



'Choose and Book': Are we giving patients enough information to make an informed choice? A web-based content analysis.

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3 **'Choose and Book': Are we giving patients enough information to make**
4 **an informed choice? A web-based content analysis.**
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Competing interest statement

All authors have completed the Unified Competing Interest form at www.icmje.org/coi_disclosure.pdf (available on request from the corresponding author) and declare that (1) no authors received funding from any company for the submitted work; (2) no authors have any relationships with companies that might have an interest in the submitted work in the previous 3 years; (3) their spouses, partners, or children have no financial relationships that may be relevant to the submitted work; and (4) no authors have any non-financial interests that may be relevant to the submitted work.

Details of contributions

SR, NC, DK, ASCG – contributed to the initial conception of the study, the development of the protocol and the design of the design of the website assessment template;

SR – obtained ethical approval for the study, performed the website analyses and completed all data entry;

NC – completed analysed the data;

SR, NC, DK, ASCG, MS, SK – contributed to the interpretation of the data;

SR – wrote the first draft of the manuscript;

NC, DK, ASCG, MS, SK – critically reviewed the draft manuscript;

NC – contributed additional text in subsequent revisions of the manuscript;

SR, NC, DK, ASCG, MS, SK – approved the final version of the manuscript.

NC & DK – are guarantors for the study

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Abstract

Objectives: The National Health Service (NHS) “Choose and Book” online scheme, which allows patients to select the location and time of hospital appointments, has now been extended to include the option for patients to select a specific consultant to carry out any necessary treatment. The aim of this study was to determine whether there is sufficient high quality online information about consultants or consultant-led teams for patients to make an informed choice regarding a specific consultant.

Design: A web-based content analysis.

Setting: North of England.

Participants: Two hundred websites of orthopaedic surgeons.

Main outcome measures: The websites were analysed using a bespoke template that took into account recommendations of the 2010 UK Government white paper. Each website was scored in relation to the overall website quality, as well as specific content relating to each surgeon.

Results: The majority of websites detailed authorship information (73.2%), level of professional qualification (98.5%), and area of general (73.7%) and specialist (93.3%) interest. However, approximately 50% of websites provided no information in relation to update cycle, involvement in teaching or research and patient satisfaction. Only five 2.6% of the websites presented mortality rates, and none indicated morbidity rates.

Conclusion: For patients to be able to make informed choices about their healthcare, surgeons need to ensure that sufficient information is available online, according to the identified limitations of the websites investigated in this study.

Keywords: Choose and Book, informed choice, information, web-based analysis, online, internet

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3 Short title: 'Choose and Book': Can patients really make an informed
4 choice?
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7 **Article summary**
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9 **Article focus**

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- The National Health Service “Choose and Book” scheme has been in operation for nearly a decade.
 - The success of the “Choose and Book” policy depends on an adequate amount and quality of online information being available to patients on individual consultants and consultant-led teams.
 - The aim of this study was to investigate the availability and quality of online information relating to consultants and consultant-led teams.

20 **Key messages**

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- The majority of the websites examined included general information, such as each surgeon’s professional qualification and areas of interest.
 - Only half of the websites included more detailed information about involvement in teaching or research, or patient satisfaction.

27 **Strengths and limitations**

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- This study was the first to examine the availability and quality of online information relating to individual consultants in the United Kingdom.
 - The study focussed on the websites of orthopaedic surgeons in the north of England, and future studies should extend this analysis to other fields of medicine, and across a wider geographic area.

Introduction

The Department of Health's publication 'Better Information, Better Choices, Better Health: Putting Information at the Centre of Health' stressed the need for high quality information about National Health Service (NHS) organisations to be available for patients. This includes accurate, comprehensive and understandable information, along with provision for ease of accessibility¹. The quality of information available is also central to the overall quality of patient experience within the NHS², suggesting the importance of healthcare providers presenting all the necessary information appropriately, including accurate and relevant data and sources.

The electronic 'Choose and Book' referral system has been in operation since 2004³. This service was originally intended to give patients in England a choice of place, date and time of their first outpatient appointment. The government recently extended this service to include choosing between individual consultant-led teams³. In order for patients to make such a choice, it is essential that they have high quality, comprehensive and easily accessible information about relevant consultants available to them, thus making their choice appropriately informed.

