from typeset, copyedited electronic manuscript
  - tracking author proofs + corrections
  - process for “in-press” article release online
  - assign further identifiers relative to issue make-up (e.g., volume/issue/page numbers)
  - proceed with issue make-up
    - non-editorial content (e.g., front & back matter, covers, ads)
  - release final article for online database
  - forward to printer



# SGM file



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# PDF file

*J Appl Physiol* 108: 554–560, 2010.  
First published December 31, 2009; doi:10.1152/jappphysiol.01106.2009.

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## Energy deficit after exercise augments lipid mobilization but does not contribute to the exercise-induced increase in insulin sensitivity

Sean A. Newsom,<sup>1</sup> Simon Schenk,<sup>1</sup> Kristin M. Thomas,<sup>1</sup> Matthew P. Harber,<sup>1</sup> Nicolas D. Knuth,<sup>1</sup>  
Naila Goldenberg,<sup>2</sup> and Jeffrey F. Horowitz<sup>1</sup>

<sup>1</sup>School of Kinesiology and <sup>2</sup>Department of Internal Medicine, University of Michigan, Ann Arbor, Michigan

Submitted 28 September 2009; accepted in final form 28 December 2009

**Newsom SA, Schenk S, Thomas KM, Harber MP, Knuth ND, Goldenberg N, Horowitz JF.** Energy deficit after exercise augments lipid mobilization but does not contribute to the exercise-induced increase in insulin sensitivity. *J Appl Physiol* 108: 554–560, 2010. First published December 31, 2009; doi:10.1152/jappphysiol.01106.2009.—The content of meals consumed after exercise can impact metabolic responses for hours and even days after the exercise session. The purpose of this study was to compare the effect of low dietary carbohydrate (CHO) vs. low energy intake in meals after exercise on insulin sensitivity and lipid metabolism the next day. Nine healthy men participated in four randomized trials. During the control trial (CON) subjects remained sedentary. During the other three trials, subjects exercised [65% peak oxygen consumption ( $\dot{V}O_{2peak}$ ); cycle ergometer and treadmill exercise] until they expended ~800 kcal. Dietary intake during CON and one exercise trial (BAL) was designed to provide sufficient energy and carbohydrate to maintain nutrient balance. In contrast, the diets after the other two exercise trials were low in either CHO (LOW-CHO) or energy (LOW-EN). The morning after exercise we obtained a muscle biopsy, assessed insulin sensitivity ( $S_i$ ; intravenous glucose tolerance test) and measured lipid kinetics (isotope tracers). Although subjects were in energy balance during both LOW-CHO and CON, the lower muscle glycogen concentration during LOW-CHO vs. CON ( $402 \pm 29$  vs.  $540 \pm 33$  mmol/kg dry wt,  $P < 0.01$ ) coincided with a significant increase in  $S_i$  [ $5.2 \pm 0.7$  vs.  $3.8 \pm 0.7$  (mIU/l) $^{-1} \cdot \text{min}^{-1}$ ;  $P < 0.05$ ]. Conversely, despite inoestine

metabolic alterations specifically associated with an “energy deficit” (i.e., consuming less energy than expended) vs. a “carbohydrate deficit” (i.e., consuming less carbohydrate than expended) are not well understood.

It is well established that a single session of exercise can enhance insulin action, even for the next 1–2 days after exercise (4, 5, 22, 25). Much of this exercise-induced improvement in insulin sensitivity has been linked with the reduction in muscle glycogen that occurs during exercise (4, 5, 22, 25, 27, 35). Accordingly, a high carbohydrate intake after exercise accelerates the restoration of muscle glycogen stores and rapidly reverses the exercise-induced improvement in insulin sensitivity (4, 5, 19). Conversely, a low intake of carbohydrate after exercise that maintains a low muscle glycogen concentration after exercise can prolong the insulin-sensitizing effects (4, 5). Alternatively, the effect of an exercise-mediated energy deficit on insulin sensitivity is less clear. Much of this uncertainty is a consequence of the fact that it is not possible to create an energy deficit after exercise without also creating a “deficit” in at least one of the three major macronutrients, making it impossible to specifically tease out the independent

# Online presentation

Energy deficit after exercise augments lipid mobilization but does not contribute to the exercise-induced increase in insulin sensitivity -- Newsom et al. 108 (3): 554 -- Journal of Applied P...

