

# Building MEDLINEplus – From Analysis to Improvement

8<sup>th</sup> European Conference of Medical and Health Libraries  
Cologne  
16-21 September, 2002

Eve-Marie Lacroix  
Public Services Division



**MEDLINE**plus  
Health Information

A service of the  
U.S. NATIONAL LIBRARY OF MEDICINE

Text version



# MEDLINEplus

## Health Information

A service of the National Library of Medicine | National Institutes of Health



Search



[Advanced Search](#)

[Site Map](#) [About MEDLINEplus](#)



### Health Topics

Information on conditions, diseases and wellness, plus a medical encyclopedia



### Drug Information

Generic and brand name drugs



### Dictionaries

Spellings and definitions of medical terms



### Directories

Locations and credentials of doctors, dentists and hospitals



### Other Resources

Access to organizations, consumer health libraries, international sites, publications, MEDLINE and more

### Current Health News

- [Ill Health Worsens West Nile](#)
- [Alcohol Initially Packs Bigger Punch for Some](#)
- [Clues to Brain Changes Behind Schizophrenia](#)
- [More news](#)

### Featured Site

Get the latest information on [West Nile Virus](#)



### ClinicalTrials.gov

Information about clinical research studies



[Sign up for weekly announcements](#)

[Health Topics](#) | [Drug Information](#) | [Dictionaries](#) | [Directories](#) | [Other Resources](#)

[Contact Us](#) | [Selection Guidelines](#) | [FAQs](#)

U.S. National Library of Medicine, 8600 Rockville Pike, Bethesda, MD 20894

National Institutes of Health, Department of Health & Human Services



### Server Load

<b>Requests</b>	
Total Requests	14,305,359
Total Cached Requests	1,043,778
Total Failed Requests	0
Invalid Log Entries	19
Average Daily Request	461,463
Average Request / Hour	19,227

### Visits Info

Total Visits	2,534,316
Total Pages	10,179,776
Total Downloaded Files	9,006
Total Download (MB)	509.51
Total Unique Visitors	1,190,285
Total Repeat Visitors	236,049
Average Visit Length	04:02
Average Requests/Visit	5.6
Average Pages/Visit	4.0
Average Daily Visits	81,752

### Server Statistics

- [Hourly](#)
- [Daily](#)
- [Recent Days](#)
- [Weekly](#)
- [Directories](#)
- [Top Level Directory](#)
- [Top Level Directory History](#)
- [File Types](#)

### Client Statistics

- [Countries](#)
- [World Regions](#)
- [Clients](#)
- [Circulation](#)
- [Loyalty](#)
- [Time Online](#)

### Top Requests for Region



### (7) Region

Requests	%	Bytes	%	Sessions	Visitors	Pages	Total Time	Errors	Region
7,591,662	53.1%	139.1G	54.8%	1,282,506	722,856	5,428,128	74630:14:59	0	Unknown
5,324,715	37.2%	91.7G	36.1%	1,045,165	383,031	3,730,116	66030:17:53	0	North America

# Asking the Customer

- Multiple sources
- Coordinated results
- Web logs
- Comments/questions
- Surveys
- Focus groups – in person & online
- Usability – heuristic and live subjects



# Customer Feedback

- Building MEDLINEplus
  - Search logs
  - Customer service inquiries
  - User comments
- Improving MEDLINEplus
  - Web log analysis
  - User comments
  - Customer service inquiries
  - Surveys
  - Focus groups
  - Usability



# Built by the Customer

- AIDS
- Allergy
- Alzheimer's Disease
- Arthritis
- Asthma
- Breast Cancer
- Cancer (general)
- Cholesterol
- COPD (Chronic Obstructive Pulmonary Disease)
- Depression
- Diabetes
- Ear Infections
- Fibromyalgia
- Heart Attack
- Lyme Disease
- Menopause
- Osteoporosis
- Prenatal Care
- Prostate Cancer
- Prostate Diseases
- Shingles (Herpes Zoster)
- Stroke
- Tuberculosis



