



Rebekka Nunn

Jonathan Sandler

Orthognathic Surgery: What Type of 'Information' is Available to Patients on the Internet?

Abstract: The Internet has fast become a very easy and familiar way for patients to access healthcare information. In the dental field there are few papers covering this subject and information about the quantity and quality of information available over the Internet is lacking. This paper aims to investigate the information available, to give dental practitioners an appreciation of the amount and variety of information that their patients can access.

Clinical Relevance: As more of our patients turn to the World Wide Web as a source of health information, it is becoming ever more important that we, as health professionals, have an understanding of the amount and quality of the information that is available.

Ortho Update 2013; 6: 25–28

The Internet is now extremely accessible and is therefore a fast and easy way for our patients to seek out health information. One survey found that 55–80% of patients use the Internet to look for healthcare information.¹ The Internet has hugely increased patient access to health information through dedicated websites, YouTube videos and discussion fora but whether the information is reliable and accurate remains questionable.²

A survey of Internet usage amongst dental patients showed that the majority accessed the Internet daily and that every third patient had either looked themselves or knew a family member who had used the Internet to research a dental or oral condition.³ The most common reasons for patients accessing online health sites are:

- For information about a condition;
- For details of possible treatment; or
- For advice about symptoms and advice regarding treatment.⁴

It is to be expected that patients would use the Internet to do their own

research about orthognathic surgery, before or following consultation with health professionals.

The myriad of sites available have a wealth of information, but how much of this is relevant and, indeed, accurate? Information posted on the Internet is not subject to the peer review process and healthcare information can be posted by anyone, regardless of whether or not they hold a professional qualification.⁵

As dental professionals, we are well aware of the importance of an evidence base and peer review, but the same cannot be said for most of the general public. It is therefore very difficult for a patient to discern the relevance of the information that they find on the Internet.⁶ The general public rarely notice the source of the information encountered, which could lead to patients visiting misleading or poor quality sites, without necessarily realizing.⁵ It is important as healthcare professionals that we have knowledge about the quality and reliability of the information available to our patients. We need to be in a position

to educate our patients and guide them towards quality information.

This paper aims to assess the amount of web-based information available to patients and to form an overall assessment of the breadth of information covered. It is not designed to assess the quality of this available information, but to act as a snapshot of what a patient may encounter.

Methods

An initial search was carried out using three of the most popular search engines on the World Wide Web; Google (www.google.co.uk), Yahoo (uk.yahoo.com) and MSN (uk.msn.com).⁷ The search engine was used with default settings only (ie no settings were changed by the researcher). It was performed over a one-week period in November 2011. The search terms used were 'orthognathic surgery' and 'jaw surgery'.

It is unlikely that a patient will search past the 20 highest ranked links,⁸

therefore only the first 25 links of each search engine were considered, resulting in a total of 75 links to be considered.

Websites that were excluded included: discussion groups, video clips, personal blogs, scientific articles and blatant advertisements. Any websites which required a fee to access them or links from other websites were also not included. Duplication of websites between the three search engines was also excluded.

The websites were evaluated against a checklist (Table 1) including the following items:

- Type of website;
- Information regarding patient eligibility;
- Risks and benefits;
- The country of origin;
- Presence of a direct contact mechanism;
- Presence of the Health On the Net Foundation (HON) quality label;
- Evidence of the use of scientific references; and
- Evidence of updates to the website.

A two-point scale (yes or no) was used to evaluate whether the information was present on the website or not.

The type of website was classified by close scrutiny of the website content.⁹ Academic classification would include websites affiliated with a university or research group in a hospital. Professional classification was when it was written by an identifiable healthcare professional, but not affiliated with a university or research group. Professional Promotional classification included individual practice websites and commercial would indicate a marketing tool for a product or service. If the website did not fit the criteria above it was listed as unknown.

The criteria for patient eligibility and risks/benefits were simply assessed on a two-point scale (yes or no) regarding referral to these particular subjects. A direct contact mechanism was termed a contact address, email or phone number posted on the website.

With regards to presence of the HON quality label, websites were again assessed on a two-point scale (yes or no) as to whether the label was present. HON is a non-profit making organization based in Switzerland that is able to evaluate and certify the content of websites. It evaluates the websites with regards to authority, confidentiality, justifiability, attribution, authorship transparency, sponsorship and advertising. HON certification is available free to those who apply and is widely used to assess the reliability of search results in many areas of medicine.¹⁰

The country of origin was

Set Criteria	
Type of Website:	Academic Professional Professional Promotional Commercial Unknown
Patient Eligibility Information	Yes/No
Risks/Benefits Information	Yes/No
Presence of Direct Contact Mechanism	Yes/No
Presence of HON quality label	Yes/No
Country of origin	
References	Yes/No
Updates	Yes/No

Table 1. Set criteria used in the evaluation.

