Combining History of Medicine and Library Instruction:  
An Innovative Approach to Teaching Database 
Searching to Medical Students  
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ABSTRACT

Library faculty members at the LSU Health Shreveport Health Sciences Library offer a database searching class for third-year medical students during their surgery rotation. For a number of years, students completed “ten-minute clinical challenges,” but the instructors decided to replace the clinical challenge with an innovative exercise using The Edwin Smith Surgical Papyrus to emphasize concepts learned. The Surgical Papyrus is an online resource that is part of the National Library of Medicine’s “Turning the Pages” digital initiative. In addition, vintage surgical instruments and historic books are displayed in the classroom to enhance the learning experience.

Keywords

database searching, surgery rotation, surgical papyrus, surgical instruments

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INTRODUCTION

Health Sciences Library faculty at the LSU Health Shreveport offer a database searching class to third-year medical students, during their surgery rotation. For a number of years, students completed “ten-minute clinical challenges” in teams. These in-class exercises consisted of specific case scenarios designed to reinforce the search techniques presented in this class. The original purpose of the class was to offer a MEDLINE database searching refresher session, showing the students the latest options and features provided by the PubMed interface. Although this was a good team-oriented approach, the instructors replaced the clinical challenges with a more innovative exercise using *The Edwin Smith Surgical Papyrus* to emphasize concepts presented, while incorporating the history of medicine. In addition to this exercise, a display of vintage surgical instruments and historical surgical monographs is made available to the students for viewing at the end of the session. A photo gallery of the students viewing the display is available at: <http://lib.sh.lsuhsc.edu/surgeryarticle/index.htm>.

This hour-long class is taught every six weeks to twenty medical students. The new approach utilizes the *Surgical Papyrus*, an online resource that is part of the National Library of Medicine’s “Turning the Pages” digital initiative. Students are divided into teams, and each team is assigned a unique case scenario from the *Surgical Papyrus*, a seventeenth-century B.C. medical text with diagnoses and treatments. Team members search current medical literature for therapies that would be available today for conditions and diseases presented in the *Surgical Papyrus*.

THE HISTORY OF MEDICINE AS A TEACHING TOOL

While often neglected in the cramped curriculums of present-day medical schools, the teaching of the history of medicine has long been an important part of the medical profession.
Like any discipline or field of study, medicine has evolved as both a study and a practice since people first tried to heal themselves. While there are undoubtedly other reasons to teach the history of medicine to medical students and new doctors, three appear regularly in literature on the topic: socialization into the profession, imbuing professionals with a healthy skepticism, and understanding the evolution of the practice of medicine.

At its most basic level, teaching medical history serves to pass on beliefs or principles central to the profession, to the next generation. As Loewy notes, this not only helps socialize students, but also preserves the traditions of the profession, such as respect and dedication to the patient, and service to the community. In addition, a deeper understanding of medicine aids in the creation of “professionals rather than merely producing technicians”. The widened perspective that the study of medical history grants students will similarly push their curiosity beyond the limits of their textbooks and impart a greater understanding of their role as a professional.

In addition to providing a necessary introduction into the profession, the study of medical history provides new doctors with a much-needed skepticism towards medical practice. Among the benefits of this skepticism is a willingness to look beyond only the most current research on a treatment, see how treatment has evolved over time, and make a better judgment regarding how to approach a patient. Additionally, this healthy skepticism enables doctors to accept current practice, but not “unreflectively”.

The final benefit of the teaching of the history of medicine is that it grants students an understanding of the evolution of medical practice. Students will gain insight into how concepts of diseases and treatments have changed over time. New doctors will also see that medicine has been shaped by political, social, and economic factors, and by conflicting visions of the field.
Finally, studying medical history gives students an appreciation of past versus current practice and why practice has changed in the manner that it has.²

Though sometimes regarded as a supplementary portion of the curriculum, the teaching of medical history has a rich tradition on which librarians are well-positioned to build. Librarians can play an important role by collecting, preserving, teaching, and providing access to medical history and historical artifacts.⁶

**TEACHING METHODS AND MATERIALS**

Although the original purpose of this class was a PubMed refresher course, librarians discovered that the use of history of medicine resources could enhance the database searching process. After focusing only on PubMed for some period of time, the librarians decided to expand the session to include information on DynaMed and PubMed for Handhelds, as well.⁷,⁸ The rationale was that it would be helpful to add a couple of resources to the students’ arsenal of databases for searching the medical literature.

DynaMed was added because it is an evidence-based clinical reference tool, and it contains topic reviews which offer the students a good starting point for their exploration of clinical topics. PubMed for Handhelds was added because it is a mobile version of PubMed that allows the students to use the PICO (patient, intervention, comparison, and outcome) format when searching the medical literature. Some students prefer using the PICO model when formulating their search strategies, and PubMed for Handhelds provides an online interface for entering and submitting the search query in that format.