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carbohydrate; glycogen; insulin resistance; triglyceride; fatty acid

Address for reprint requests and other correspondence: J. F. Horowitz, School of Kinesiology, Univ. of Michigan, 401 Washtenaw Ave., 48109-2214 (e-mail: jeffhoro@umich.edu).

Done

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# HTML article coding

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</NOBR><NOBR>Sean A. Newsom,<SUP>1</SUP></NOBR>

<NOBR>Simon Schenk,<SUP>1</SUP></NOBR>

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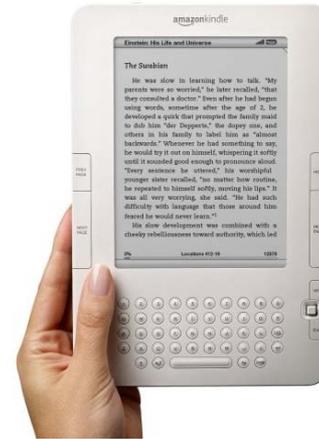
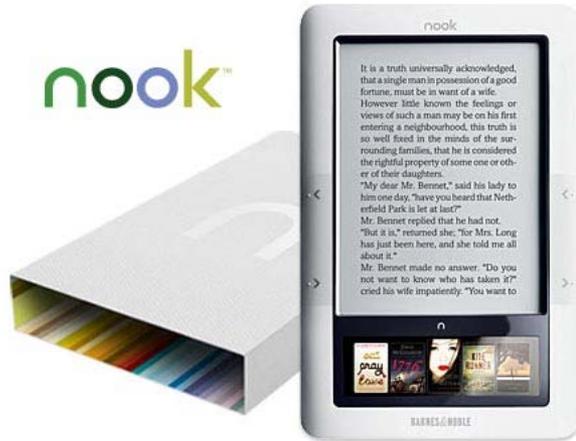
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# Content Delivery Channels

- Online: HTML and PDF
  - complete issue release
  - article-by-article: publish when ready
- Print: PDF
- Mobile devices
  - multiple software requirements
- E-prints/reprints
  - authors
  - non-authors



# Mobile Devices: Constantly Evolving



# Printing . . . Yes, we still do print!

- **Printing options**

Large print runs (5000+)

- web offset press
- 5 X faster than sheet fed presses

Medium print runs (approx 1500+)

- mini web press
- sheetfed press

Small print runs

- digital (50+)
- print on demand

- **Signatures**

- pages printed on large sheets of paper which are folded, collated, bound & trimmed)
- 8, 16 or 32 pages per signature
- not relevant to digital

- **Covers**

- printed separately on heavier/coated stock



# Article Versions

- Publisher versions
  - post acceptance, interim publication (e-only)
  - final publication (multiple formats)
  - preprint (only some publishers) (e-only in IR; preprint server)
  - Version of Record (VOR)
    - *typically* the final electronic version
- Other sources
  - PubMed Central
  - institutional repository
  - pre-print servers
  - author web site



# Online Environment

- Content moves from library stacks to digital platform
  - shifts responsibilities from the library to the publisher or host site
- Online delivery platforms
  - self-host (ScienceDirect, Wiley Interscience)
  - outsource (HighWire, Ovid, BioOne, Atypon)
- Archive provisions
  - in-house
  - external (e.g., Portico, JSTOR, LOCKSS)
- Disaster recovery strategy



# Digitizing Archival Content

- Preliminary decisions
  - gathering print copies in good condition
  - cover-to-cover scanning? advertisements?
  - project management assignment internally
  - choosing a vendor/partner
  - pricing strategy
- Digitization Process
  - scanning
    - decision on destructive or non-destructive processing
  - OCR (optional character recognition)
    - dependent on quality and layout of original
    - quality assurance: human oversight is essential
    - specialized content (e.g., medical) not easily recognizable by OCR
  - XML conversion
    - necessary to make content findable on the Web