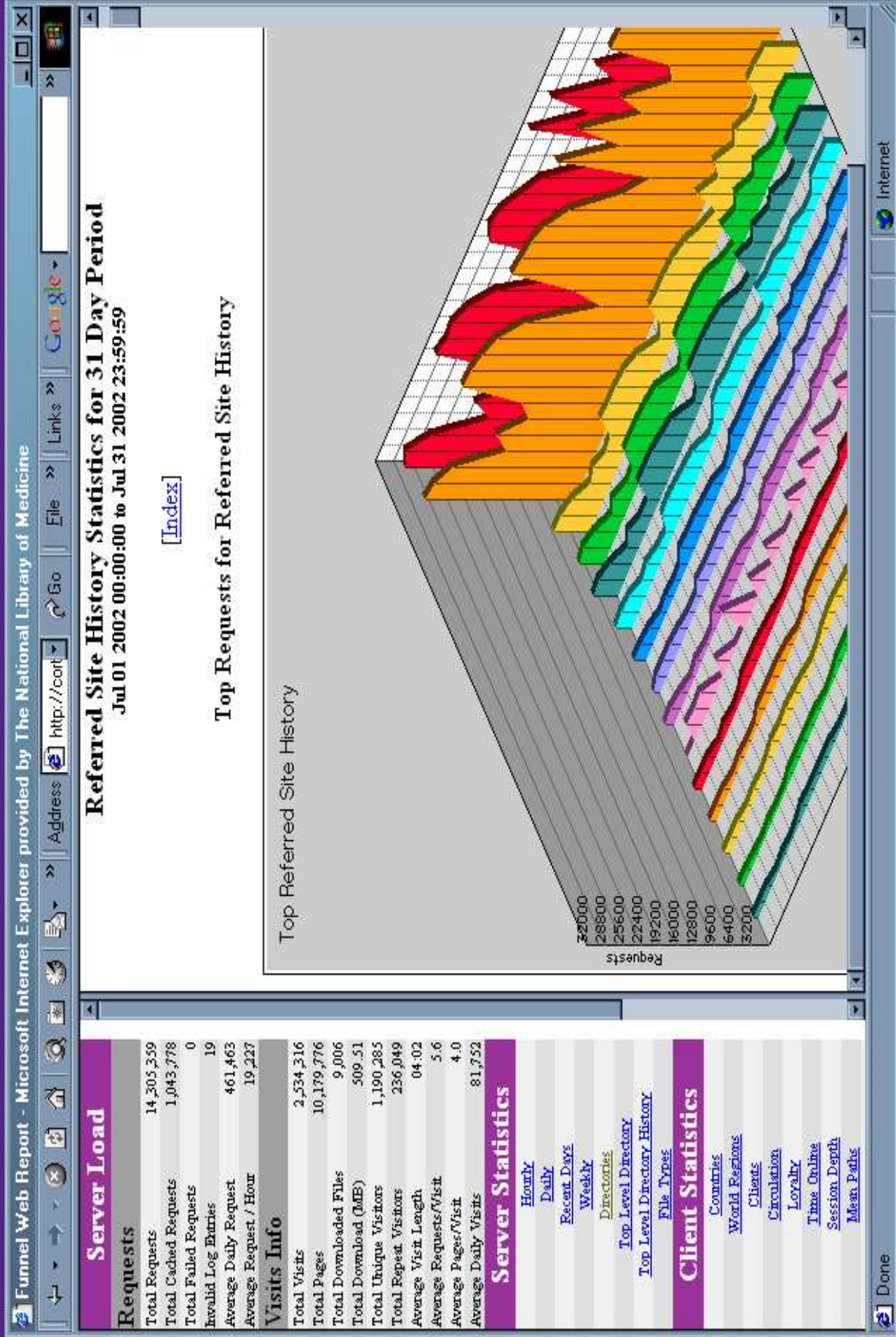
# Web Log Analysis

- Top pages and topics
- Less used areas
- Referral sites
- Search engines
- Browsers and operating systems
- Countries





# Web Log Analysis





# Search log analysis

- Identify new topics or synonyms
- Show misspellings
- Help point out problem areas

MEDLINEplus: Advanced Search - Microsoft Internet Explorer provided by The National Library of Me...

