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

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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

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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)
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/]
Why Use NLM Resources?

What is the AD?

What is the information you were looking for?
Why Use NLM Resources?

- MedlinePlus: Trusted Health Information for You
- Health Topics: Find information on health, wellness, disorders, and conditions
- Drugs & Supplements: Learn about prescription drugs, over-the-counter medications, herbs, and supplements
- Videos & Tools: Discover tutorials, health and surgery videos, games, and quizzes
- Lab Test Information: Learn why your doctor orders laboratory tests and what the results may mean
- Medical Encyclopedia: Articles and images for diseases, symptoms, tests, and treatments
- Clinical Trials: Search ClinicalTrials.gov for drug and treatment studies

MedlinePlus now has lab test information! Learn why your doctor ordered a lab test, and what the results may mean.
Evidence Based Information at Your Fingertips

MedlinePlus Connect

Linking Patient Portals and EHRs to Consumer Health Information

MedlinePlus Connect helps patients and health care providers access consumer health information at the point of need in a health IT system. Patient portals, patient health record (PHR) systems, and electronic health record (EHR) systems can use MedlinePlus Connect to provide health information for patients, families, and healthcare providers using standard clinical vocabularies for diagnoses (problem codes), medications, and lab tests.

MedlinePlus Connect is a free service of the National Library of Medicine (NLM), National Institutes of Health (NIH), and the Department of Health and Human Services (HHS).

MedlinePlus API is available as a Web application or a Web service.
Search for Adderall in DailyMed

Adderall (dextroamphetamine aspartate, dextroamphetamine sulfate, and amphetamine sulfate) view full title
NDC Codes: 57844-105-01, 57844-110-01, 57844-112-01, 57844-115-01 view more
Package: Teva Select Brands

Adderall XR (dextroamphetamine sulfate, dextroamphetamine aspartate, amphetamine sulfate, and amphetamine aspartate) view full title
NDC Codes: 54092-381-01, 54092-385-01, 54092-385-01, 54092-387-01 view more
Package: Shire US Manufacturing Inc.

Adderall (dextroamphetamine aspartate, dextroamphetamine sulfate, and amphetamine sulfate) view full title
NDC Codes: 65629-3768-1
Package: Bryant Ranch Prepack
This is a repackaged label.
Source NDC Code: 0555-0764

Adderall (dextroamphetamine aspartate, dextroamphetamine sulfate, and amphetamine sulfate) view full title
NDC Codes: 65629-3769-1
Package: Bryant Ranch Prepack

Search for Adderall in the DailyMed database.
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>MedlinePlus Opioids, MedlinePlus Drugs, Opiate Addiction &amp; Treatment Portal</td>
</tr>
<tr>
<td>Mental Health</td>
<td>National Institute of Mental Health</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, 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](https://www.nlm.nih.gov/)
NLM Nutrition Related Resources

https://medlineplus.gov/nutrition.html
PHPartners Nutrition Related Resources

Nutrition

Nutrition News

Access to Public Benefits among Dual Eligible Seniors Reduces Risk of Nursing Home and Hospital Admission and Cuts Costs (August 2017) - 06-SEP-2017
Researchers studied the impact of access to food and energy assistance on healthcare utilization among all community-dwelling seniors (age 65+) in Maryland who received both Medicare and Medicaid. (University of Maryland)

Rollbacks to school meal nutrition threatening health: Public health regulations under fire - 01-SEP-2017
On May 1, U.S. Secretary of Agriculture Sonny Perdue announced that USDA would relax school nutrition requirements related to whole grains, sodium and milk. Under the new rules, schools are only required to make 50 percent of their grain products whole-grain rich, as opposed to 100 percent, for the 2017-18 school year; schools are exempt from achieving the highest sodium targets then schools year 2017-18 through 2020; and schools are allowed to serve flavored 1 percent milk. (The Nation’s Health)

A Community-Based Marketing Campaign at Farmers Markets to Encourage Fruit and Vegetable Purchases in Rural Counties With High Rates of Obesity, Kentucky, 2015-2016 - 01-SEP-2017
Researchers conducted a community-based marketing campaign, Plate It Up Kentucky Proud (PIUKP), in 6 rural communities over 2 years to determine the association between exposure to the campaign and full and vegetable purchases, adjusted for Supplemental Nutrition Assistance Program (SNAP) status. (Center for Disease Control and Prevention (CDC), HHS)

Study evaluates the effectiveness of the National Early Care and Education Learning Collaboratives project in facilitating best practices in nutrition, physical activity, screen time, and infant feeding among early care and education programs.