# Issues in Digital Preservation

- Reliable and perpetual access is a priority as more and more journals move online
- Whose responsibility is it and who pays for it?
  - publisher, library or combination?
- Trigger event(s):
  - a publisher stops operations
  - publication of a title ceases
  - back issues are no longer available
  - a publisher's delivery platform fails for a sustained period
- Dark vs. light archives
- Rights transfer
- Access control

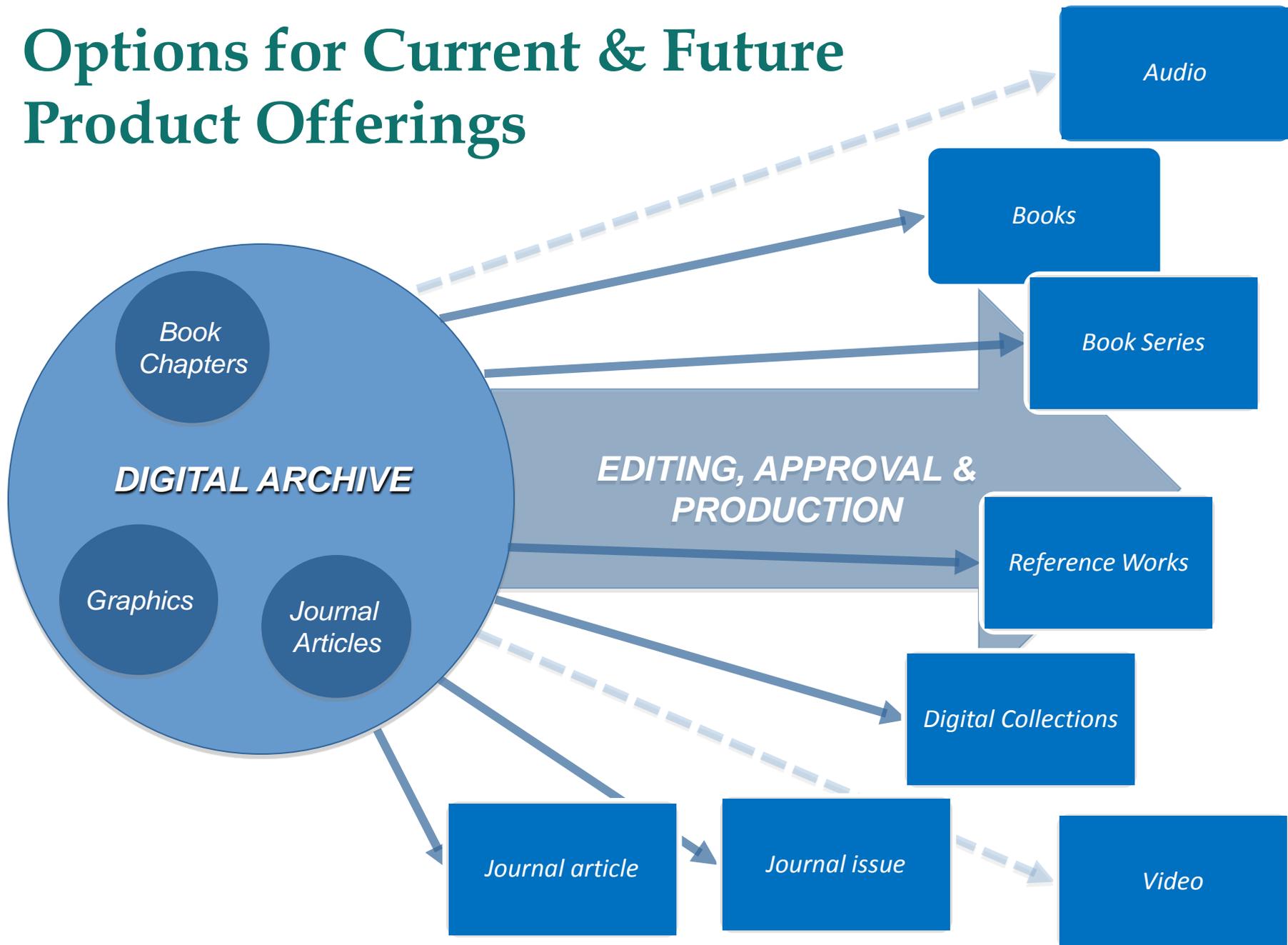


# Major Preservation Solutions

- Member/subscriber initiatives:
  - Portico
  - LOCKSS
  - CLOCKSS
- Government-supported initiatives
  - Koninklijke Bibliotheek e-Deposit
  - German National Library *pilot*
  - British Library *voluntary deposit policy*
  - Library of Congress *e-journal deposit pilot*
- Consortia that aggregate content
  - OCLC ECO
  - OhioLINK
  - Ontario Scholars Portal



# Options for Current & Future Product Offerings



# Online: A Win/Win/Win Situation

## Everybody Benefits

- Users
- Libraries
- Publishers



# Benefits to Users

## **90% of STM journals are online\***

- Benefits both teaching and research
- Access to more content than ever before
- Incalculable improvement in delivery time
  - faster turnaround in flow-through processes
  - article-by-article release rather than by issue
- 24/7 access: anytime & anywhere
  - mobile devices enhance this benefit
- Reference links: open up endless navigation possibilities
- Publisher competition to enhance the user experience
- Social networking/subject community possibilities
- Giving customers what they expect
  - especially younger audience: *"If it's not online, it doesn't exist"*
  - reading more articles but spending less reading time per article: Renear and Palmer, *Science*, 325, 828 (2009)



# Benefits to Libraries

- Consortia & university system collections expand
  - esp. medium and small academic libraries
  - reduced ILL support, better speed
- Global licensing and access for corporate customers
- National or state-wide licensing and access for government agency libraries
- Simultaneous access
  - current journal issues + books & reference works
- Saves on space & staff time
- No missing/delayed/damaged issues: instant check-in
- Usage data gathering for analysis & collection management
