

## Doing a literature search

Dr. Brian J. Maguire

February 2006

One of the purposes of graduate school is to help students become better problem solvers. A crucial skill associated with being a better problem solver is the ability to access and synthesize pertinent information. In fact, the research process is much like detective work; we are faced with a mystery and we set out to solve it. A detective uses many sources of information. For example, the detective might interview witnesses, examine the crime scene and do a computer search to see if similar crimes have been committed in other jurisdictions. Health services researchers may use similar procedures. Those involved in the Pinellas County pediatric drowning study<sup>1</sup> likely interviewed paramedics, reviewed drowning reports and did computer searches to see if other jurisdictions had similar problems, as well as to learn what might have been done to correct the problem.

Suppose some of your co-workers had recently been injured and you were tasked with developing a plan to reduce occupational injuries in your EMS agency. Once you were ready to do the literature search, the first question would be “where do I look?” We have a number of sources of information. For the purpose of this overview we will focus on four general information sources and examine the information available from each.

Google (google.com) is a source of a variety of information. Typical information comes from publicly available web pages such as recent newspaper stories, government web sites, agency websites, college and university websites, commercial and personal websites.

Let's examine the information we might find on Google. Start with the search term EMS. Google responds with over seven million hits that include Eastern Mountain Sports, the European Mathematical Society and a variety of emergency medical sites. Now we enter: ems occupational injuries. Google supplies over 36 thousand hits but we begin to see more specific information. The pages include: APHA (American Public Health Association), CDC (U.S. Centers for Disease Control), NHTSA (National Highway Traffic Safety Administration, BLS (the U.S. Department of Labor, Bureau of Labor Statistics), EMS magazine and the National Library of Medicine's PubMed engine citing an EMS occupational fatalities paper. When we put quotation marks around occupational injuries (search: ems “occupational injuries”) we narrow the returns to under 2,000. If we click on one of them (<http://www.ehjournal.net/pubmed/12447340>) we see the abstract to the fatalities paper. The APHA link displays an introduction to a presentation on the topic.

With 36 thousand hits it may seem like Google supplies all the information we could ever want. However, the reality is that engines such as Google and Yahoo supply merely the tip of the iceberg of available information. This tip of the iceberg may be adequate for most people for many activities, but it is completely inadequate for graduate level work. We want access to the rest of the iceberg.

To do that we will next access three databases through the UMBC library portal. For this exercise you will need your UMBC ID number (the 14 digit number on your ID card) if you are not using a UMBC campus computer. Start at [www.umbc.edu](http://www.umbc.edu) and click on Library, then click on Research Port. Enter your ID number, your name and, select UMBC. (The other log-in option you have is to use the VPN client. See: <http://www.umbc.edu/oit/sans/desktopsupport/downloads> or go log in at <http://vpn.umbc.edu>).

Once you are logged in find these databases.

**CINAHL** contains references for nursing and allied health (including EMS); these magazines tend not to be peer-reviewed and include such publications as JEMS and Emergency Medical Services. After you click on CINAHL, enter EMS on the first line and occupational injuries on the second line. Choose TX All Text; click on Search. Ten results are found; they include the EMS fatality paper, an article by Erich in Emergency Medical Services, a paper about injuries to medical residents on EMS rotations and a paper about EMS injuries by Tortella. Click on the fatality paper; here you will see the paper's search terms and bibliography. Now back page and click on Medline.

**Medline** is a database primarily for peer-reviewed medical articles. It contains references to journals such as JAMA and Annals of Emergency Medicine. (For more information about Medline click on Database Help). Use the same parameters as above and click on Search. The fatalities paper and a paper on injuries by Tortella are both found. Click on the occupational fatalities paper and now you will also see the abstract and, for some papers, if you click on "Find it" you will receive the full text of the article. In this case the full text is unavailable but the abstract can give you information enough to decide if you wish to go to the library for the full text document. Now let's try a variation on the search. Enter the words ems, injuries and workers, one word on each of the three lines, choose TX All Text and click on Search. Now we have 16 hits. From these we might select the following: Ambulance crash-related injuries among Emergency Medical Services workers--United States, 1991-2002; Occupational fatalities in emergency medical services: a hidden crisis; Review of accidents/injuries among EMS workers in Baltimore, Maryland. Those three papers and the Tortella paper (and perhaps a couple of the hits from Google) may offer an excellent overview of the problem and may help you begin to formulate a plan to begin reducing injuries at your agency.

Another helpful database available to you is **Lexis-Nexis**. Among other options, this database can help you find newspaper articles and court rulings from all over the U.S.

There is also a free search option offered by the National Library of Medicine and National Institutes of Health. It is called Pub Med and it is available at: <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?DB=pubmed>. You can try the same Medline searches as above to see what may be available through that site.

Once you have selected the articles you want to review, you may note that some of them are available in full text but for many, only the abstract will be available. There are a number of ways to obtain the full text for these articles. Some might be available on line (e.g. some authors make the full text of their articles available on their personal web sites). To check, enter the title of the paper in Google and see if the paper is available. Another option is that some journals make their papers available through the journal website. Some are available for free but many will charge for each article. Finally, the way we obtain most of the full text articles is to go to the library and copy them. For those of you not near a university library, you may be surprised to find the articles you seek at local libraries or even in a hospital library.

Before you log out, note the large number of databases available to you. They include databases on literature related to education, psychology, sociology and current events. The world is at your fingertips. Learn to use this resource well and you can become a better problem solver.

--

Brian J. Maguire, Dr.PH, MSA, EMT-P  
Graduate Program Director  
Clinical Associate Professor  
Department of Emergency Health Services  
University of Maryland, Baltimore County  
1000 Hilltop Circle  
Baltimore, MD 21250  
Office) 410/455-3778  
Fax) 410/455-3045  
<http://ehs.umbc.edu/>

Reference:

---

<sup>1</sup> Harrawood D. Gunderson MR. Fravel S. Cartwright K. Ryan JL. Drowning prevention. A case study in EMS epidemiology. *Journal of Emergency Medical Services*. 1994; 19(6):34-8, 40-1.