The 2008 national Omnibus survey reported that 65% of British households have internet access compared to only 46% in 2002⁴. Currently, both healthcare providers and patients use internet-based sources regularly^{5,6}. Indeed healthcare professionals have been increasingly faced with

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3 challenging questions from patients based on information found online,
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5 despite concerns about the quality of web-based information when it comes to
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7 health issues^{5,6}.
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11 Despite the importance of high quality information being available online to
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13 patients to allow them to make informed choices in terms of consultant-led
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15 teams, no research to date has examined whether such information is
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17 available. The aim of this study was to determine whether the information
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19 available regarding individual consultants is of sufficient quality to allow
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21 patients make appropriately informed choices.
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28 **Method**

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33 The names of 200 consultant orthopaedic surgeons across the north of
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35 England were selected to be included in the web-based content analysis.
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37 These names were obtained from representatives of the Royal College of
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39 Surgeons. In order to be included in the study, the consultants had to
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41 currently be:
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- 46 a – employed within an NHS hospital in the north of England;
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48 b – practicing as a qualified consultant orthopaedic surgeon; and
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50 c – registered with the Royal College of Surgeons.
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56 An internet search was performed between May and August 2011 using the
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58 strategy derived by Biermann et al⁷. Each orthopaedic consultant's full name
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3 was entered into the seven most commonly used English language search
4 engines (applicable at the time of our search): AOL, Google, Lycos, MSN,
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7 Netscape, Askjeeves and Yahoo. The first five relevant resultant links were
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9 used for initial evaluation, as it has been previously suggested that
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11 subsequent results are usually duplicates⁸ and that searchers are successful
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13 in obtaining information needed by searching up to five top web links⁹. We
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15 assumed searches performed by the general population would be superficial
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17 approach searches as performed by novice, rather than expert, users^{10,11,12}.

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23 An assessment tool was developed and used in assessing website content
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25 and quality (Table 1). This comprised two main parts. Part A was designed to
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27 answer questions on the websites themselves, including each website's
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29 accessibility, update cycle, availability of authorship information, type of
30
31 author, target audience, and whether the website was used for any kind of
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33 promotion or advertisement. Part B was designed to analyse the content of
34
35 the websites, focusing on information about individual surgeons. In developing
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37 part B of the assessment tool, a focus group (n=18) was used, consisting of a
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39 consultant surgeon, a research physiotherapist, academic researchers, junior
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41 and senior medical doctors and nurses. A template was produced with a view
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43 to gathering as much information as possible about consultants, to include
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45 such items as are regularly used by medical staff for self-promotion (e.g.
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47 Curriculum Vitae). These included their highest level of qualification, areas of
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49 general interest and/or any specialist interests, whether they were involved in
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51 research projects and/or whether they had published research, morbidity
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53 rates, mortality rates levels of patient satisfaction, and whether a photograph
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3 of the surgeon was available on the website. The websites were also
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5 examined to determine whether surgeons were involved in teaching or had
6
7 any management experience.
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11 Websites that were found not to contain any relevant information were
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13 excluded. The relevant websites on each search engine were evaluated for
14
15 suitability to be rated. From the websites returned by each search engine, the
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17 web page with the most information for each consultant, as per the
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19 assessment tool, was subsequently used for the study.
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25 All data were entered into a spread sheet in Microsoft Excel. For each item
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27 illustrated in Table 1, frequencies for each scoring category (e.g. yes/no) were
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29 determined. These frequencies were also expressed as a percentage of
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31 either the total sample, or a relevant smaller sample.
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39 *Ethical considerations*

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42 Ethical approval was obtained from the University of Teesside ethical
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44 committee. Consultant names were used only to identify websites and gather
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46 information with regards to their content. The names were not included in the
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48 template or in any other part of the study. There was no mention of the names
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50 of the websites studied, and the data were collected through a pre-prepared
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52 questionnaire examining content of the websites without the use of any
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54 quotations from the websites themselves. All information evaluated was in the
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3 public domain. We therefore were not required to seek consent specifically
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5 from the individual consultants or websites.
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11 **Results**

12 *Part A: Analysis of description of website*

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21 Websites for the vast majority of surgeons (194, 97.0%), were easily
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23 accessible. Six (3.0%) were not accessible, either because relevant web
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25 pages were not found within the first five results in each of the search
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27 engines, or because pages like social media, dictionary or a completely
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29 different person's profile were found.
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34 In terms of the availability of authorship information, 142 (73.2%) websites
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36 had authorship information described on the website. The authors of the
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38 websites were variable and included professional organisations (21, 14.8%),
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40 instrument companies (39, 27.5%), educational institutions (10, 7.0%), for-
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42 profit organisations (7, 4.9%) and others such as advertisement companies
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44 (65, 45.8%).
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50 Eighty six (44.3%) websites did not state the last date of website update
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52 (Table 2). Of those that did, most were updated between 13 to 18 months ago
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54 (40, 20.6%). One hundred and eighty three (94.3%) websites specified the
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56 target audience (Table 3), the vast majority of which were aimed at patients
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3 and the general public. Only 25 (12.9%) websites did not contain any
4 promotional messages (Table 4). Advertisement and product promotional
5 messages were seen in approximately half of all websites.
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10 11 *Part B Analysis of website content* 12