  - understand/better serve users



# Benefits to Publishers

- Develop new pricing and packaging models to compensate for shrinking library budgets
  - reach new niche markets
- Usage data
  - understand/analyze customer base
  - better editorial analysis
  - marketing capabilities
- Content can be used in new & innovative ways
  - repackaging
  - customization per customer/geographic/discipline sector
  - data mining & semantic publishing for future re-mixing and retrieval
- Industry standardization benefits everybody
  - CrossRef
    - DOI
    - CrossCheck and CrossMark
  - interoperability enhances everyone's content and platform by providing a better user experience



# PRACTICAL CONSIDERATIONS



# Pricing Considerations

- Decision makers
  - editorial, marketing, finance, society, sales
- Position of individual journal
  - established/new?
  - competitive environment
  - expanding/contracting discipline (page projections)
- Package pricing
  - consortia
  - aggregation platforms



# Sales & Distribution

- Publisher sales & site-licensing team for institutional sales
  - direct sales to libraries
  - internal contact for subscription agents, aggregators or other third party vendors
- Additional sales & distribution channels
  - pay-per-view, bundling, subject subsets
  - sales to individuals
  - member access
- Support & help desk functions
  - hours of operation 24/7 (?)
- Access control & authentication administration



# Administration & Authentication

## Points of Access

- login (UN/PW)
- IP range
- proxy server
- federated sign-on
  - e.g., Shibboleth
- consortia user
- third-party agent
- geolocation
- PPV

## Content Configurations

- date ranges
- own vs. access model
- calendar year, rolling year
- society access/content
- library allowances
- bundles
- open access content
- PPV conditions & time entitlements



# Advertising:

## New Considerations & Decisions

- Print advertising in decline, but still a significant revenue source\*
  - advertising = 4% of all STM revenues in all STM journals
  - biomedical journals account for vast majority of that base/pharma industry
  - online advertising = 0.9% of all advertising revenue
- Online advertising increasing, but not approaching print levels
- Reprint sales declining\*
  - 2006: 13.1%, 2007: 9.4%; 2008: 9.1%



