How the National Library of Medicine Can Add Evidence To Your mHealth App

Susan Halpin  
*University of Massachusetts Medical School*

Sherry Pagoto  
*University Of Connecticut*

Follow this and additional works at: [http://escholarship.umassmed.edu/ner](http://escholarship.umassmed.edu/ner)

Part of the Communication Technology and New Media Commons, Health Communication Commons, Library and Information Science Commons, Other Computer Engineering Commons, Public Health Commons, Social Media Commons, and the Telemedicine Commons

Repository Citation

[http://escholarship.umassmed.edu/ner/52](http://escholarship.umassmed.edu/ner/52)

This material is brought to you by eScholarship@UMMS. It has been accepted for inclusion in National Network of Libraries of Medicine New England Region (NNLM NER) Repository by an authorized administrator of eScholarship@UMMS. For more information, please contact Lisa.Palmer@umassmed.edu.
Welcome to the Webinar -- To Connect to Webinar Audio

1. To receive a call back, provide your phone number when you join the event, or call the number below and enter the access code.
2. Access Code 622 538 642
3. Call-in toll number (US/Canada) 1-650-479-3208

This Webinar is being recorded.
To view the captions for this event click on the URL in the chat box.
How the National Library of Medicine (NLM) Resources Can Add Evidence to Your Mobile Health App

Presented by National Network of Libraries of Medicine & UConn Center for mHealth and Social Media
About your Webinar Hosts

Susan Halpin  
susan.halpin@umassmed.edu  
NNLM NER,  
Education & Outreach Coordinator  
University of Massachusetts Medical School  
Worcester, Massachusetts

Sherry Pagoto, PhD  
sherry.pagoto@uconn.edu  
UConn Center for mHealth and Social Media  
University of Connecticut  
Storrs, Connecticut
Many commercial health apps lack evidence-based strategies

- Physical activity (Modave et al 2015, Conroy et al 2014)
- Arthritis (Geuens et al 2016)
- Stress management (Coulon et al 2016)
- Eating disorders (Juarascio et al 2015)
- Smoking cessation (Jacobs et al 2014)
- HIV prevention (Muessig et al 2013)
Ways to incorporate evidence into apps

Have app deliver an evidence-based behavior change strategy

• Self-monitoring is most popular example employed by apps
• Michie's behavior change taxonomy includes numerous behavioral strategies
• Evidence-based protocols available for many behavioral issues

Have app provide user with evidence-based health information

• Big question is: what is an evidence-based resource? Is it vetted? Up-to-date?
Purpose of Today’s Webinar

• Introduce you to NLM and the FREE Health & Medical websites databases and tools. Why are NLM resources better than commercial websites such as WebMd?

• Demonstrate how NLM resources carry out the mission to improve public health.

• Provide examples of how these health related resources can add value to your app
What Makes a Resource Good?

- Ease of Use
- Links to Original Articles
- Freedom from Advertisements
- Evidence, Not Expert Opinion
- Ease of Access
- Disclosure of Conflict of Interest
About National Library of Medicine (NLM)

- Physical library is Bethesda, MD part of the NIH campus.
- Largest biomedical library in the world
- One of the federal government’s largest providers of digital content
- The library is open to everyone

NLMs mission

Advance the progress of medicine and improve public health by making biomedical information accessible to everyone.
NLM Carries Out its Mission Through National Network of Libraries of Medicine (NNLM)

- Nationwide network of health sciences libraries, public libraries & information centers

- Each region has a partnership with a regional medical library

- Outreach provided through
  - Free access to online resources
  - Training & PD
  - Grant funding opportunities
NLM Resources you know...


https://medlineplus.gov/
NLM Partners
Partners in Information Access for the Public Health Workforce [https://phpartners.org/](https://phpartners.org/)

Public Health Topic Pages
- Bioterrorism
- Dental Public Health
- Environmental Health
- HIV/AIDS
- How to Access Journal Articles
- Nutrition
- Obesity
- Public Health Genomics
- Veterinary Public Health
- Workforce Development

Main Topic Pages:
- Health Promotion and Health Education
- Literature and Guidelines
- Health Data Tools and Statistics
- Public Health Workforce Data
- Grants and Funding
- Education and Training
- Legislation and Policy
- Conferences and Meetings
- Finding People
- Discussion and E-mail Lists
- Jobs and Careers