Back Address File Links Google

Skip to content

**MEDLINEplus**  
Health Information

A service of the National Library of Medicine

Search  Go [Advanced Search](#) [Site Map](#) [About MEDLINEplus](#) [Home](#)

[Health Topics](#) [Drug Information](#) [Dictionaries](#) [Directories](#) [Other Resources](#)

The spell checker could not find the following word(s) in its dictionary: **colesteral**

Replace 'colesteral' with:

- cholesterol
- Cholesterol
- cholesteryl
- coeternal
- olestra
- Cholesteryl

If you didn't find a suitable word in the list(s):

- [Medical dictionaries](#) are available to check spelling
- Browse MEDLINEplus [Health Topics](#) if you know the subject area related to your term
- Start over with a [new search](#) of MEDLINEplus

Internet



# Customer Feedback

- Link on every footer
- Unsolicited
- Comment tied to page used
- Free form
- Phone, email, in person



# Examples of email feedback

- *“I am told that I have a Baker's Cyst that has "crystallized". Does that make it a candidate for surgical removal or can it still disappear on it's own?”*
- *“ Thanks for the informative and well presented x-plain presentation on gallbladder surgery. It helped me understand this procedure better and it made me feel more at ease. ”*



# Interactive Health Tutorials

gs019101 - Microsoft Internet Explorer provided by The National Library of Medicine

**X-Plain.com**  
Patient Education Institute

**MEDLINEplus**  
National Library of Medicine

**Cholecystectomy - Open and Laparoscopic**  
The National Library of Medicine - MEDLINEplus

Introduction  
**Anatomy**  
Symptoms  
Treatments  
Procedure  
Risks  
After Surgery  
Summary

Quit  
Comments

Can you point to the gallbladder?

A B ✓

Correct. This is the gallbladder.

Press the right arrow to continue

Mute Sound  
Repeat Page

Done  
Internet



# Customer Suggestions

- **Specific new health topics**
- **Complementary medicine**
- **Spanish and other languages**
- **Wellness information**
- **Chat line**
- **Interactive information**



# Surveys

- Current customers
- Non-customers



# Surveys - Current customers

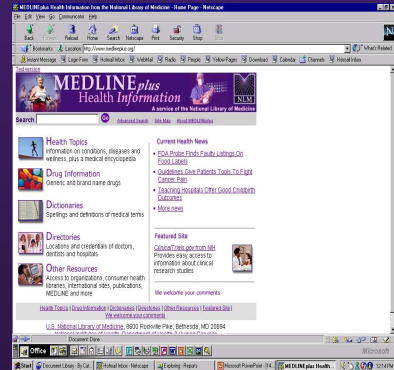
- Linked from the site
- Offered for a limited time
- Actual Survey on vendor's site
- What they like, don't like
- What they want
- Who they are



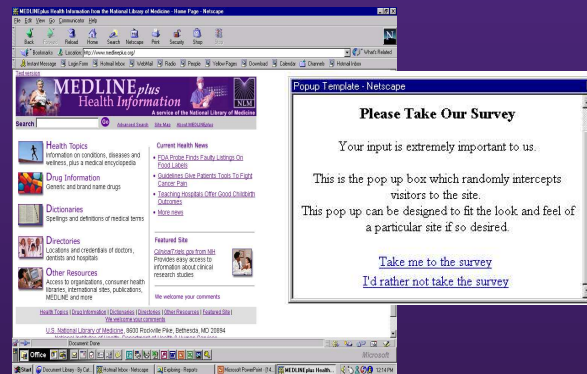
# Methodology

## Intercept/Survey Process:

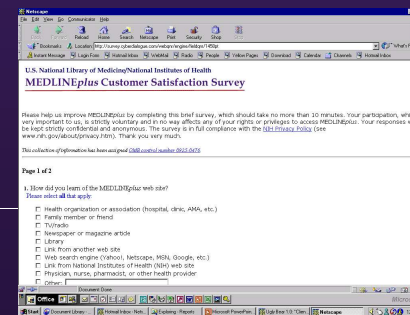
1) MEDLINEplus visitors are randomly intercepted on the site.



2) Visitors are invited to take part in the survey.