\*2008 AAP Industry Statistics Report/PSP Journals

# Advertising:

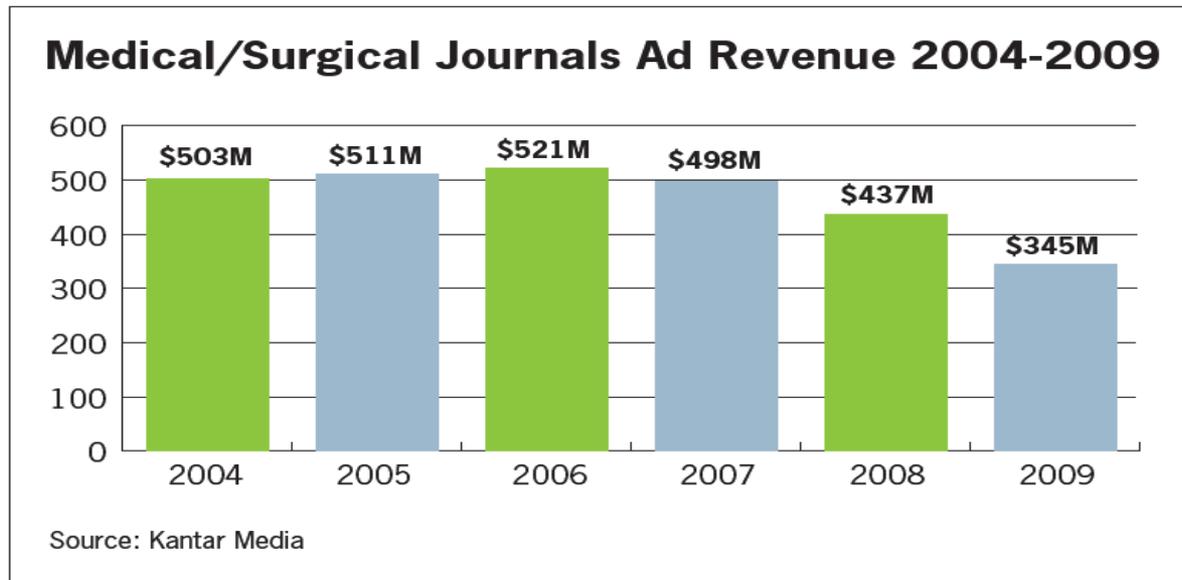
## New Considerations & Decisions

- Regional restrictions
  - brand names
  - government regulations
  - product approval & availability
- Society/editorial guidelines and approval processes
  - commercial ads (e.g., no ads on article pages), society ads, publisher ads
- Integration w/ eTOC, alerts, searches, interstitial ads
- Sponsorship of subscriptions, topic collections, translations
- Demand for more detailed reporting on click-through rates (CTR) and impressions