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16 The second part of this study looked at the quality of information available on
17 individual surgeons. A photograph of the surgeon was not available in 15
18 (7.7%) websites. Almost all the websites studied provided some detail of
19 qualifications of the surgeons (191, 98.5%), with the majority (185, 95.4%)
20 stating their highest level of qualification as Fellow of the Royal College of
21 Surgeons (FRCS). Two (1.0%) included primary medical qualifications as the
22 highest academic recognition received, with four (2.1%) stating other
23 academic qualifications.
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36 None of the websites presented morbidity rates (defined as any postoperative
37 complication directly related to the procedure such as infection, neurovascular
38 damage, dislocation, stiffness, etc.); however, mortality rates from a few
39 procedures were mentioned on 5 (2.6%) websites.
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48 Less than half of the websites (85, 43.8%) detailed involvement by the
49 surgeon in teaching or give any indication that might reflect on teaching skills,
50 such as teaching qualification(s) of the surgeon. Sixty three websites (32.5%)
51 provided details of any management and/or leadership skills relating to the
52 surgeon.
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5 Information in relation to general areas of interest were available on 143
6 (73.7%) websites, and a higher proportion of websites included details of
7 specialist areas of interest (181, 93.3%). Approximately half of all websites
8 provided details of whether surgeons were involved in research, or evidence
9 of involvement in publication of research (Table 5).
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19 Patient satisfaction was categorised as excellent, good, average, poor, or not
20 given. Half of the websites gave no information on patient satisfaction (98,
21 50.1%). Thirty (15.5%) websites provided good ratings for patient
22 satisfaction, and 65 (33.5%) websites showed average ratings (Table 6).
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32 **Discussion**

33 *Principal findings*

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36 The majority of websites studied were accessible, however there are
37 questions regarding the authorship and availability of the last date of update.
38 This is particularly important as studies have found that patients prefer
39 websites run by recognisable healthcare organisations or professional
40 groups^{19,20}. Several essential criteria have been described for quality of
41 health websites, including disclosure of site owner, authors and update
42 cycle²¹. Items such as documenting the target audience have been regarded
43 as an important aspect of successful online resources and the website
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3 content should be tailored in a way such that the target audience should
4 always be emphasised²². Nearly half of the websites analysed targeted other
5 sectors and not patients. This could create confusion and reduce the
6 specificity of websites to patient needs.
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14 With regards to individual surgeons, having a photograph of the surgeon on
15 the website is important to allow patients to recognise whom they will be
16 treated by. The presence of profile pictures in websites has previously been
17 linked to more accurate estimation of personality traits^{23,24}. Hassin and Trope
18 also found that personality could be judged purely on the basis of a facial
19 photograph²⁵. Physical features such as the size of a person's eyes and the
20 shape of their mouth can also influence perceptions of personality²⁶. Nearly
21 all websites provided some information about the qualifications of the
22 surgeon, with the majority stating Fellowship of the Royal College of Surgeons
23 as the highest level attained. Details of a surgeon's qualifications might
24 influence patient confidence and trust in choosing an individual surgeon.
25 Good qualities such as work ethic, reliability, specific knowledge and skills
26 have been linked to having qualifications²⁷. Only a small number of websites
27 reported mortality and none reported morbidity rates. Magee et al found that
28 the majority of patients do not find this information useful in making choices
29 about their healthcare²⁸. Despite this finding, some independent websites
30 report mortality rates for individual hospitals²⁹. If such figures are to be
31 published in the future for individual surgeons or consultant-led teams, it could
32 be useful for patients to also know the number of surgical procedures
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3 performed by each consultant so that these rates can be determined as a
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5 percentage of each consultant's total number of operations.
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10 Only about half of the websites analysed gave any indication of involvement
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12 of the surgeon in teaching related activities. This attribute is a necessity
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14 based on General Medical Council (GMC) guidelines and indicates good
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16 medical practice³⁰. Improved outcomes following surgery have been linked to
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18 pre-operative patient education³¹ suggesting the importance of developing
19
20 teaching skills. Only about half of the websites investigated provided details of
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22 engagement by the surgeon in research or the publication of peer reviewed
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24 articles. The field of medicine is changing continuously and with the
25
26 development of new techniques and procedures, research has become
27
28 fundamental to surgical practice. Research is vital in providing the new
29
30 knowledge needed to improve health outcomes and reduce inequalities³.
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32 Parboosingh³² suggested that there is strong public demand for doctors to
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34 keep up-to-date, stressing the importance of continuing professional
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36 development and even a need for periodic reassessment. Although many of
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38 these consultants are likely to be involved in research activities, it is clear that
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40 this is not adequately portrayed to patients.
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47 Almost half of the websites analysed did not publish any information on
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49 patient satisfaction. The reputation of healthcare organisations for
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51 commitment to quality patient care still stands as the main criteria for patients
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53 in choosing healthcare providers^{33,34}. Measuring and incorporating patient
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55 satisfaction to the culture of healthcare organisations should be a strategic
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3 goal for all healthcare providers³³. Lee reported that 90% of hospitals
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5 currently have some form of patient satisfaction survey and most of the results
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7 are published in a national or regional database³⁵. If a trust fails to maintain
8
9 good patient satisfaction, it will risk rendering poor quality care and loss of
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11 service consumers³⁶. Contrary to this, Fenton et al identified that patients who
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13 were more satisfied had a 26% increased risk of mortality³⁷. They cautioned
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15 against the use of patient satisfaction without further investigation.
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23 *Strengths and limitations of study*