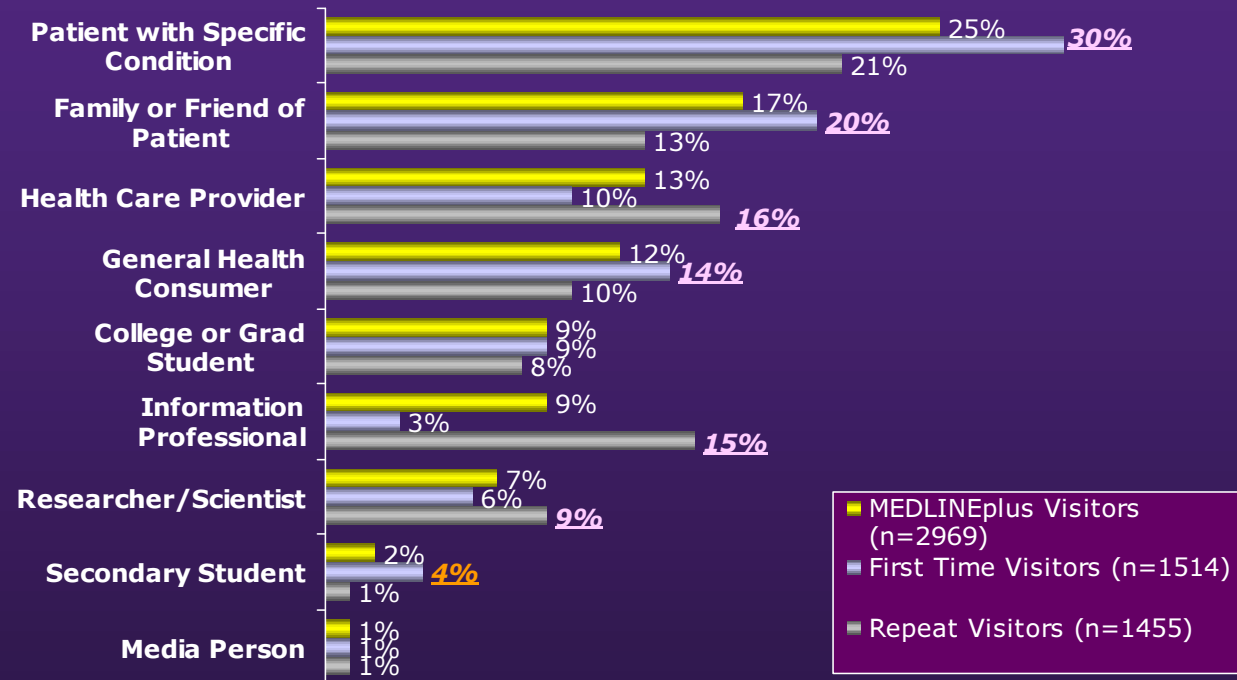
3) Visitors who agree to take part in the survey are temporarily redirected to a secure Cyber Dialogue server and take the survey in a separate browser window.



4) After completing the survey, visitors continue surfing.



# Visitor Roles



# Surveys - Non-customers

- From a web metrics company panel
- Competitive analysis
- What they use, don't use
- What they want
- Who they are



# Focus Groups

- Current users
- Non-users
- Special groups – Seniors, Spanish speaking
- Traditional vs online



# Online Focus Groups

- Participants meet a profile
- Short turnaround
- Little peer pressure
- Moderator follow-up
- Transcript as a record





# Transcript segment - Hispanics

Moderator: *Do you prefer the information in English or Spanish?*

Susan: *Depends on the subject*

Teresa: *I prefer English*

MariaL: *English or Spanish – doesn't matter*

Renee: *English simply because Spanish info is from other countries*

Ariela: *May sound wrong, but if it is in english it sounds more professional since spanish translations are usually terrible.*

MariaL: *Good point Ariela. When I search for....*





# MEDLINEplus

## Información de Salud

Un servicio de la Biblioteca Nacional de Medicina | Institutos Nacionales de Salud



Buscar

[Mapa de Contenido](#)

[Sobre MEDLINEplus](#)

[inglés](#)



## Temas de Salud

Información sobre los padecimientos, las enfermedades y la salud óptima

## Temas de Actualidad en MEDLINEplus

- [Ataque del Corazón](#)
- [Diabetes](#)
- [Presión Arterial Elevada](#)

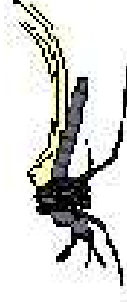


## Enciclopedia Médica

Artículos sobre enfermedades, pruebas médicas, síntomas, lesiones y cirugías; además de fotografías e ilustraciones

## Página Recomendada

Consiga la información más última: [Virus del Nilo Occidental](#)



## Tutoriales Interactivos

Programas de educación al paciente con gráficas animadas y sonido.