The Food-Spending Patterns of Households Participating in the Supplemental Nutrition Assistance Program: Findings From USDA’s FoodAPS (August 2017) - 21-AUG-2017
This study finds that, when adjusted for household size and composition, average food spending in SNAP households is lower than in other U.S. households, even those that are eligible for SNAP but choose not to participate. Food-at-home spending accounts for a greater share of the total food expenditures of SNAP households than of other households. (Agricultural Research Service (ARS), USDA)

Associations and Organizations

Federal

CDC Division of Nutrition, Physical Activity, and Obesity
The mission of CDC’s Division of Nutrition, Physical Activity and Obesity is to lead strategic public health efforts to prevent and control obesity, chronic disease, and other health conditions through regular physical activity and good nutrition. (Centers for Disease Control and Prevention (CDC), HHS)

FDA Food Safety
Food safety resources from the FDA. (U.S. Food & Drug Administration (FDA), HHS)

Food and Nutrition Service (FNS)
FNS increases food security and reduces hunger in partnership with cooperating organizations by providing children and low-income people access to food, a healthy diet, and nutrition education in a manner that supports American agriculture and insures public confidence. (U.S. Department of Agriculture (USDA))

https://phpartners.org/
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://www.nlm.nih.gov/

https://mentalhealth.gov/
# Gallery of NLM Mobile Apps

## Biomedical Literature

<table>
<thead>
<tr>
<th>App Name</th>
<th>Description</th>
<th>Website</th>
<th>Additional Information</th>
</tr>
</thead>
</table>

## Drugs and Medical Devices

<table>
<thead>
<tr>
<th>App Name</th>
<th>Description</th>
<th>Website</th>
<th>Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drug Information Portal</td>
<td>Comprehensive resource of medication content and labeling found in FDA label information</td>
<td><a href="https://www.nlm.nih.gov/drugportal">Drug Information Portal</a></td>
<td></td>
</tr>
<tr>
<td>DailyMed</td>
<td>Mobile app for daily news and current events in medicine, health, and science</td>
<td><a href="https://www.nlm.nih.gov/dailymed">DailyMed</a></td>
<td></td>
</tr>
<tr>
<td>LactMed</td>
<td>Mobile app for lactating mothers - comprehensive information about lactation and infant nutrition</td>
<td><a href="https://www.nlm.nih.gov/lactmed">LactMed</a></td>
<td></td>
</tr>
<tr>
<td>Pillbox</td>
<td>Mobile app for medicinal and herbal products - comprehensive information</td>
<td><a href="https://www.nlm.nih.gov/pillbox">Pillbox</a></td>
<td></td>
</tr>
<tr>
<td>AccessGUOID</td>
<td>Mobile app for healthcare professionals - identification of devices with unique device identifiers (UDI)</td>
<td><a href="https://www.nlm.nih.gov/accessguoid">AccessGUOID</a></td>
<td></td>
</tr>
</tbody>
</table>

## Consumer Health

<table>
<thead>
<tr>
<th>App Name</th>
<th>Description</th>
<th>Website</th>
<th>Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>MedlinePlus</td>
<td>Comprehensive resource of information on diseases, conditions, medications, and wellness topics</td>
<td><a href="https://medlineplus.gov">MedlinePlus</a></td>
<td></td>
</tr>
</tbody>
</table>

## Educational Tools

<table>
<thead>
<tr>
<th>Tool Name</th>
<th>Description</th>
<th>Website</th>
<th>Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Collections</td>
<td><a href="https://www.nlm.nih.gov/digitalcollections">Digital Collections</a></td>
<td><a href="https://www.nlm.nih.gov/digitalcollections">Digital Collections</a></td>
<td></td>
</tr>
<tr>
<td>Embryo</td>
<td>Explore human embryo development through videos, images, and educational tools</td>
<td><a href="https://www.nlm.nih.gov/embryo">Embryo</a></td>
<td></td>
</tr>
<tr>
<td>Native Voices</td>
<td>Mobile app for iPad - Native American and Hawaiian cultures</td>
<td><a href="https://www.nlm.nih.gov/nativevoices">Native Voices</a></td>
<td></td>
</tr>
</tbody>
</table>

## Toxicology

<table>
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<th>Description</th>
<th>Website</th>
<th>Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haz-Map</td>
<td>Occupational health database of information about the adverse effects of workplace exposures to chemicals and biological agents</td>
<td><a href="https://toxmap.nlm.nih.gov">Haz-Map</a></td>
<td></td>
</tr>
<tr>
<td>TOXNET Mobile</td>
<td>Collection of databases on toxicology, hazardous chemicals, environmental health, and toxicology</td>
<td><a href="https://toxnet.nlm.nih.gov">TOXNET Mobile</a></td>
<td></td>
</tr>
</tbody>
</table>

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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 with community groups.

- **Knowledge and Data Management (up to $10,000)** – projects that support innovations in 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
Using NLM Resources
A Win/Win
For mHealth Developers & Users
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