The National Medical Knowledge Bank: Commercialization Threshold

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What We Will Cover

• Project Description
• Current Applications
• Status and Plans
• Issues and Lessons Learned
What is a Medical Knowledge Bank?

A knowledge bank is an advanced repository of specialized medical experience and knowledge, featuring easy capture of information, with massive storage and links to a vast selection of supporting resources enabling users to retrieve, collaborate, and learn, any time and place.
National Medical Knowledge Bank Value Proposition

The National Medical Knowledge Bank saves **time**, increases the **quality** of care, and reduces the overall **cost** of treatment and education through **focussed knowledge retrieval** and flexible collaboration.

The NMKB Consortium is focused on developing the capabilities to deliver multimedia-based medical information services to three key markets.

- **Medical Videos**
  - Digital Content Acquisition
  - Validation
  - Data Integrity

- **Medical Sounds**

- **Medical Texts**

- **Medical Images**

- **Medical Sounds**

- **Medical Images**

- **Virtual Medical Environments**

Parallel Object/Relational Database (TOR)

- Initial & Continuing Medical Education
- Health Care Delivery
- Patient Education
CNIDUS Knowledge Bank Web Site

- CNIDUS - Ancient Greek medical school
- Targeted to healthcare practitioners
- Integrated applications
  - Virtual Medical Conferences
  - Nursing Training
  - Case Based Retrieval for Diagnosis/Treatment Determination
  - Disease Domain-specific Literature Search
- Offers Continuing Education credits
- Will use TOR as the scalable, parallel data repository

CNIDUS Web Architecture
Applications

• Virtual Presentations
  – Brain Attack Conference
  – Primary Care Grand Rounds with JE/JIT
• Continuing Nursing Education
• Case Finder
• Evidence Finder

Brain Attack Conference - Video with Slide Indexing

• Asynchronous, discretionary viewing
• Lower cost option (travel, time)
• Concept searching
• CME credit, including JE/JIT
• Indexed presentation outlines for fast navigation
• Streaming video/audio with synchronized slides
Primary Care Grand Rounds - Contents and Presentation

Medical Aspects of Non-Small Cell Carcinoma of the Lung, Mitchell Margo, M.D.

Contents

- Introduction
- Cancer Statistics
- Diagnosis
- Radiology Imaging
- Staging
- Staging of Lung Cancer
- Video/clinical presentation
- Hematologic Classification
- Screening for Lung Cancer
- NSCLC (non-small cell lung cancer)
- Signs and Symptoms
- Staging
- Staged Clinical Decision
- Case Study - Followed
- Summary on Staging
- Expected Stages

Intelligent Agent-based Continuing Education - Activity Menu

- Delivers personalized, active education experience
- Problem-based learning
- At convenience of student schedule; can complete in multiple sessions
- Certified CNE credit
- Reusable framework; lowers production cost
- Applicable to other domains
IA-based Continuing Education - HPI Video Interview

- Patient interview video vignettes (streaming video)
- Student selects questions and orders them
- Student evaluated on question choice and order

Case Finder - Retrieval of Similar Cases

- Uses Case-Based Reasoning to Find “Similar” Cases
- Eases clinician’s burden of reading and recalling cases
- Saves clinician time
- Web-based; works with any ODBC database
- Matches complex data
Case Finder - Case Detail

Case Id: 123
Organization: New York University - Department of Neurosurgery
Case Description: Microsurgical clipping of Basilar Artery Apex Aneurysm

Key Disorders
- Diabetes
- Lipid Disorders
- Stroke
- Asthma
- Osteoporosis
- A I D S
- Pneumonia
- Heart Failure
- Hypertension
- Preop Consults

Subtopic
- Epidemiology
- Prevention
- Diagnosis
- Screening
- Treatment
- Non-pharm Rx
- Outcomes
- Cost-Effectiveness

Study Method
- Randomized
- Trial
- Case Study
- Population Study
- Guidelines
- Review Article
- Meta-Analysis
- Cost Benefit Analysis

“Essence of the essence” of recent published literature: abstracts and “pearls”
- Evidence-based; categorized by evidence quality
- Reduces need for colleague consultation
- Accessible, intuitive, relevant
- “Think with me” functionality

