

TITLE: Building an evidence-based semantic knowledge base of obesity and cancer for accessing quality online health information

FACULTY MENTOR: Jiang Bian, PhD, MS
bianjiang@ufl.edu
352-265-2564

CONTACT: Alana Christou, MPH
amc417@ufl.edu
294-5993

FACULTY MENTOR DEPARTMENT

Health Outcomes and Policy

RESEARCH PROJECT DESCRIPTION

Background: Obesity is associated with increased risks of various types of cancer as well as a wide range of other chronic diseases. Existing information on obesity, especially focusing on its relationship to cancer, range from preclinical models and case studies to mere hypothesis-based scientific arguments. At the same time, of the 87% of adults in the United State with Internet access, 72% look online for health information. The quality of health information on the Internet varies widely. Typical consumers cannot translate the vast amounts of health information online into usable knowledge nor assess the quality of this information. Such problems may disproportionately affect people with low health literacy levels, a problem that is overrepresented in underserved populations. This in turn contributes to low health status, especially excess weight. In sum, inaccessibility to high-quality online information impedes an individual's ability to make informed health decisions related to obesity and cancer.

To improve accessibility of online obesity and cancer information, we will develop strategies to build a scalable framework that combines information extraction and crowdsourcing techniques to extract and transform obesity and cancer knowledge from heterogeneous online sources (e.g., relevant scientific literature in PubMed, online health information from WebMD, the Mayo Clinic website, and blog sites) into an evidence-based semantic Knowledge Base (KB).

Hypothesis: A well-formed and evidence-based KB of obesity and cancer can provide the general public a novel resource for accessing high-quality online information that can help them make informed health decisions.

Role of medical student: The primary role of the medical student(s) will be to assist in the extraction of domain knowledge on obesity especially focusing on its relationship to cancer, the development of a formal knowledge representation, and development of a scale to assess the quality of online health information. Expected outcomes include a poster presentation at UF and potentially submission to national meeting and/or writing a manuscript.

In addition, the student(s) will gain joint mentorship from faculty with the Department of Health Outcomes and Policy. Through this mentorship, the student(s) will have the opportunity to engage in biomedical informatics research.

Funding and relevant publications: Current internal efforts by Health Outcomes and Policy allow for this integrated research.

Hesse BW, Nelson DE, Kreps GL, Croyle RT, Arora NK, Rimer BK, Viswanath K. Trust and sources of health information: the impact of the Internet and its implications for health care providers: findings from the first Health Information National Trends Survey. *Arch Intern Med.* 2005;165(22):2618-2624. PMID: 16344419.

Eysenbach G, Powell J, Kuss O, Sa ER. Empirical studies assessing the quality of health information for consumers on the world wide web: a systematic review. *JAMA.* 2002;287(20): 2691-2700. PMID: 12020305.

Modave F, Shokar NK, Peñaranda E, Nguyen N. Analysis of the Accuracy of Weight Loss Information Search Engine Results on the Internet. *Am J Public Health.* 2014;104(10):1971-1978.