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27 To the best of our knowledge, this is the first study to conduct a
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29 comprehensive analysis of the quality and availability of web-based
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31 information relating to consultant surgeons in any field of medicine. The study
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33 looked at the profiles for consultant orthopaedic surgeons only, and did not
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35 consider other surgical fields. The assessment tool used in this study to rate
36
37 each website was developed in line with the Government's white paper³, with
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39 additional input from a focus group consisting of clinicians and academics.
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41 This tool could be developed further for future studies through involvement of
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43 patient groups to determine which factors they consider to be important in
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45 accessing the information about consultants in order to exercise choice.
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Policy implications and future research

Our study has demonstrated a lack of available and appropriate public information on the quality of care offered by healthcare providers' websites on consultant surgeons. Such information is essential for patients to be able to make an informed choice³⁸. Whilst information on waiting times and technical issues are easy to obtain, other performance indicators such as quality of care and safety issues are more difficult to obtain and interpret³⁹. Our findings are consistent with evidence from others suggesting that patients are insufficiently informed to be able to exercise choice effectively⁴⁰. Future research should examine differences in the quality and availability of online information in other fields of medicine and identify mechanisms that can be introduced to improve consistency in information provision across the healthcare sector to help improve the patient experience.

Conclusions

Despite the government policy encouraging patients to make more choices in relation to healthcare, our findings demonstrate that there is a paucity of data available to patients through online media to allow them to make informed choices about which consultant they wish to be referred to. This finding highlights the need for standardisation across websites that provide information about consultants to patients, or indeed, the need for a centralised online tool that can allow patients to access all the required information about

1
2
3 available consultants. The most notable areas that websites should look to
4 improve are in the reporting of website update cycle, involvement in teaching,
5 research and the publication of research, and patient satisfaction, all of which
6 were only reported by about half of all websites.
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Table 1. Assessment tool/template used to assess (A) the descriptive content of each website and (B) the quality of information contained in each website that is relevant to the surgeon.

Item	Response categories
Part A: Website Description	
Accessibility	easy to open, page not found, no longer exists
Last date of update of information	yes/no; if yes, how old?
Availability of authorship information	yes/no
Type of author	professional organisation, profit organisation, educational institution, instrument company, club, others
Target audience information	yes/no
Type of target audience	general public, healthcare providers, patients, insurers, targeted workers
Part B: Adequacy of content	
Picture of surgeon	yes/no
Highest qualification	primary medical degree, MRCS, FRCS, others
Area(s) of general interest*	yes/no
Area(s) of specialist interest(s)*	yes/no
Mortality rate	yes/no
Morbidity rate**	yes/no
Research	yes/no
Research publications	yes/no
Teaching	yes/no
Management and leadership skills	yes/no
Patient satisfaction	excellent, good, average, poor, not given

* The area(s) of interest include descriptions such as, for example, lower limb surgery, upper limb surgery, spinal surgery, etc. The specialist interest(s) include descriptions such as sports injuries, soft tissue surgery, arthroscopic surgery, trauma surgery, etc.

** Morbidity: complications related to orthopaedic procedure(s).

Table 2: Frequency (%) of websites that indicated last date of update

	frequency
not stated	86 (44.3%)
0-6 months	17 (8.8%)
7-12 months	28 (14.4%)
13-18 months	40 (20.6%)
19-24 months	11 (5.7%)
2-3 years	16 (8.2%)

For peer review only

Table 3: Frequency (%) of websites that targeted specific types of audiences. Each row is not mutually exclusive as some websites targeted more than one type of audience.

	frequency
not stated	11 (5.7%)
general public	139 (71.6%)
health care providers	98 (50.5%)
patients	126 (64.9%)
insurers	21 (10.8%)
target workers	9 (4.6%)

For peer review only

Table 4: Frequency (%) of websites that contained promotional materials. Each row is not mutually exclusive as some websites targetted more than one type of audience

category	frequency
none	25 (12.9%)
product	109 (56.2%)
technique	5 (2.6%)
service	35 (18.0%)
advertisement	96 (49.5%)

For peer review only

Table 5: Frequency (%) of websites indicating involvement in research and/or publishing of research

	Yes	no
Involvement in research	96 (49.5%)	98 (50.5%)
Publications	92 (47.2%)	102 (52.6%)

For peer review only

Table 6: Frequency (%) of websites that stated level of patient satisfaction

	frequency
excellent	0 (0%)
good	30 (15.5%)
average	65 (33.5%)
poor	1 (0.5%)
not given	98 (50.5%)

