Progress in Access Technologies: NLM Video Search

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(contractor)
NLM Digital Collections

- NLM digital repository launched September 27, 2010
- Focus on “Digital Library” functionality: ingest, store, access, and preserve digital assets
- Currently two content types: print and video
- Based on Fedora-Commons and other open source software
- NLM-developed Video Player with Search
Public Domain Books

- **Cholera Online Collection**
  - 546 monographs (1817-1900)
  - TIFF master images, OCR, METS and ALTO files

- **Medicine in the Americas Collection**
  - NLM’s contribution to Medical Heritage Library project
  - 5,500+ books, 1 million+ pages (1610-1865)
  - Being digitized in-house using Kirtas scanner
  - JPEG masters, OCR, METS, ALTO, PDF

- **Ingest into NLM Digital Repository:**
  - Created JPEG2000 derivative images for web access
  - Book and Page objects contain metadata and content
Films and Videos Collection

- **U.S. military and public health films (1936-45)**
  - 29 films from HMD audiovisual collection (5-52 min)

- **Previous reformatting:**
  - Transferred from 16 mm film to Betacam SP
  - Digitized from Betacam SP to DVD as circulation copy

- **Ingest into NLM Digital Repository:**
  - MPEG-2 (from DVD) used as master
  - Several derivative video formats (H.264, MPEG-4, ...)
  - Transcripts and captions, preview image and clip
Public User Interface

- **Browse & Search (Muradora)**
  - Supports multiple collections, diverse content
  - Resource display page: metadata, datastreams

- **Book Viewer (NWU)**
  - Open source software from Northwestern University
  - Open source JPEG2000 server (Djatoka)

- **Video Player with Search (NLM)**
  - Started as IT research project and prototype
  - Features video transcript search and play-head jump
Films and Videos Collection: Requirements

- **Collection should be searchable**
  - Repository-wide search to find relevant videos: search catalog metadata and full video transcript
  - **Video search** to find and jump to locations within a selected video where a search word occurs
  - Accurate video transcript should be displayed, with search words highlighted
  - Accurate, complete video transcript needed

- **Section 508 accessibility requirements**
  - All videos must have accurate captions
NLM Video Search Software

- Development approach
  - Researched tools available for video search (e.g., Autonomy Virage)
  - Developed in-house prototype
  - Refined and promoted to production
  - Sharing within Dept. of HHS as open source software
NLM Video Search Software

- Developed in Adobe Flash using ActionScript-3
- Plays H.264 video file retrieved from video object in repository (Progressive download)
- User can view captions and transcript
- Time-tagged captions / transcript file used to search within video (formatted in W3C DXFP XML)
- Search hits listed, and also shown as yellow dots on timeline (hover to see context)
- Click yellow dot to jump to location in video
Creating Captions and Transcripts

- Attempted speech recognition of audio track
  - Adobe Soundbooth and Premiere CS4
  - Low accuracy due to poor audio quality, background music

- “Echo” speech recognition (parroting) useful
  - Dragon NaturallySpeaking 10

- MAGpie (WGBH) caption editor (free)
  - Manual text entry and caption timing
  - Creates text transcript and DFXP XML caption files

- Summer students can be very helpful!
Future Plans

- HTML5
- Improve search by using Apache Solr
- Audio-only version
  - Playback and search of audio histories
Demonstration

http://collections.nlm.nih.gov/
Featured Collections

Digital Collections is the National Library of Medicine's free online archive of biomedical books and videos. All the content in Digital Collections is in the public domain and freely available worldwide. Digital Collections provides unique access to NLM's rich, historical resources.

Digital Collections uses a suite of open source and NLM-created software. For more information on the development and technical description of Digital Collections, see the NLM Digital Repository Project information page.

Featured Items from the Collections

To view one of the 20 "Featured Items from the Collections" on the Wall, click on the image, then click on the pop-up window symbol (See Help) to play the videos, a short segment will automatically begin to play. The latest version of Adobe Flash Player is required to use the Wall.
Anatomical animation by Frank Armitage

Cleaning mess gear

Combat fatigue irritability

Construction of a partial maxillary and mandibular denture

Criminal at large

DDT

DDT, weapon against disease

Dental health
Found 47 results for "dental hygiene".

Dental health

Author(s): United States. War Office.
Date: 1945
Subject(s): Oral Hygiene; Toothbrushing; Tooth - anatomy & histology; Periodontal Diseases; Dentures; Military Personnel

The duties of a dental technician

Date: 1944
Subject(s): Dental Assistants; Military Dentistry

Syllabus of the course of lectures delivered in the Baltimore College of Dental Surgery

Author(s): Harris, Chapin Aaron, 1806-1860; Baltimore College of Dental Surgery.
Date: 1859
Subject(s): Dentistry; Dentistry, Operative; Curriculum

Alguns avisos sobre a conservação dos dentes e sua substituição

Author(s): Guertin, Eugenio.
Date: 1829
Subject(s): Oral Hygiene; Dental Care

Personal hygiene for women. Part 1

Date: 1943
Subject(s): Hygiene; Military Personnel; Women's Health
Title(s):
The duties of a dental technician
United States Navy training film

Author(s):

Publication Date:
1944

Publication Information:
[Washington, DC] : Navy Dept., 1944

Language(s):
English

Format:
Moving image; 019 min.; Black and white; Sound

Subject(s):
Dental Assistants
Military Dentistry

Geographic Subject:
United States

Rights:
The National Library of Medicine believes this item to be in the public domain.

Identifier(s):
See catalog record: 9506964
http://resource.nlm.nih.gov/9506964

Description:
This military training film, primarily for the instruction of dental technicians, shows: room and instrument preparation; making smears and taking X-rays; sterilizing and arranging instruments; preparing cement and amalgam; use of autoclave; procaine preparation; prophylaxis, oral hygiene instruction, etc.

Received: (date unknown) as a donation from the U.S. Navy
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The duties of a dental technician (1944)

[00:08] [National Library of Medicine. HF 1839. This transfer made: 01/12/06 Length: 00:18:10]

[00:29] [This file is unclassified.]

[00:36] [United States Navy Training Film.]

[00:42] [Produced by the Bureau of Aeronautics for the Bureau of Medicine and Surgery.]

[00:50] [The Duties of a Dental Technician.]

[01:05] The dental technician is not only a part of the Navy,

[01:07] but a responsible, highly trained specialist in a branch of the medical profession.

[01:13] The dental technician and the dental officer work together with precision and accuracy,

[01:18] with the professional smoothness which compares with that of the finest gun troop.
[11:55] A complete set of **sterile** instruments is always kept in readiness for surgical needs.

[12:50] A **sterile** cloth is always kept folded over the instruments.

[13:57] A **sterile** field pack is placed on the bracket table.

[14:26] Instruments are placed on the **sterile** cloth as they are required.

[14:52] As the dental officer calls for each instrument, the technician handles it with **sterile** forceps.
The duties of a dental technician (1944)

If an x-ray is to be taken, the technician operates the machine.

[03:47] If an x-ray is to be taken, the technician operates the machine.

[05:41] The technician also develops the x-ray he has taken.