Current Public Health News
- National 4-H Council and the Robert Wood Johnson Foundation Partner to Empower Youth in Creating Healthier Communities - 14-SEP-2017
- Social Determinants of Health Resource Series - 14-SEP-2017
- Breastfeeding Savings Calculator - 14-SEP-2017

Get the Latest Information on Public Health Topics of Interest
Email Updates
Please enter your email address in the box below for updates:
Submit

Subscribe to RSS

In the Spotlight
E-learning Institute Fellowship (ELI)

NICHSR ONESearch
One website to search them all: HSRR, HSRR, HSIC, PHPartners

Partners:
- Agency for Healthcare Research and Quality (AHRQ)
- American Public Health Association (APHA)
- Association of Schools and Programs of Public Health (ASPPH)
- Association of State and Territorial Health Officials (ASTHO)
- Health Resources and Services Administration (HRSA)
- Medical Library Association (MLA)
- National Agricultural Library (NAL)
- National Association of County and City Health Officials (NACCHO)
- National Association of Local Boards of Health (NALBO)
- National Library of Medicine (NLM)
- National Network of Libraries of Medicine (NNLM)
- Public Health Foundation (PHF)
- Society for Public Health Education (SOPHE)

NICHSR ONESearch

Healthy People 2020
Structured Evidence Queries

Public Health Information and Data Tutorial

Disaster Kit: The Resource Guide for Disaster Medicine and Public Health

Vitalsigns

THIS IS PUBLIC HEALTH.
Why Use NLM Resources?

What is the AD?

What is the information you were looking for?
Why Use NLM Resources?
Evidence Based Information at Your Fingertips

MedlinePlus Connect

Linking Patient Portals and EHRs to Consumer Health Information

MedlinePlus API is available as a **Web application** or a **Web service**.
DailyMed Announcements

Posted: July 19, 2017

DailyMed/ReNorm Jamboree Workshop 2017

NLM’s 5th annual Jamboree will take place Tuesday, September 19, 2017, in the Lerner Hall Auditorium at NLM on the NIH Campus in Bethesda, MD. Speakers from the Federal government, industry, pharmacy standards groups, and others will present. The emphasis as always is on practical and novel ways to use and understand this free drug information, which is produced and consumed by a number of Federal agencies.

Registration is required, and seating is limited. While the proceedings will be webcast and archived, in-person attendance offers greater opportunity to exchange ideas, questions, and insights with your peers. Please find registration and agenda information here: https://www.nlm.nih.gov/mech/jamboree/2017.html

FDA GUIDANCES & INFORMATION

Drug Guidance, Compliance & Regulatory Information

View FDA Structured Product Labeling Resources
View FDA Drug labeling Guidelines

NLМ SPL RESOURCES

The following Structured Product Labeling (SPL) resources have been created to assist industry professionals.

Download Data

All Drug Labels
All Jnrgng & Jnrgng Files
All Mapping Files

SPL Image Guidelines

Guidelines for SPL image files of oral solid dosage forms that are submitted to the FDA with SPL documents.

Search for Adderall in DailyMed

### Search Results for: Adderall

**ADDERALL**
- Dextroamphetamine succinate, amphetamine aspartate, dextroamphetamine sulfate, and amphetamine sulfate
  - NDC Codes: 57844-105-01, 57844-110-01, 57844-112-01, 57844-115-01
  - Package: Teva Select Brands

**ADDERALL XR**
- Dextroamphetamine sulfate, dextroamphetamine succinate, amphetamine sulfate andamphetamine aspartate
  - NDC Codes: 54092-381-01, 54092-383-01, 54092-385-01, 54092-387-01
  - Package: Shire US Manufacturing Inc.

