

6. Guy, P. Interviewed by: Kei, L. 17 Nov 2011.
7. Lefaivre KA, Levy AR, Sobolev B, Cheng SY, Kuramoto L, Guy P. Changes in first hip fracture rates in British Columbia, Canada, 1990-2004. *Osteoporos Int*. 2011 Nov 22;22(11):2817-27
8. Guy, P. Falling Down: Why do some people's bones break while others' do not. move it! The latest in mobility research-2011 Celebrate research week. St Paul's Hospital. Vancouver, BC. 2011 March 8. Guest Speaker.

# Should Patients, Medical Students, and Healthcare Professionals Use Wikipedia?

Charlie Zhang<sup>a</sup>

<sup>a</sup>Vancouver Fraser Medical Program 2014, UBC Faculty of Medicine, Vancouver, BC

In the September 2011 issue of the UBCMJ, Dr. James Heilman, an ER physician and UBC clinical instructor, encouraged medical students and healthcare professionals to contribute to Wikipedia—a free and easily accessible online encyclopedia—and provided compelling reasons why they should do so.<sup>1</sup> In a 2009 study, English Wikipedia was found to be a more prominent source of online health information than both MedlinePlus and NHS Direct Online, where information is checked for accuracy by licensed medical professionals prior to being published on their websites.<sup>2</sup> These findings lead me to consider if this degree of usage of Wikipedia for healthcare information is truly warranted.

A 2010 study found osteosarcoma information on English Wikipedia to be of inferior quality, in terms of the scope, completeness, and accuracy of information, compared to patient information provided by the U.S. National Cancer Institute (NCI) website.<sup>3</sup> With respect to drug information, Wikipedia was compared with Medscape Drug Reference (MDR), an online database that is also free and easily accessible. Through comparison on eight categories of drug information, including mechanisms of action, indications, and dosing, Wikipedia was found to be able to answer significantly fewer drug information questions compared to MDR (40.0% vs. 82.5%).<sup>4</sup> However, it is worth noting that no factual errors were found in Wikipedia during this study.<sup>4</sup>

I believe, at this time, patients should be advised to utilize currently existing resources such as MedlinePlus, where health topics are categorized in various ways for ease of access, including by body systems and demographic groups. Each article has been reviewed by healthcare professionals and has short, yet descriptive, sections on disease overview, diagnosis, prognosis, treatment, and other related issues.

Contributing to Wikipedia can be a great learning experience in critical reading and academic writing for healthcare students. However, I believe when accessing information for patient management, healthcare providers should rely solely on

reputable, peer reviewed resources. Critical information such as contraindications, adverse drug events, drug interactions, and drug dosing are frequently missing in Wikipedia's drug articles.<sup>5</sup> Additionally, the expertise of contributors cannot be verified. For example, an article on renal failure may have been written by an experienced nephrologist or a person who spent an afternoon reading about the topic. Even if the writer is a licensed physician, written material that has not gone through stringent peer review may be subject to personal bias or external influence,<sup>6</sup> and therefore, it should not be used for patient care. Some may argue that there is no harm in frequent Wikipedia use because students and doctors use it simply as a convenient resource for a quick refresher of what they already know. However, Dr. Peter Marr, a Family Physician in downtown Vancouver, cautions against this kind of usage because "that quick refresher may very well become patient care somewhere down the road" (oral communication, November 2011). Dr. Marr also recommends using the most updated version of the Compendium of Pharmaceuticals and Specialties (CPS) for drug information. The CPS contains Canadian units and guidelines, and all of its drug monographs are based on the best available evidence and have been reviewed by expert physicians and pharmacists.<sup>7</sup>

Nonetheless, I am very appreciative of the type of resource that Wikipedia volunteers are trying to create. Perhaps in the future, when all of the science and medicine articles on Wikipedia are transparent and have been peer reviewed by experts, it can become a comprehensive and reliable source of information for patients, medical students, and healthcare professionals around the world.<sup>8</sup>

## REFERENCES

1. Heilman J. Why we should all edit Wikipedia. *University of British Columbia Medical Journal*. 2011;3(1):32-3.
2. Laurent MR, Vickers TJ. Seeking health information online: does Wikipedia matter? *J Am Med Inform Assoc*. 2009;16(4):471-9.
3. Leithner A, Maurer-Ertl W, Glehr M, Friesenbichler J, Leithner K, Windhager R. Wikipedia and osteosarcoma: a trustworthy patient's information? *J Am Med Inform Assoc*. 2010;14(4):373-4.
4. Clauson KA, Polen HH, Boulos MN, Dzenowagis JH. Scope, completeness and accuracy of drug information in Wikipedia. *Ann*