For peer review only



**Can patients really make an informed choice? An evaluation
of the availability of online information about consultant
surgeons in the United Kingdom**

Journal:	<i>BMJ Open</i>
Manuscript ID:	bmjopen-2012-001203.R1
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Primary Subject Heading:	Health policy
Secondary Subject Heading:	Patient-centred medicine, Health services research, Communication
Keywords:	Choose and Book, informed choice, information, web-based analysis, online, internet

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3 **Can patients really make an informed choice? An evaluation of the**
4 **availability of online information about consultant surgeons in the**
5 **United Kingdom**
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Data sharing statement

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Competing interest statement

All authors have completed the Unified Competing Interest form at www.icmje.org/coi_disclosure.pdf (available on request from the corresponding author) and declare that (1) no authors received funding from any company for the submitted work; (2) no authors have any relationships with companies that might have an interest in the submitted work in the previous 3 years; (3) their spouses, partners, or children have no financial relationships that may be relevant to the submitted work; and (4) no authors have any non-financial interests that may be relevant to the submitted work.

Details of contributions

SR, NC, DK, ASCG – contributed to the initial conception of the study, the development of the protocol and the design of the design of the website assessment template;
SR – obtained ethical approval for the study, performed the website analyses and completed all data entry;
NC – completed analysed the data;
SR, NC, DK, ASCG, MS, SK – contributed to the interpretation of the data;
SR – wrote the first draft of the manuscript;
NC, DK, ASCG, MS, SK – critically reviewed the draft manuscript;
NC – contributed additional text in subsequent revisions of the manuscript;
SR, NC, DK, ASCG, MS, SK – approved the final version of the manuscript.
NC & DK – are guarantors for the study

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Abstract

Objectives: The National Health Service (NHS) “Choose and Book” online scheme, which allows patients to select the location and time of hospital appointments, has now been extended to include the option for patients to select a specific consultant to carry out any necessary treatment. The aim of this study was to determine whether there is sufficient online information about consultants or consultant-led teams for patients to make an informed choice regarding a specific consultant.

Design: A web-based analysis of the availability of information.

Setting: North of England.

Participants: Two hundred websites of orthopaedic surgeons.

Main outcome measures: The websites were analysed using a bespoke template that took into account recommendations of the 2010 UK Government white paper. Each website was scored in relation to the availability of specific content relating to each surgeon.

Results: The majority of websites detailed authorship information (73.2%), level of professional qualification (98.5%), and area of general (73.7%) and specialist (93.3%) interest. However, approximately 50% of websites provided no information in relation to update cycle, involvement in teaching or research and patient satisfaction. Only five (2.6%) of the websites presented mortality rates, and none indicated morbidity rates.

Conclusion: For patients to be able to make informed choices about their healthcare, surgeons need to ensure that sufficient information is available online, according to the identified limitations of the websites investigated in this study.

Keywords: Choose and Book, informed choice, information, web-based analysis, online, internet

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3 **Short title: Can patients really make an informed choice?**
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6 **Article summary**
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8 **Article focus**
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- 11 • The National Health Service “Choose and Book” scheme has been in
12 operation for nearly a decade.
 - 13 • The success of the “Choose and Book” policy depends on an adequate
14 amount of online information being available to patients on individual
15 consultants and consultant-led teams.
 - 16 • The aim of this study was to investigate the availability of online
17 information relating to consultants and consultant-led teams.
- 18

19 **Key messages**
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- 21 • The majority of the websites examined included general information, such
22 as each surgeon’s professional qualification and areas of interest.
 - 23 • Only half of the websites included more detailed information about
24 involvement in teaching or research, or patient satisfaction.
- 25

26 **Strengths and limitations**
27

- 28 • This study was the first to examine the availability of online information
29 relating to individual consultants in the United Kingdom.
 - 30 • The study focussed on the websites of orthopaedic surgeons in the north
31 of England, and future studies should extend this analysis to other fields of
32 medicine, and across a wider geographic area. Future comparisons
33 should also be made to information pertaining to private providers.
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Introduction

The Department of Health's publication 'Better Information, Better Choices, Better Health: Putting Information at the Centre of Health' stressed the need for high quality information about National Health Service (NHS) organisations to be available for patients. This includes accurate, comprehensive and understandable information, along with provision for ease of accessibility¹. The quality of information available is also central to the overall quality of patient experience within the NHS², suggesting the importance of healthcare providers presenting all the necessary information appropriately, including accurate and relevant data and sources.

The electronic 'Choose and Book' referral system has been in operation since 2004³. This service was originally intended to give patients in England a choice of place, date and time of their first outpatient appointment. The government recently extended this service to include choosing between individual consultant-led teams³. In order for patients to make such a choice, it is essential that they have high quality, comprehensive and easily accessible information about relevant consultants available to them, thus making their choice appropriately informed.