**ADDERALL** (dextroamphetamine succinate, amphetamine aspartate, dextroamphetamine sulfate, and amphetamine sulfate)
- NDC Code(s): 65692-3768-1
  - Package: Bryant Ranch Prepack
  - This is a repackaged label.
  - Source NDC Code: 0955-0764

### Related Resources
- Medline Plus
- Clinical Trials
- PubMed
- Biochemical Data Summary

### Highlights of Prescribing Information

**Indications and Usage**
- ADDERALL XR® is indicated for the treatment of ADHD. The efficacy of...

**Dosage and Administration**
- Dosage considerations for adults and children.

### More Info for This Drug
- View Label Archives
- ReNorm
- Get Label RSS Feed

### Boxed Warning

**WARNING: POTENTIAL FOR ABUSE**
Amphetamines have a high potential for abuse. Administration of amphetamines for prolonged periods of time may lead to drug dependence. Pay particular attention to the possibility of subjects obtaining amphetamines for non-therapeutic use or distribution to others and the drugs should be prescribed or dispensed sparingly.

**Mouse of amphetamine may cause sudden death and serious cardiovascular adverse reactions.**
Pillbox

NLM Disaster Resources and Apps

How Does NLM Select Partner Sites/Organizations?


This is a 2 page promotional flyer you can print out (.PDF)
### NLM Trending Health Topics Infographic

**NLM Resources for These 10 Trending Health Topics**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Addiction, Opioid &amp; Toxicology</td>
<td>TOXNET, MedlinePlus Opioids, MedlinePlus Drugs, Opiate Addiction &amp; Treatment Portal</td>
</tr>
<tr>
<td>Mental Health</td>
<td>MentalHealth, National Institute of Mental Health</td>
</tr>
<tr>
<td>Complementary &amp; Integrative Medicine</td>
<td>National Center for Complementary Integrative Health, MedlinePlus C&amp;I Medicine</td>
</tr>
<tr>
<td>Multicultural Minority &amp; Refugee Health</td>
<td>American Indian Health, Arctic Health, HealthReach (Refugees and many languages health)</td>
</tr>
<tr>
<td>Environmental Health &amp; Disaster Preparedness</td>
<td>TOXNET, ToxTown, ToxLearn</td>
</tr>
<tr>
<td>Pet Health</td>
<td>MedlinePlus, KidsHealth, AVMA</td>
</tr>
<tr>
<td>Food, Nutrition &amp; Fitness</td>
<td>American Society of Sports Medicine, MedlinePlus Nutrition, MedlinePlus Exercise &amp; Fitness, MyPlate, Food &amp; Nutrition Information Center</td>
</tr>
<tr>
<td>K-12 Education &amp; Career Exploration</td>
<td>Harry Potter’s World: Renaissance Science, Magic and Medicine, Frankenstein Penetrating the Secrets of Science</td>
</tr>
<tr>
<td>Clinical Trials in Your City &amp; State</td>
<td>ClinicalTrials</td>
</tr>
<tr>
<td>Genetics, Pregnancy &amp; Breastfeeding</td>
<td>Genetic Home Reference, LastMed, MedlinePlus Pregnancy</td>
</tr>
</tbody>
</table>

**Link to NLM Home Page**

NLM Nutrition Related Resources

https://medlineplus.gov/nutrition.html
MedlinePlus offers information in multiple languages.

MedlinePlus also has a quarterly magazine available online and in print.

MedlinePlus also allows you to choose to search on External Health Links to locate info from external organizations (that have been vetted by NLM)

For example,

*American College of Obstetricians and Gynecologists
*National Center for Health Statistics
*National Multiple Sclerosis Society
NLM Resources Related to Mental and Behavioral Health

https://medlineplus.gov/

https://mentalhealth.gov/

https://www.nlm.nih.gov/
### Biomedical Literature

- **PubMed Mobile**
  - Database of more than 20 million citations for biomedical literature from MEDLINE, life science journals, and online books.

- **PubMed for Handhelds (PubMed4HH)**
  - Unique PubMed tools, including PICO (clinical queries), and NLM (medical language search), and Consensus Abstracts.

### HIV/AIDS Guidelines

- **AIDSinfo**
  - Mobile-optimized website: [https://aidsinfo.nih.gov/](https://aidsinfo.nih.gov/)
  - Federally approved HIV/AIDS medical practice guidelines, HIV treatment and prevention clinical trials, and research.