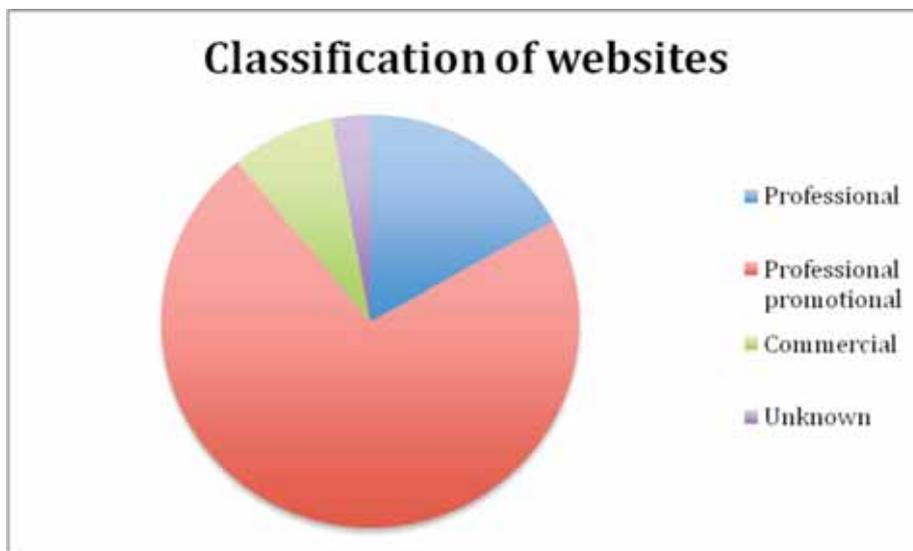


Figure 1. Type of orthognathic website.

found where possible by scrutinizing the website. If a country of origin was not discernible from the website then a result of unknown was recorded.

The references and updates were again assessed on a two-point scale and a simple 'yes' or 'no' answer recorded for this, depending on whether citations to scientific literature were made and if a date of website update was clearly visible.

Results

Following the initial search using keywords 'orthognathic surgery' and 'jaw surgery' Google returned a total of 172,000 links while Yahoo and MSN each returned 137,000 links. The websites were assessed starting from the highest rank in the search engine working down to rank number 25. There were 75 websites viewed in total. Of these, 36 of

the websites were scored, 12 websites were excluded and 27 websites were repetitions between the search engines. A table of the individual websites is shown in Table 2.

The 36 websites scored were all in English, although one website also had the option of viewing the content in Spanish. Of the websites scored, 26 (72%) were deemed to be Professional Promotional, 6 (17%) Professional, 3 (8%) were Commercial and 1 (3%) Unknown. There were no academic websites in the highest 25 links of any search engine (Figure 1). Of the total websites scored, 26 (72%) mentioned patient eligibility but only 17 (47%) actually mentioned risks/benefits of orthognathic surgery. There was a 'direct contact' mechanism available for 31 (86%) of the websites. No websites with the HON quality label were found during these searches.

1	www.aaoms.org/jaw_surgery.php
2	www.en.wikipedia.org/wiki/Orthognathic_surgery
3	www.austinoms.com/ourservices/orthognathic_surgery.html
4	www.bowleroms.com.au/procedures/orthognathic.html
5	www.novasurgicare.com/corrective-jaw-surgery.html
6	www.jdnheidi.com/heidi/preop-guide.html
7	www.aoms.co.nz/Treatments.../Orthognathic-Jaw-Surgery/default.asp
8	www.omscmn.com/oral-surgery-edina.../jaw-surgery_edina_mn.html
9	www.faceandjawsurgery.com/oralsurgery_nd/jawsurgery.html
10	www.omspartners.com/procedures/jawsurgery.html
11	www.borealisplasticsurgery.com/orthognathicsurgery/
12	www.lpch.org/DiseasehealthIntro/Healthlibrary/.../maxface.html
13	www.agaveclinic.com/EN/orthognathic.php
14	www.iomsa.com/oral-surgery-indianapolis/jaw-surgery.html
15	www.facesurgeon.com/proc/proc-orth.html
16	...>Reconstructiveoralsurgery">www.whcenter.org>...>Reconstructiveoralsurgery
17	www.omscenters.com/oral-surgery_/jaw-surgery-wattinsler_pa.html
18	www.orthognathicsurgery.info.en
19	www.drflfish.com/oral_surgery-chandler/jaw-surgery.html
20	www.ehow.com/how_2000944-survive-jaw-surgery
21	www.cosmeticdentistryguide.co.uk/articles/orthognathic-surgery.html
22	www2.massgeneral.org/.../procedures-orthognathic.asp
23	www.millsmedical.com/jaw-surgery
24	www.shaping-faces.com/services/orthognathic-surgery.php
25	www.smilesolutions.com.au/.../orthognathic-jaw-surgery
26	www.molensurgery.com/oral-surgery/jaw-surgery.html
27	www.indiadentalclinic.com/.../orthognathic-surgery-india.php
28	www.hpcsurgery.com/orthognathic-surgery.html
29	www.forthworthoralsurgery.com/pages/orthognathic.htm
30	www.orthodonticspecialist.co.uk/Orthognathic_Jaw
31	www.emsurgery.com/oral_surgery_san_diego/jaw-surgery.html
32	www.iowaoralsurgery.com/procedures/orthognathic_surgery.html
33	www.oralsurgeryplus.com/procedures/orthognathic.html
34	www.droralsurgery.com/orthognathic.asp
35	www.onlinetoothdoctor.com/jawsurgery.html
36	www.foothillofs.com/oral_surgery_simpsonville/jaw_surgery.html