Submit Query
Clear

Enter words or phrases, separated by commas:

glucophage
### Evidence Finder: Results

**You matched 6 out of 121 documents**

<table>
<thead>
<tr>
<th>Efficacy of metformin in patients with non-insulin-dependent diabetes mellitus, The Multicenter Metformin Study Group</th>
<th>In obese patients with poorly controlled type 2 diabetes on diet alone, use of metformin titrated to maximal dosage or fasting plasma glucose of &lt;140 mg/dl resulted in significantly improved average glycemic control, compared to placebo. ...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minority Issues in the Management of Diabetes Mellitus - Recommendations</td>
<td>Presented by James Gavin, M.D. at MCP Hahnemann University on 3/3/99 [0 CME credits]</td>
</tr>
</tbody>
</table>

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### Evidence Finder: Results

**EVIDENCE BASED MEDICINE INDEXED DOCUMENT RETRIEVAL**

**Treatment Pharmacologic (Randomized Control-Certified)**

**Pearl**

In obese patients with poorly controlled type 2 diabetes on diet alone, use of **metformin** titrated to maximal dosage or fasting plasma glucose of <140 mg/dl resulted in significantly improved average glycemic control, compared to placebo (hemoglobin A1C 7.1% vs. 8.6%, respectively). In a second study, obese patients with poorly controlled type 2 diabetes despite maximal glyburide therapy had improved glycemic control on glyburide plus **metformin** (titrated as above) compared to those remaining on glyburide alone (hemoglobin A1C 7.1% vs. 8.7%, respectively). Patients changed from maximal glyburide to titrated dose **metformin** had minimal improvement in average glycemic control.

**Abstract**

BACKGROUND: Sulfonylurea drugs have been the only oral therapy available for patients with non-insulin-dependent diabetes mellitus (NIDDM) in the United States. Recently, however, **metformin** has been approved for the treatment of NIDDM. ...
Status and Plans

• All applications running on integrated web site (CNIDUS)

• Commercial launch in late 2000

• Evaluating business organization model for going forward after project end
Joint Venture Organization

• Multiple Companies can offer:
  – Broader experience, and unique skills
  – Access to more resources
  – Different channels to market

• Need to be Prepared to Deal with Change
  – Restructuring, spin-offs, name changes
  – Financial fluctuations
  – Individual organization goal changes

Joint Venture Organization (cont.)

• Cultural/Managerial Differences
  – Short term outlook vs. long term outlook
  – Inter-company task management issue
  – Collaborative decision-making slows down the process

• Development Environment Issues
  – Technology is moving target and forces adjustments
  – Geographic separation makes planning and integration difficult
Lessons Learned

- Listen and be willing to understand and compromise on development objectives.
- Have a written master plan. Define terms!
- Understand users environment and not be afraid of making changes to accommodate changes in the market
- Be prepared for inevitable personnel changes
- Have regular teleconferences, maintaining open communications to improve understanding, and put things in writing
- Develop overriding architecture early and keep reviewing
- Watch the technical environment and incorporate change
- Use yearly demo commitment to establish hard deadlines and help focus team
- Keep technical planning and commercialization planning in sync.
- Hold quarterly technical workshops with standing working committees to maintain standards, ontologies, and architecture
- Communicate, Communicate, Communicate

Intellectual Property Rights

- Intellectual Property Issues are Complex and there Must be Agreement
  - Clarify ownership of any IP that is jointly developed
    - Revenue sharing
    - Right to use in non-JV related developments
  - Profit and non-profit companies deal with IP very differently
    - Non-profits will typically not use IP in future developments
    - Profit organizations will look to leverage and use IP as a competitive advantage
  - Resolution of IP issues takes time, energy, and money
- Lessons Learned
  - Be meticulous up front on IP ownership and potential revenue sharing
  - Document agreements and get all parties directly involved in resolving the issue of IP
Interested in Learning More?

Come see our demo!

Are you a potential
User or User Representative?
Content Provider?
Sponsor?
Investor?

Contact us!!

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