Following hands-on practice searches with each of these resources – DynaMed, PubMed for Handhelds, and PubMed – the students are required to complete an in-class exercise. Initially,
this exercise consisted of “ten-minute clinical challenges” based on specific case scenarios 
(Table 1). The students worked in teams to find articles that answered clinical questions 
associated with the scenarios. Then, one student from each group demonstrated the PubMed 
search strategy used by their team so that the other students could not only view the search 
strategy, but also learn how the strategy might be improved upon or expanded.

While the students worked well in teams to answer the clinical challenge questions, the 
librarians decided that a different type of exercise might be more engaging, educational, and fun. 
The objective was to reinforce concepts learned during the hands-on practice portion of the class.

Since this is the “surgery rotation,” the librarians decided to combine surgery and history of 
medicine. The original exercise was replaced, therefore, with one involving The Edwin Smith 
Surgical Papyrus. This is one of the oldest surviving medical texts, and it is available online 
through the National Library of Medicine’s “Turning the Pages” project.

First offered only at kiosks at the National Library of Medicine, “Turning The Pages” is now 
available online. “Using touch-screen technology and animation software, the digitized images 
of rare and beautiful historic books in the biomedical sciences are offered…” Eight books are 
currently available, allowing users to realistically turn the pages, zoom in on images, read 
explanations of the text and access related information about the author and the book.

After the instructors teach database searching, the students are given a brief lecture to 
provide them with background information on the Surgical Papyrus. They are taught that the 
Surgical Papyrus is dated around 1600 B.C. and that the original text was written in ancient 
Egypt’s hieratic, a cursive form of hieroglyphics. This text contains 48 cases, consisting of 
practical treatment options for various injuries and ailments. As a number of the wounds
described in the *Surgical Papyrus* would have been inflicted by swords or knives, as mentioned in Case 4, scholars believe that the text emphasized how physicians might have treated those wounds on the battlefield.⁹

Mr. Edwin Smith, an American archaeologist, purchased the *Surgical Papyrus* in 1862, and his goal was to translate it into English.¹¹ He was unable to complete this project prior to his death, however, and his daughter donated the text to the New York Historical Society in 1906. In 1930, James Breasted translated this work, and a more recent translation was completed by Dr. James Allen of the Metropolitan Museum of Art in New York. Today, the manuscript is part of the historical collections at the New York Academy of Medicine. Volumes 1 and 2 of this manuscript are also part of the Egyptian Collection in The Oriental Institute at the University of Chicago.¹¹

After the medical students are introduced to some basic information on the *Surgical Papyrus*, they are divided into small teams, with each team focusing on a specific case number within the *Surgical Papyrus*. (See a sample case from the *Surgical Papyrus* in Figure 1.) Each team must read the assigned case and report to the class on how the injury or ailment was treated in 1600 B.C. and how the same condition would be treated today. Each group is required to search DynaMed, PubMed for Handhelds, and PubMed for this information, reporting on search strategies used to obtain the information.

During the lesson, the students are shown how to access the resources through the “Surgery” subject portal on the library’s website.¹² Librarians created the subject portal for the Department of Surgery, so that the faculty and staff in the department could access key surgery resources, as well as other library resources, in one place. This portal features important resources for surgery,
and it also includes links to the library’s catalog, databases, e-books, and e-journals. For this class, librarians added links to DynaMed, PubMed for Handhelds, and PubMed to the “Surgery” subject portal. When the librarians began utilizing the *Surgical Papyrus* in the lesson, a link to the electronic version was added to the portal, as well.

When working on this exercise, the students are totally engaged in the process, and they work well in teams to complete the in-class assignment. During the class, the students have indicated that they enjoy the blending of history and surgery, and the comments on written evaluations have been positive as well (Figure 2). In response to the question, “Which activity was the most helpful to you in this class?,” on the evaluation form, students wrote the following: “I found that the papyrus reinforced the lessons for the day,” “The papyrus exercise was very interesting,” “The surgical papyrus and using it to search,” “Using different searches for the papyrus activity,” “Practicing with the papyrus,” and “PubMed for Handhelds, but the papyrus was totally cool!”

Prior to the end of the session, the librarians mention that Dr. Alizera Minagar, a member of the LSUHSC-S clinical faculty in the Department of Neurology, is the lead author of “The Edwin Smith surgical papyrus: description and analysis of the earliest case of aphasia.” The librarians and students locate this article in PubMed, using Single Citation Matcher, to impress upon the students that this ancient work is important to physicians even today!

The librarians felt that the students’ experience would be enhanced with a display of vintage surgical instruments and historical surgical monographs that are made available at the end of the session for a close-up study. A collection of bone-handled scalpels, steel retractors and glass syringes was highlighted by a wood-encased surgical set manufactured by George Tiemann and
Company. This amputation set was used by local physician Dr. John M. Baylis at the Siege of Vicksburg, a Civil War battle that took place from May through July 1863 in Vicksburg, Mississippi.