# Advertising: New Considerations & Decisions

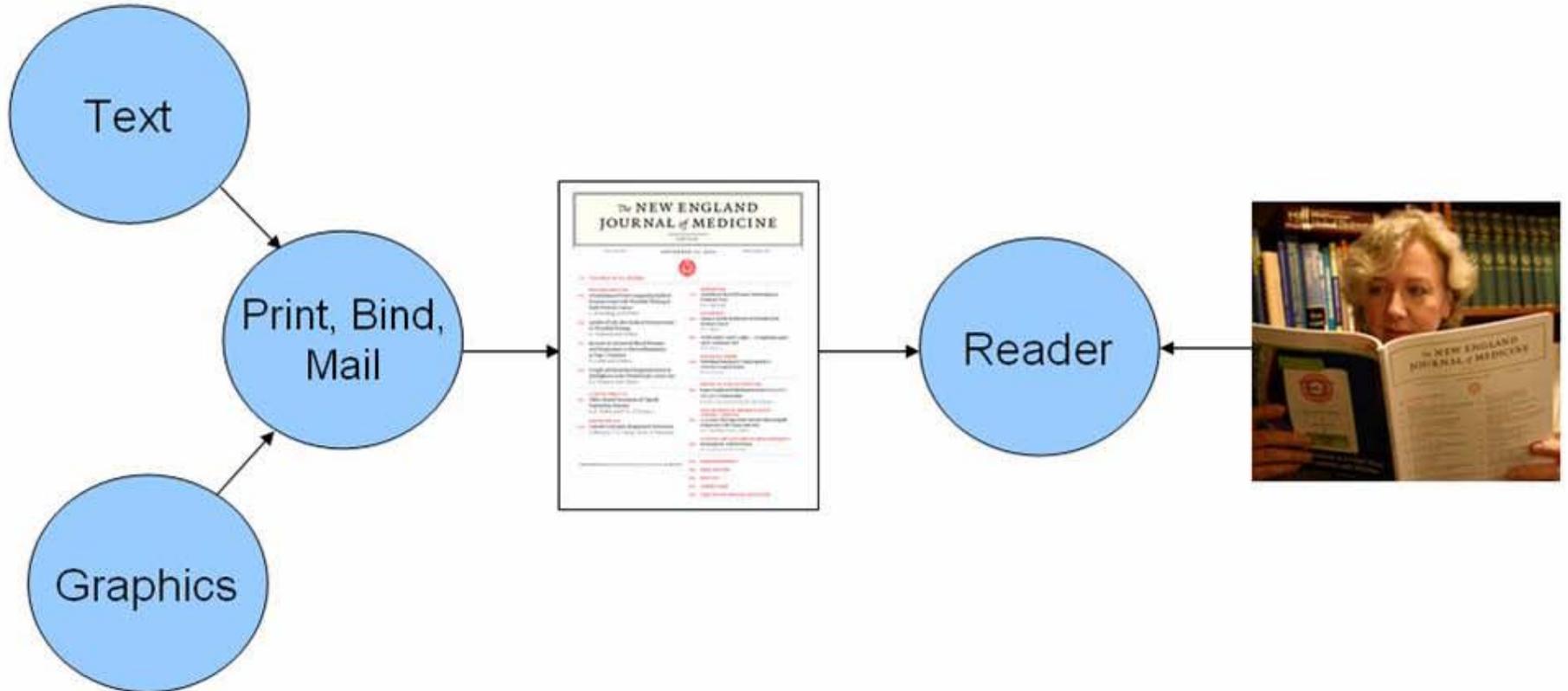
- Total ad revenue down 21% in 2009
- Medical/surgical journals have lost more than 1/3 of ad income over the last 3 years