[Temas de Salud](#) | [Enciclopedia Médica](#) | [Tutoriales Interactivos](#)

[Contáctenos](#) | [Criterios para Recopilar Información](#) | [Preguntas Más Frecuentes](#)

[U.S. National Library of Medicine](#), 8600 Rockville Pike, Bethesda, MD 20894

[National Institutes of Health](#), Department of Health & Human Services

[Derechos Reservados](#), [Política de Privacidad](#), [Accesibilidad](#), [Freedom of Information Act](#)

Omita y vaya al Contenido



Buscar

[Mapa de Contenido](#)

[Sobre MEDLINEplus](#)

[Página Principal](#)

inglés

Temas de Salud

Enciclopedia Médica

Tutoriales Interactivos

Otros temas de la salud: [A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#)  
[XYZ](#) [Todos los Temas](#)

## Presión Arterial Elevada



La organización del NIH que mayormente conduce investigaciones científicas sobre *Presión Arterial Elevada* es el [Instituto Nacional del Corazón, Pulmón y Sangre](#)

Otras páginas de interés en MEDLINEplus:

- [Corazón y Circulación](#)
- [Salud de las Personas Mayores](#)

### Información del NIH

- [Coma Menos Sal y Sodio/Cut Down on Salt and Sodium](#) *Fácil de Leer* , **Archivo PDF** (Instituto Nacional del Corazón, Pulmón y la Sangre) - Texto en Inglés y Español
- [Control de la Presión Arterial Alta: Guía para la Mujer de Edad Mayor](#) **Archivo PDF** (Instituto Nacional del Corazón, Pulmón y la Sangre)  
También está disponible en: [inglés](#)
- [Pongase en Accion--Prevenga la Alta Presion!/Take Steps--Prevent High Blood Pressure!](#) *Fácil de Leer* , **Archivo PDF** (Instituto Nacional del Corazón, Pulmón y la Sangre) - Texto en Inglés y Español
- [Tensión Arterial Alta y la Enfermedad de los Riñones](#) (Instituto Nacional de la Diabetes y Enfermedades Digestivas y del Riñón)

### Otros Recursos

- [Hipertensión](#) **Archivo PDF** (Asociación Médica Estadounidense)

Only Spanish on the Spanish site.  
Indicates English available.

# Usability

- Video users, analyze tapes
- Post-test questionnaire
- Staff vs contract
- Location - on-site, senior centers, usability lab





# Usability Review

Shadowed text may decrease readability for older people.

This font size may be too small to read for older people

The screenshot shows the MEDLINEplus website interface. A search bar is at the top left with a 'Go' button. Navigation links include 'Advanced Search', 'Site Map', and 'About MEDLINEplus'. The main content area is divided into several sections: 'Health Topics' (Information on conditions, diseases and wellness, plus a medical encyclopedia), 'Drug Information' (Generic and brand name drugs), 'Dictionaries' (Spellings and definitions of medical terms), 'Directories' (Locations and credentials of doctors, dentists and hospitals), and 'Other Resources' (Access to organizations, consumer health libraries, publications, MEDLINE and more). On the right side, there are sections for 'New Links on MEDLINEplus' (listing links like 'Halloween Safety Tips', 'How to Research a Medical Topic Online', 'Long-Term Study Revealed Low Stroke Rates', and 'Associated With Vitamin C Level in Bloodstream') and 'Featured Site' (ClinicalTrials.gov from NIH). A footer contains a navigation menu and contact information: 'U.S. National Library of Medicine, 8600 Rockville Pike, Bethesda, MD 20894, National Institutes of Health, Department of Health & Human Services'. Several elements are circled in red: the search bar and 'Go' button, the 'Advanced Search' link, the 'New Links on MEDLINEplus' section, the 'Featured Site' section, and the footer navigation menu. A yellow box on the left points to the font size of the main content, and another yellow box on the right points to the shadowed text in the 'New Links on MEDLINEplus' section.



**MEDLINEplus**  
Health Information

A service of the  
U.S. NATIONAL LIBRARY OF MEDICINE

# Asking the Customers

- Gather from multiple sources
- Coordinate results
- Review web logs
- Read comments/questions
- Conduct surveys
- Listen to focus groups
- Evaluate for usability



If you want to know what your customers want – ask them!



**MEDLINE**plus  
Health Information

A service of the  
U.S. NATIONAL LIBRARY OF MEDICINE