A number of online information resources have been developed which allow patients to compare various aspects of different hospitals⁴. However, patients have reported that they would find information about individual specialties or surgeons more useful in choosing their healthcare provider for elective

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3 surgery⁵. Such information, including surgical outcomes, has been available
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5 since 2004 in cardiac surgery⁶. In other fields of medicine, where such
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7 information is not so readily available, patients will have to rely on the
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9 information contained within the websites of individual surgeons, either private
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11 or locally managed.
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16 The 2008 national Omnibus survey reported that 65% of British households
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18 have internet access compared to only 46% in 2002⁷. Currently, both
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20 healthcare providers and patients use internet-based sources regularly^{8,9}.
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22 Indeed healthcare professionals have been increasingly faced with
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24 challenging questions from patients based on information found online,
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26 despite concerns about the quality of web-based information when it comes to
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28 health issues^{8,9}. Despite the increasing proportion of the population that use
29
30 the internet, the use of online information for healthcare choices is still
31
32 relatively low¹⁰. Interventions are clearly needed to improve the ability of
33
34 patients to retrieve, interpret and use information about healthcare
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36 professionals¹¹. To ensure that patients can continue to make informed
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38 choices as their use of online information increases, it is necessary that this
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40 information is available consistently across all surgical fields, not just cardiac
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42 surgery. Indeed this information has generally been criticised in recent years
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44 for not being timely, and having inadequate content¹².
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52 To the best of our knowledge, no studies have identified what information
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54 patients use in selecting the consultant they are referred to. Lim and Eldin¹³
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56 reported that older people were more likely to choose a hospital if they think a
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3 consultant is performing the surgery, suggesting the involvement of a surgeon
4 could be “a proxy for expertise and quality of the clinical care”⁴. Although
5 Boyce et al⁵, investigating motives for choice of hospital, found that patients
6 expressed a key motivation was knowing details of expertise (specialist
7 doctors) within the hospital, suggesting the importance of the skills,
8 experience and expertise of the individual consultants. It has been suggested
9 that websites should also help develop trust within the patient by being
10 provided by organisations that would not directly benefit from advertising a
11 particular consultant¹⁴.
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25 Despite the importance of information being available online to patients to
26 allow them to make informed choices in terms of consultant-led teams, no
27 research to date has examined whether such information is available in a
28 consistent way across a range of consultants. The aim of this study was to
29 evaluate the availability of consultant specific online information to allow
30 patients make appropriately informed choices.
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42 **Method**

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46 The names of 200 consultant orthopaedic surgeons across the north of
47 England were selected to be included in the evaluation of the availability of
48 online information. These names were obtained from representatives of the
49 Royal College of Surgeons. In order to be included in the study, the
50 consultants had to currently be:
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3 a – employed within an NHS hospital in the north of England;
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5 b – practicing as a qualified consultant orthopaedic surgeon; and
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8 c – registered with the Royal College of Surgeons.
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12 An internet search was performed between May and August 2011 using the
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14 strategy derived by Biermann et al¹⁵. Each orthopaedic consultant's full name
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16 was entered into the seven most commonly used English language search
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18 engines (applicable at the time of our search): AOL, Google, Lycos, MSN
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20 (Bing), Netscape, Askjeeves and Yahoo. The first 30 relevant resultant links
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22 were used for initial evaluation, as it has been previously suggested that
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24 subsequent results are usually duplicates¹⁶. We assumed searches performed
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26 by the general population would be superficial approach searches as
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28 performed by novice, rather than expert, users^{17,18,19}.
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35 Websites that were found not to contain any relevant information were
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37 excluded. The relevant websites on each search engine were evaluated for
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39 suitability to be rated. From the websites returned by each search engine, the
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41 web page with the most information for each consultant, as per the
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43 assessment tool, was subsequently used for the study.
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49 An assessment tool was developed and used in assessing website content
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51 and quality (Table 1). This comprised two main parts. Part A was designed to
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53 answer questions on the websites themselves, including each website's
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55 accessibility, update cycle, availability of authorship information, type of
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57 author, target audience, and whether the website was used for any kind of
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3 promotion or advertisement. Part B was designed to analyse the availability of
4 website content, focusing on information about individual surgeons. For part
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7 B, a template was produced with a view to gathering as much information as
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9 possible about consultants, to include such items as are regularly used by
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11 medical staff for self-promotion (e.g. Curriculum Vitae) as well as those items
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13 that have been reported in the literature as being important to patients. An
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15 initial review of a selection of websites was used to identify typical items of
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17 information that are typically presented. These included their highest level of
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19 qualification, areas of general interest and/or any specialist interests, whether
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21 they were involved in research projects and/or whether they had published
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23 research, morbidity rates, mortality rates, levels of patient satisfaction, and
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25 whether a photograph of the surgeon was available on the website. The
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27 websites were also examined to determine whether surgeons were involved in
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29 teaching or had any management experience. Prior to the main web site
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31 analysis, the assessment template was reviewed by clinical staff outside of
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33 the research team, including a consultant surgeon, a research
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35 physiotherapist, academic researchers, junior and senior medical doctors and
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37 nurses (n=18), to ensure that all relevant items had been included.
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All data were entered into a spread sheet in Microsoft Excel. For each item
illustrated in Table 1, frequencies for each scoring category (e.g. yes/no) were
determined. These frequencies were also expressed as a percentage of
either the total sample, or a relevant smaller sample. For those websites that
reported patient satisfaction, associations between satisfaction score (1=poor,

