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Research Letter

Commercial Sponsorship and Health on the Net Certification of Online Sources of Information about Benign Prostatic Hyperplasia

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Benign prostatic hyperplasia is a common urological condition affecting millions of men worldwide.¹ Consumer oriented health information on the Internet is plentiful and accessible. Recent surveys of U.S. adult Internet habits showed that more than 70% of users had looked for health information online in the last year,² with the majority starting with a simple search engine query.³ However, the quality and reliability of what patients find are not well characterized.

In this cross-sectional study we analyze the online sources of information about BPH that patients most frequently encounter based on 1) website ownership, which may introduce biasing interests, and 2) the World Health Organization accredited Health on the Net standard for high quality information on the Internet.

Health on the Net is a code of conduct for high quality, reliable health information on the Internet, administered by the international Health on the Net Foundation. The code is centered on 8 principles (authority, complementarity, confidentiality, attribution, justifiability, transparency of authorship, transparency of sponsorship, and honesty in advertising and editorial policy) and is the oldest such code for health information online. Websites undergo voluntary

certification and annual recertification of the standard. More information can be found at the Health on the Net Foundation website (www.hon.ch).

Methods

We queried 3 search engines accounting for 96% of U.S. Internet search traffic (Google™, Bing™ and Yahoo!™) with the keywords “benign prostatic hyperplasia,” “prostate enlargement” and “BPH.”⁴ Searches were performed in a cookie-free, cache cleared manner from the same Internet Protocol address to minimize the influence of these factors on results. Searches were conducted daily for 30 consecutive days to account for variation in the rank order of results. The first 20 non-sponsored, English language results were recorded. A ranking system was used to score results, with the first site presented in the results scoring 20 points, the second site 19 points, and so on. Scores were calculated for all sites and platforms to determine cumulative ranks. Ownership data

Abbreviations and Acronyms

AUA = American Urological Association

BPH = benign prostatic hyperplasia

NGO = nongovernmental organization

Key Words: prostatic hyperplasia, health education, consumer health information, internet, search engine

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institutional animal care and use committee approval; all human subjects provided written informed consent with guarantees of confidentiality; IRB approved protocol number; animal approved project number.

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Table.
Characteristics of the most common online search results about BPH

	No. (%)
Website ownership:	
Commercial	78 (64.5)
Academic	19 (15.7)
Government	11 (9.1)
NGO	8 (6.6)
Other	5 (4.1)
Health on the Net certification:	
Certified	47 (38.8)
Noncertified	74 (61.2)

were verified and Health on the Net certification was cross-referenced with the Health on the Net Foundation.

Results

We performed a total of 270 searches. After excluding duplicates we analyzed 121 unique sites by ownership and Health on the Net certification (see table). A majority of the sites (78, 64%) were dot-com sites owned by commercial or for-profit entities, ranging from drug manufacturers to general health information companies such as WebMD®. Sites affiliated with academic medical centers (19, 16%) and government agencies (11, 9%) were less common. Most sites (74, 61%) were not certified by the Health on the Net standard. These findings suggest that

the websites that patients most frequently encounter through online searches are commercially sponsored and have not been certified as reliable information sources based on Health on the Net criteria.

Because not all sites appeared in search results with equal frequency, we ranked results cumulatively and by search platform for all 270 queries (see figure). Despite differences in ranking algorithms among platforms, we found substantial overlap in the ranked results, suggesting that patients encounter the same sites regardless of the search engine used. Cumulatively, more than half of the top 20 most frequent results were commercially owned, including the popular consumer health sites WebMD and HealthCentral. Noncommercial sites included those of academic medical centers, sites affiliated with the National Institutes of Health (NIH), and nonprofit/NGO sites such as the AUA and the Urology Care Foundation (urologyhealth.org).

In terms of reliability about half of the top 20 sites cumulatively and by search platform were certified by the Health on the Net standard (supplementary fig. 1, <http://urologypracticejournal.com/>). After cross-referencing site ownership data with Health on the Net certification status, the majority of certified sites were shown to have commercial ownership, with the exceptions of the Mayo Clinic and NIH (supplementary fig. 2, http://urologypracticejournal.com).

Rank	Cumulative	Google	Bing	Yahoo!
1	Wikipedia.org	Wikipedia.org	Wikipedia.org	WebMD.com
2	MayoClinic.com	MayoClinic.com	MayoClinic.com	Wikipedia.org
3	NIDDK.NIH.gov	NIDDK.NIH.gov	MedicineNet.com	MayoClinic.com
4	WebMD.com	WebMD.com	HealthCentral.com	MedicineNet.com
5	MedicineNet.com	NLM.NIH.gov	WebMD.com	NIDDK.NIH.gov
6	NLM.NIH.gov	MedicineNet.com	NIDDK.NIH.gov	NLM.NIH.gov
7	Medscape.com	Medscape.com	NLM.NIH.gov	About.com
8	HealthCentral.com	Drugs.com	UMM.edu	Thefreedictionary.com
9	Drugs.com	Reference.com	Medscape.com	Medscape.com
10	Thefreedictionary.com	Urologyhealth.org	About.com	Reference.com
11	Reference.com	ClevelandClinic.org	HealthCommunities.com	HealthCentral.com
12	About.com	Healthline.com	Thefreedictionary.com	UMM.edu
13	Urologyhealth.org	Guideline.gov	Reference.com	Drugs.com
14	HealthCommunities.com	Patient.co.uk	Familydoctor.org	Ezinearticles.com
15	UMM.edu	Familydoctor.org	Urologyhealth.org	HealthCommunities.com
16	Familydoctor.org	AUAnet.org	EmedTV.com	Urologyhealth.org
17	Patient.co.uk	Cancer.gov	Drugs.com	NYtimes.com
18	ClevelandClinic.org	Thefreedictionary.com	Patient.co.uk	PCF.org
19	AUAnet.org	NYP.org	Ezinearticles.com	Emedicinehealth.com
20	Ezinearticles.com	JHU.edu	AUAnet.org	AUAnet.org

Figure. Online search results about BPH ranked cumulatively and by search platform. Color indicates site ownership, with commercial or for-profit in blue, academic in orange, government organization in green and nonprofit or NGO in purple.

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