## Correspondence

Charlie Zhang, czhang@interchange.ubc.ca

- Pharmacother. 2008;42(12):1814-21.
5. Lavsa SM, Corman SL, Culley CM, Pummer TL. Reliability of Wikipedia as a medication information source for pharmacy students. *Curr Pharm Teach Learn*. 2011;3(2):154-8.
  6. Stichler JF. Peer review and the development of a science. *HERD*. 2011;4(3):44-9.
  7. Repchinsky C, editor-in-chief. Canadian Pharmacists Association [homepage on the Internet]. Ottawa, ON: Canadian Pharmacists Association; c2011 [cited 2011 Nov 23]. Editor's Message. Available from: [http://www.pharmacists.ca/cpha-ca/assets/file/store/EditorMessageCPS\\_EN.pdf](http://www.pharmacists.ca/cpha-ca/assets/file/store/EditorMessageCPS_EN.pdf)
  8. Heilman J, Kemmann E, Bonert M, Chatterjee A, Ragar B, Beards GM, et al. Wikipedia: a key tool for global public health promotion. *J Med Internet Res*. 2011;13(1):e14.

# Educate to Prevent: A Look at Concussion Prevention

Amber Jarvie, BSc, BEd<sup>a</sup>

<sup>a</sup>Vancouver Fraser Medical Program 2012, UBC Faculty of Medicine, Vancouver, BC

There has been a push to educate physicians, coaches, parents and students about concussion prevention. A concussion is a mild traumatic brain injury (TBI) caused by a blow to the head.<sup>1</sup> While a concussion is not life-threatening, it can lead to negative outcomes over time including changes in cognition and increased risk of epilepsy, Alzheimer's and Parkinson's Diseases.<sup>1</sup> The Canadian Medical Association Journal published a prospective case series in 2011 looking at the prevalence of concussions in the NHL. The estimated incidence of concussions in the NHL was found to be 1.8/1,000 player hours.<sup>2</sup> They also concluded that post-concussion headache, post-concussion low energy or fatigue, amnesia and an abnormal neurological examination were significant predictors of time off the ice amongst players with TBI.<sup>2</sup> The concussion rates amongst some other sports, however, have been shown to be higher than that of the NHL. Rugby has a concussion rate of 3.8/1,000 athlete exposures, while mixed martial arts (MMA) has a rate of 15.4/1,000 athlete exposures.<sup>3,4</sup> Sports-related head injuries presenting to US Emergency Departments in 2009 showed cycling, football and baseball to be the top three most prevalent causes of TBI.<sup>5</sup>

The Centers for Disease Control and Prevention have created the "Heads Up" online resources for coaches, parents and players, which include the signs and symptoms of TBI and what to do if one suspects TBI. Symptoms of a concussion include headache, dizziness, nausea and feeling unsteady, as well as signs of loss of consciousness, poor coordination, poor concentration and vomiting.<sup>6</sup> Patients may also be confused and disoriented, and may have emotional symptoms such as depression.<sup>6</sup> The CDC has also listed practical tips about how to prevent concussion – how to create a concussion action plan, how to educate others and the importance of monitoring athletes' health.<sup>1</sup> "Think First" is a Canadian non-profit organization that focuses on prevention of

TBI with education-based programs. Not only does their website contain information about concussions, but it also has resources for physicians, including the SCAT2, a sports concussion assessment tool.<sup>6</sup> This tool is a standardized assessment for evaluating concussions.<sup>6</sup> The "Think First" website also offers guidelines for return to play. Physicians are able to direct patients to these sites so they can learn more about concussion prevention, in the hope that we can reduce the number of brain injuries amongst those involved in contact and/or competitive sports. As physicians, we can help educate our patients about concussions and we can use these resources to do so. Education is the key to injury prevention in competitive sports and to a reduction in the number of traumatic brain injuries.<sup>6</sup>

## REFERENCES

1. Centers for Disease Control and Prevention. Injury Prevention and Control: Traumatic Brain Injury. Updated: October 6, 2011. Last Viewed November 1st, 2011. <<http://www.cdc.gov/concussion/index.html>>
2. Benson, BW, Meeuwisse, WH, Rizos, J, Kang, J & CJ Burke. (2011) A prospective study of concussions among National Hockey League players during regular season games: the NHL-NHLPA Concussion Program. *Canadian Medical Association Journal*, 183(8), 905-911.
3. Marshall, SW & RJ Spencer. (2001) Concussion in Rugby: The Hidden Epidemic. *Journal of Athletic Training*, 36(3), 334-338.
4. Ngai, KM, Levy, F & EB Hsu. (2008) Injury trends in sanctioned mixed martial arts competition: a 5-year review from 2002 to 2007. *British Journal of Sports Medicine*, 42(8), 686-689.
5. American Association of Neurological Surgeons. Sports-related head injuries. Updated: July 2011. Last Viewed November 1st, 2011. <<http://www.aans.org/Patient%20Information/Conditions%20and%20Treatments/Sports-Related%20Head%20Injury.aspx>>
6. Think First. Concussions. Last Viewed November 1st, 2011. <<http://www.thinkfirst.ca/programs/concussion.aspx>>

## Correspondence

Amber Jarvie, [ataylorb@interchange.ubc.ca](mailto:ataylorb@interchange.ubc.ca)