A few examples of the historic surgery texts available for perusal were A Manual of Military Surgery prepared for the use of the Confederate States of America’s Army and published by Ayres & Wade (1863), a facsimile of The Most Excellent Works of Chirurgerye by Joannes de Vigo (1543), Clinical Lectures on Surgery: delivered at Hotel Dieu in 1832 by Baron Dupuytren (1833), and the 1823 edition of Manuel des Operations Chirurgicales by J. Coster. To reinforce the electronic images provided by “Turning the Pages,” two facsimiles of The Edwin Smith Surgical Papyrus were made available to the students. A complete list of the 24 books used for this class is provided in the Appendix.

During the class, photographs were taken of the students viewing the Surgical Papyrus as well as vintage surgical instruments. To access a photo gallery of these images, click on <http://lib.sh.lsuhs.edu/surgeryarticle/index.htm>.

**NEXT STEPS**

With just a little effort, teamwork, and creativity, the librarians have developed a session that captures the imagination of the medical students while teaching them practical database searching techniques. The next step might be to conduct a survey on the effectiveness of teaching methods, comparing the use of “ten-minute clinical challenges” to the use of cases acquired from the Surgical Papyrus. Such a survey would provide actual data on the effectiveness of these teaching methods, giving other librarians ideas on the techniques to emphasize when planning similar in-class exercises.
In addition, the survey, which could be distributed near the end of the surgery rotation, might include questions on the students’ use of resources covered during the session – such as PubMed, PubMed for Handhelds, and DynaMed.
BIBLIOGRAPHY


Appendix: Books Used in Surgery Class

A catalogue of surgical instruments manufactured and sold by Arnold and Sons, 1876.


Chirurgia è Graeco in Latinum conversa … 1544 facsimile / Nicetas, physician. Editions Culture et civilisation, 1970?

Clinical lectures on surgery, delivered at Hotel Dieu in 1832 by Baron Dupuytren. Translated from the French by A. Sidney Doane. Carter, Hendee & Co., 1833.


Manuel des operations chirurgicales / J. Coster. Chez Crevot, 1823.


Nosographie chirurgicale, ou nouveaux elemens de pathologie / M. le Chevalier Richerand. Caille et Ravier, 1815.


<table>
<thead>
<tr>
<th></th>
<th>PICO</th>
<th>Keywords/Synon</th>
<th>MeSH Terms</th>
</tr>
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<tbody>
<tr>
<td><strong>Population/Problem</strong></td>
<td>The patient is a 40-year-old female diagnosed with carpal tunnel syndrome in the left wrist, seeking long-term treatment success. She would like to avoid surgery, if possible.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Intervention</strong></td>
<td>Wrist splinting</td>
<td></td>
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<tr>
<td><strong>Comparison intervention (if any)</strong></td>
<td>Open carpal tunnel release surgery</td>
<td></td>
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<tr>
<td><strong>Outcome(s) of interest</strong></td>
<td>Long-term reduction of the severity of the pain and paresthesia</td>
<td></td>
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</tbody>
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**What is the clinical question?**

________________________________________________________________________

________________________________________________________________________
Case 6. A head wound with skull fracture, exposing the brain (2.17 - 3.1)

**Title**
Practices for a gaping wound in his head, which has penetrated to the bone, fractured his skull, and exposed the brain of his skull.

**Examination and Prognosis**
If you treat a man for a gaping wound in his head, which has penetrated to the bone, fractured his skull, and exposed the brain of his skull, you have to probe that wound. Should you find that fracture that is in his skull like those ripples that happen in copper through smelting, with a thing in it that throbs and flutters under your fingers like the weak spot of the crown of a boy before it becomes whole for him — that throbbing and fluttering happens under your fingers since the brain of his skull has become exposed — while he bleeds from his nostrils and suffers stiffness in his neck: an ailment for which nothing is done.

**Treatment**
You should sprinkle that wound of his with oil. You should not bandage him. You should not put dressings on him until you learn that he arrives at a turning point.

**Explanations**
As for "which has fractured his skull and exposed the brain of his skull," it is a big fracture, which is open to the inside of his skull and the membrane that covers his brain; it has to fracture so that it gushes from inside his head.

As for "those ripples that happen in copper through smelting," it is copper that a coppersmith pours before he has shaped it into something in a mold, its surface being uneven like wrinkles — that is to say, it is like ripples of pus.
Class Evaluations

At the conclusion of each class session, the medical students are asked to complete an evaluation form to rate the quality of the content and the ability of the instructors. Overall, the evaluation results are very positive.

The latter section of the evaluation form includes an open-ended question, “Which activity was the most helpful to you in this class?” Listed below are a few of their comments, which demonstrate their interest in combining history with current medical practice.

*Which activity was the most helpful to you in this class?*

- I found that the papyrus session reinforced the lesson for the day.
- The papyrus exercise was very interesting.
- The surgical papyrus and using it to search
- The “surprise” activity and papyrus
- Surgical papyrus
- Using different searches for the papyrus activity
- The papyrus assignment
- Practicing with the papyrus
- PubMed for Handholds, but the papyrus was totally cool!