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3 2=average, 3=good, 4=excellent) and involvement in research, publication of
4 research, and involvement in teaching were determined using Chi-square
5 analyses. All Chi-square analyses were performed in SPSS (version 19,
6 IBM). The required level for statistical significance was set at $p < 0.05$.
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16 *Ethical considerations*

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21 Ethical approval was obtained from the University of Teesside ethical
22 committee. Consultant names were used only to identify websites and gather
23 information with regards to their content. The names were not included in the
24 template or in any other part of the study. There was no mention of the names
25 of the websites studied, and the data were collected through a pre-prepared
26 questionnaire examining content of the websites without the use of any
27 quotations from the websites themselves. All information evaluated was in the
28 public domain. We therefore were not required to seek consent specifically
29 from the individual consultants or websites.
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45 **Results**

46 47 48 *Part A: Analysis of description of website*

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54 Websites for the vast majority of surgeons (194, 97.0%), were easily
55 accessible. Six (3.0%) were not accessible, either because relevant web
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3 pages were not found within the first five results in each of the search
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5 engines, or because pages like social media, dictionary or a completely
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7 different person's profile were found.
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11 In terms of the availability of authorship information, 142 (73.2%) websites
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13 had authorship information described on the website. The authors of the
14
15 websites were variable and included professional organisations (21, 14.8%),
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17 instrument companies (39, 27.5%), educational institutions (10, 7.0%), for-
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19 profit organisations (7, 4.9%) and others such as advertisement companies
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21 (65, 45.8%).
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27 Eighty six (44.3%) websites did not state the last date of website update
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29 (Table 2). Of those that did, most were updated between 13 to 18 months ago
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31 (40, 20.6%). One hundred and eighty three (94.3%) websites specified the
32
33 target audience (Table 3), the vast majority of which were aimed at patients
34
35 and the general public.
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40 41 *Part B Analysis of website content* 42 43

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45 The second part of this study looked at the quality of information available on
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47 individual surgeons. A photograph of the surgeon was not available in 15
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49 (7.7%) websites. Almost all the websites studied provided some detail of
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51 qualifications of the surgeons (191, 98.5%), with the majority (185, 95.4%)
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53 stating their highest level of qualification as Fellow of the Royal College of
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55 Surgeons (FRCS). Two (1.0%) included primary medical qualifications as the
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3 highest academic recognition received, with four (2.1%) stating other
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5 academic qualifications.
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10 None of the websites presented morbidity rates (defined as any postoperative
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12 complication directly related to the procedure such as infection, neurovascular
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14 damage, dislocation, stiffness, etc.); however, mortality rates from a few
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16 procedures were mentioned on 5 (2.6%) websites.
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21 Less than half of the websites (85, 43.8%) detailed involvement by the
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23 surgeon in teaching or give any indication that might reflect on teaching skills,
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25 such as teaching qualification(s) of the surgeon. The mean patient satisfaction
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27 score for those involved in teaching was 2.5 ± 0.5 , and 2.1 ± 0.3 for those not
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29 involved in teaching. Chi-square analysis showed a significant association
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31 between involvement in teaching and patient satisfaction ($\chi^2(2)=17.837$,
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33 $p < 0.001$), suggesting that surgeons involved in teaching received higher
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35 patient satisfaction scores than those not involved in teaching. Sixty three
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37 websites (32.5%) provided details of any management and/or leadership skills
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39 relating to the surgeon.
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45 Information in relation to general areas of interest were available on 143
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47 (73.7%) websites, and a higher proportion of websites included details of
48
49 specialist areas of interest (181, 93.3%). Approximately half of all websites
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51 provided details of whether surgeons were involved in research, or evidence
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53 of involvement in publication of research (Table 5). The mean patient
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55 satisfaction score for those involved in research was 2.2 ± 0.4 , and 2.6 ± 0.5 for
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3 those not involved in research. Chi-square analysis showed a significant
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5 association between involvement in research and patient satisfaction
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7 ($\chi^2(2)=15.097$, $p<0.01$). The mean patient satisfaction score for those who
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9 publish research was 2.2 ± 0.4 , and 2.5 ± 0.5 for those not publishing research.
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11 Chi-square analysis showed a significant association between involvement in
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13 research and patient satisfaction ($\chi^2(2)=10.118$, $p<0.01$). These findings
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15 suggest that those involved in research or publishing research receive lower
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17 patient satisfaction scores than those not involved in research
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22 Patient satisfaction was categorised as excellent, good, average, poor, or not
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24 given. Half of the websites gave no information on patient satisfaction (98,
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26 50.1%). Thirty (15.5%) websites provided good ratings for patient
27
28 satisfaction, and 65 (33.5%) websites showed average ratings (Table 6).
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32 33 34 35 36 **Discussion**