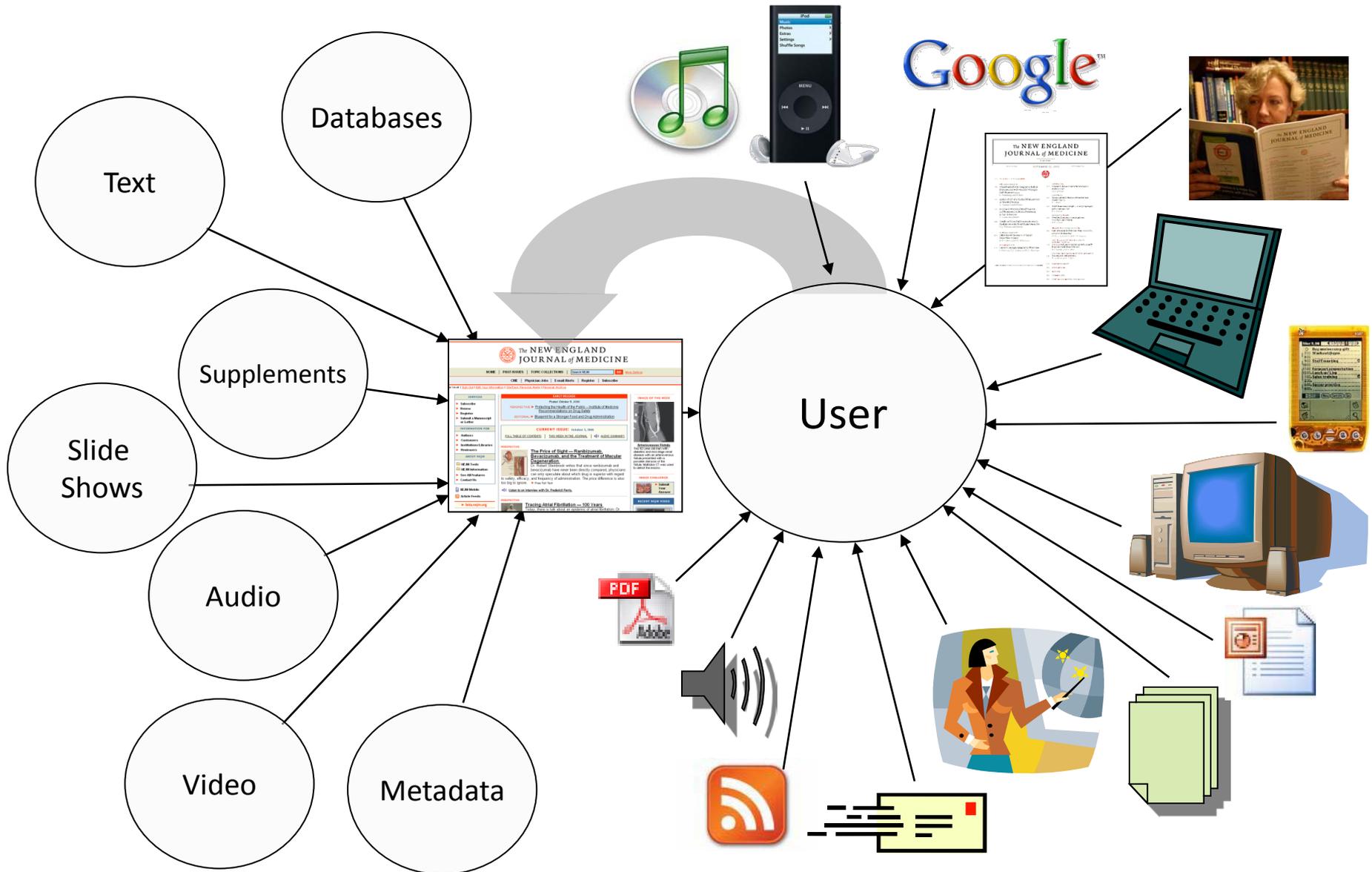
Source: *Medical Media, and Marketing*, April 2010



# Medical Journals Then...



# Medical Journals Now...



# The Chicago Collaborative

## Founding Members (2008)

- Assn of Academic Health Sciences Libraries
- Assn of American Medical Colleges
  - Council of Academic Societies
- Assn of American Publishers
  - Professional & Scholarly Publishing Division
- Assn of Learned & Professional Society Publishers
- Federation of American Societies for Experimental Biology
- International Assn of Scientific, Technical & Medical Publishers
- International Committee of Medical Journal Editors
- Society for Scholarly Publishing



# The Chicago Collaborative

## Grand Challenges

- Preservation / archiving
- Effective STM authorship
- Peer review / quality assurance
- Dynamic content containers
- Branding STM content
- Future of the journal

## Strategies

- Equal partners in dialogue
  - consensus-driven statements
- Broad, high level opportunities & challenges
- Shared ideas representing association interests



# Credits: Course Developers

- **Norman Frankel:** Society for Scholarly Publishing
- **Margaret Reich:** Consultant
- **Tom Richardson:** Society for Scholarly Publishing
- **Irv Rockwood:** Assn of Learned, Professional & Scholarly Publishers
- **Rita Scheman:** FASEB & DC Principles
- **Jean Shipman:** American Assn of Health Science Libraries
- **Elizabeth Solaro:** Society for Scholarly Publishing
- **John Tagler:** Assn of American Publishers/ Professional & Scholarly Publishing



Thank you