Table 2. Web addresses of the individual websites studied.

The country of origin showed that 25 (69%) of the websites originated from the USA, UK-based websites accounted for 6 (17%), Australia 2 (5%), Europe 1 (3%), New Zealand 1 (3%) and India 1 (3%) (Figure 2).

Of all the websites scored,

only one website cited any references (3%) and 4 websites (11%) showed evidence of having been updated in the previous 12 months.

The 12 excluded websites were excluded for the following reasons: they were discussion groups, video

clips, personal blogs, scientific articles, advertisements, or websites that required a fee to access them.

Discussion

The aim of this paper was to investigate the nature of information available on the World Wide Web for patients undergoing orthognathic surgery. It was purely meant to be a snapshot of what information is available to patients.

The Internet is an extremely accessible, easily available, rapid and simple way for the majority of people to access information. For many patients it may now be their primary source of information.⁵ Of American adults, 60% have been shown to use the Internet as a source of health information and patients in the UK are probably comparable. This access to a wealth of information should be viewed positively but the quality of the information available is of concern.

It can be exceedingly difficult for patients to assess the reliability and accuracy of the plethora of information that is available to them on the Internet. Overall, the information available over the Internet on orthognathic surgery was variable. There is clearly a huge volume of information available to patients, with Google returning 172,000 links, Yahoo 137,000 and MSN 137,000. The majority of the websites, however, were advertisements for individual practices, many of them originating from the USA with little evidence of a scientific basis and often little evidence of regular updating.

The search engines used were selected as they are three of the most popular used on the World Wide Web.⁷ There are, however, other popular search engines available, such as AOL (www.AOL.com), Ask Jeeves (www.ask.com), Bing (www.bing.com) and many others, and significant overlap between the three search engines. The Google search tool accounts for almost 72% of all web searches⁸ and so it is highly likely that this search engine will be the one used by most potential patients.

The preliminary investigation carried out does, however, have some limitations. First, as the search was carried out during one week in November 2011, the findings can only act as a snapshot of the websites available. There will of course be new sites appearing all the time or updates to existing sites, as new information becomes available.¹¹ Secondly, the search engines used were those that are commonly available to the general public. Medical search engines such as Medline were not used for the purposes of this investigation. The research was carried out

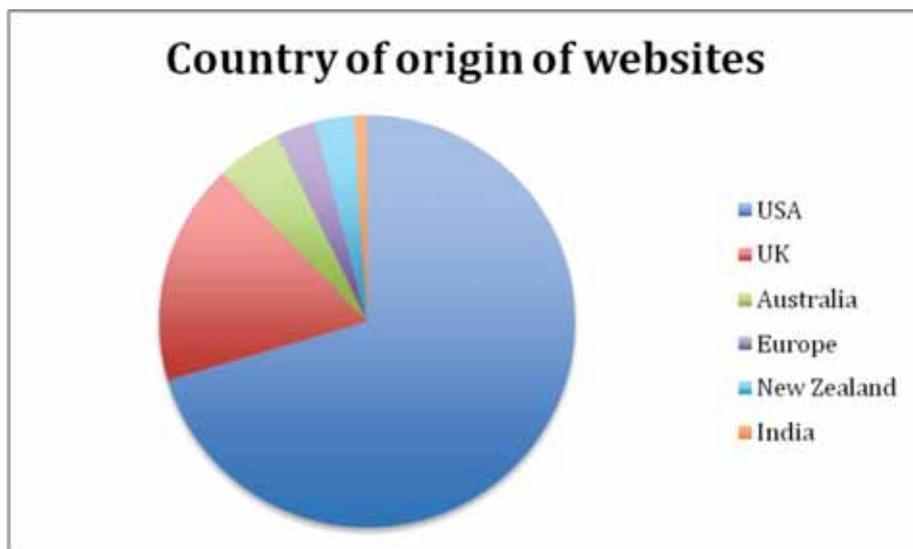


Figure 2. Where the orthognathic website was created.

by a single researcher, therefore increasing reliability and preventing any inter-observer differences in scoring of individual websites.