- **AIDSinfo HIV/AIDS Drug Database**
  - Mobile app for Android and iOS: [https://aidsinfo.nih.gov/](https://aidsinfo.nih.gov/)
  - Information about drugs approved to treat HIV infection and other infections or diseases common to people living with HIV.

- **AIDSinfo HIV/AIDS Glossary**
  - Mobile app for Android and iOS: [https://aidsinfo.nih.gov/app/](https://aidsinfo.nih.gov/app/)
  - Definitions for HIV/AIDS-related terms, written in concise and easy-to-understand language, in both English and Spanish.

### Public Health

- **PHPartners (Partners in Information Access for the Public Health Workforce)**
  - Mobile-optimized website: [https://comppartners.org/](https://comppartners.org/)
  - Provides timely, convenient access to selected public health resources, including data, tools, and statistics.

### Drugs and Medical Devices

#### Drug Information Portal Mobile
- Gateway to drug information from US Government agencies including NBI, FDA, and CDC.

#### DailyMed
- Comprehensive resource of medication content and labeling found in FDA label information.

#### LastMed
- **Mobile app for Android and iOS**: [https://app.esласit.com/apps/mj.php](https://app.esласit.com/apps/mj.php)
- Information about maternal and infant drugs and dietary supplement levels, effects on lactation and on breastfed infants, and alternative drugs to consider.

#### Pillbox
- Identify unknown prescription, over-the-counter, homeopathic, and veterinary medications.

#### AccessGUOID (Global Unique Device Identification Database)
- **Mobile-optimized website**: [https://accessguid.net/nih.nih.gov/](https://accessguid.net/nih.nih.gov/)
- Key device identification information about medical devices that have Unique Device Identifiers (UDI).

### Consumer Health

- **MedlinePlus**
  - Mobile-optimized website: [https://medlineplus.gov/](https://medlineplus.gov/)
  - Covers diseases, conditions, medications, wellness topics, and the latest news, in both English and Spanish.

### Educational

#### Digital Collections
- Access NLM's transcribed and fully searchable historical biomedical books and videos.

#### Embryo
- Explore human embryo development through videos, micrographs, images, interactive tools, and related resources.

#### Native Voices
- **Mobile app for iPad and Android**: [https://itunes.apple.com/us/app/520c890b](https://itunes.apple.com/us/app/520c890b)
- Explore the interconnectedness of wellness, illness, and cultural life for Native Americans, Alaska Natives, and Native Hawaiian.

#### TOXinwords
- Game that supports middle school science concepts about environment and health.

#### Turning the Pages
- **Mobile app for iPad**: [https://itunes.apple.com/us/app/id1082951914](https://itunes.apple.com/us/app/id1082951914)
- Virtually flip through rare books and manuscripts and learn more about them through historian and curator annotations.

---

Examples of Mobile app Use
Aidsinfo, LactMed
Promotional Items & Printable Handouts

NLM Also Provides Grant Funding Opportunities

• Community Engagement (up to $10,000) - short-term outreach projects to advance health information resources in collaboration community groups.

• Knowledge and Data Management (up to $10,000) – projects that support innovations data management and research services at the health care or research institution.

• Member Programs (up to $5,000) — Projects & programs that improve the knowledge and skills of librarians & health information professionals

• Technology (up to $7,000) - Improve technology access and delivery of health information for network members
Example of mHealth Project
MedlinePlus and LactMed for Patient Education

https://vimeo.com/217207971
National Network of Libraries of Medicine

NNLM has about 6800 Network Members

Anyone can join the network, it’s FREE

To Join the NNLM Network:
https://nnlm.gov/members/join-network
Benefits of NNLM Membership
How Will Use NLM Resources in Your mHealth App?

For more information about how to incorporate MedlinePlus in your application development

https://medlineplus.gov/fordevelopers.html

Please share your ideas, comments, and questions in the Chat Box
Thank you for Attending this Webinar!

Webinar Evaluation Link
http://www.surveygizmo.com/s3/3529624/47e6102b9be5

For more information about how you can benefit from NNLM NER outreach contact Susan Halpin, Education & Outreach Coordinator susan.halpin@umassmed.edu

For more information about the University of Connecticut Center for mHealth & Social Media contact Dr. Sherry Pagoto sherry.pagoto@uconn.edu