It is difficult to compare this study with others⁸ examining information available on orthognathic surgery owing to the difference in quality of the assessment tools used. Further research could address these limitations. The production of a system for quality assessment of websites, however, remains problematic.

Possible improvements to the study would be to use the 'DISCERN' software tool (www.discern.org.uk/discern_instrument.php), which assesses the quality of internet information using 16 questions about the reliability and quality of the written information. This gives a maximum score for each website and would give a more objective representation of the websites surveyed. Other scoring tools such as the LIDA score¹² and Flesch reading score¹³ could also be used to evaluate the websites in further detail.

Overall, we saw that there is a great deal of information available on the Internet, but it is not easy to obtain wholly relevant and credible information owing to the lack of academic and peer reviewed websites available. The majority of the websites in the Professional Promotional category are purely to promote the services of different clinics. Although it is to be hoped that the information displayed here would be truthful and impartial, this cannot be guaranteed. Many of the websites originate from the USA. Very few cite scientific references or appear to be regularly updated. Fewer than one half of the websites mentioned anything about risks or benefits associated with the treatment

(which is surely the most important piece of information for the patients) and no websites displayed the HON quality label.

There also appears to be a poor representation of professional websites. Neither the British Dental Association nor the British Orthodontic Society websites featured in the first 25 links of these search engines, which is of concern. The highest ranked links (and therefore the most likely to be accessed by our patients) in a search engine are unfortunately not always the highest quality websites.

Conclusions

We are now in an age where the Internet is used on a daily basis as a major source of information for many of our patients. The Internet being the constantly changing and non-peer reviewed entity that it is will result in sound and reliable information being displayed alongside information of dubious provenance.

This investigation has shown that there is a wealth of information out there for patients, the reliability and accuracy of which is questionable. Further investigations should attempt to address ways in which to assess and score this information objectively, perhaps by the use of a common quality assessment tool. Improvements in the information made available on orthognathic surgery are certainly necessary. It is our duty as dental professionals to have a good knowledge of the information readily accessible so that we are able to communicate with our patients with regards to sound websites,

steering them away from less desirable sources of information.

References

- Hanif F, Read JC, Goodacre JA, Chaudry A, Gibbs P *et al*. The role of quality tools in assessing reliability of the internet for health information. *Inform Health Soc Care* 2009; **34**: 231.
- Stinson JN, Tucker L, Huber A, Lin C, Cohen L, Gill N. Surfing for juvenile idiopathic arthritis: perspectives on quality and content of information on the Internet. *J Rheumatol* 2009; **36**: 1755–1762.
- Magunacelaya MB, Glendor U. Surfing for mouth guards: assessing quality of online information. *Dent Traumatol* 2011; **27**: 334–343.
- Eysenbach G, Jadad AR. Evidence-based patient choice and consumer health informatics in the Internet age. *J Medical Internet Res* 2001; **3**: e19.
- Patel U, Cobourne MT. Orthodontic extractions and the Internet: Quality of online information available to the public. *Am J Orthod Dentofacial Orthop* 2011; **139**: e103–e109.
- van der Marel S, Dijkstra M, Hardwick JC *et al*. Quality of web-based information on inflammatory bowel diseases. *Inflamm Bowel Dis* 2009; **15**: 1891–1896.
- Roshan A, Agarwal S, England RJA. Role of information available over the internet: what are the parents of children undergoing tonsillectomy likely to find? *Ann R Coll Surg Engl* 2008; **90**: 601–605.
- Aldairy T, Laverick S, McIntyre GT. Orthognathic surgery: is patient information on the internet valid? *Eur J Orthod* 2011; epub.
- Morr S, Shanti N, Carrer A, Kubeck J, Gerling MC. Quality of information concerning cervical disc herniation on the Internet. *The Spine J* 2010; **10**: 350–354.
- Sajadi KP, Goldman HB, Firoozi F. Assessing internet health information on female pelvic disorders. *J Urol* 2011; **186**: 594–596.
- Berland G, Elliott M, Morales L *et al*. Health information on the internet: accessibility, quality, and readability in English and Spanish. *J Am Med Assoc* 2001; **285**: 2612–2621.
- LIDAInstrument. Available at www.minervation.com/mod_product/LIDA/minervalidation.pdf. Accessed 01/11/2011
- Flesch RA. A new Readability yardstick. *J App Psychol* 1948; **32**: 221–233.