37 38 39 *Principal findings*

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42 The majority of websites studied were accessible, however there are
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44 questions regarding the authorship and availability of the last date of update.
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46 This is particularly important as studies have found that patients prefer
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48 websites run by recognisable healthcare organisations or professional
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50 groups^{20,21}. Several essential criteria have been described for health
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52 websites, including disclosure of site owner, authors and update cycle²². Items
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3 such as documenting the target audience have been regarded as an
4 important aspect of successful online resources and the website content
5 should be tailored in a way such that the target audience should always be
6 emphasised²³. Nearly half of the websites analysed targeted other sectors,
7 not patients. This could create confusion and reduce the specificity of
8 websites to patient needs.
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19 With regards to individual surgeons, having a photograph of the surgeon on
20 the website is important to allow patients to recognise whom they will be
21 treated by. The presence of profile pictures in websites has previously been
22 linked to more accurate estimation of personality traits^{24,25}. Hassin and Trope
23 also found that personality could be judged purely on the basis of a facial
24 photograph²⁶. Physical features such as the size of a person's eyes and the
25 shape of their mouth can also influence perceptions of personality²⁷. Nearly
26 all websites provided some information about the qualifications of the
27 surgeon, with the majority stating Fellowship of the Royal College of Surgeons
28 as the highest level attained. Details of a surgeon's qualifications might
29 influence patient confidence and trust in choosing an individual surgeon.
30 Good qualities such as work ethic, reliability, specific knowledge and skills
31 have been linked to having qualifications²⁸.
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50 Only a small number of websites reported mortality and none reported
51 morbidity rates. Magee et al found that the majority of patients do not find this
52 information useful in making choices about their healthcare as it was not seen
53 as linking with clinical quality or was suggested by the patients as being
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3 “frightening”²⁹. Conversely, Burge et al^{30,31} report that patients do consider
4 mortality rates to be important for choice. Despite this finding, some
5 independent websites report mortality rates for individual hospitals³². If such
6 figures are to be published in the future for individual surgeons or consultant-
7 led teams, it could be useful for patients to also know the number of surgical
8 procedures performed by each consultant so that these rates can be
9 presented as a percentage of each consultant’s total number of operations.
10 Depending on a consultant’s area of specialism, it may be that they are
11 referred specific cases which are higher risk. By presenting non-risk adjusted
12 mortality rates could lead to some surgeons appearing to patients, through
13 misinterpretation, as being riskier. Reported mortality rates should be fully
14 risk-adjusted to ensure that appropriate comparisons can be made between
15 different surgeons, and to avoid higher risk patients being declined surgery in
16 an attempt to maintain low mortality rates⁶.
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36 Only about half of the websites analysed gave any indication of involvement
37 of the surgeon in teaching related activities. This attribute is a necessity
38 based on General Medical Council (GMC) guidelines and indicates good
39 medical practice³³. Improved outcomes following surgery have been linked to
40 pre-operative patient education³⁴ suggesting the importance of developing
41 teaching skills. Conversely, involvement in teaching might suggest that
42 surgical procedures are performed by more junior clinical staff under
43 consultant supervision. Older patients have reported as being more likely to
44 choose where they are referred based on whether a consultant will perform
45 the actual surgical procedure¹³, and thus involvement in teaching by the
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3 consultant might modify patient choice to avoid a teaching institution. Our
4 findings suggest that those surgeons who are involved in teaching received
5 higher patient satisfaction scores. This finding must be interpreted with
6 caution, however, as the statistical analysis could only be performed on those
7 websites which reported patient satisfaction, and it is not known whether all
8 surgeons who are involved in teaching actually reported this on their websites.
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10 Clearly, this association should be examined in more detail in future studies
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21 Only about half of the websites investigated provided details of engagement
22 by the surgeon in research or the publication of peer reviewed articles. The
23 field of medicine is changing continuously and with the development of new
24 techniques and procedures, research has become fundamental to surgical
25 practice. Research is vital in providing the new knowledge needed to improve
26 health outcomes and reduce inequalities³. Parboosingh³⁵ suggested that there
27 is strong public demand for doctors to keep up-to-date, stressing the
28 importance of continuing professional development and even a need for
29 periodic reassessment. Although many of these consultants are likely to be
30 involved in research activities, it is clear that this is not adequately portrayed
31 to patients. It is interesting to note that our data suggest those surgeons
32 involved in research or publishing research received slightly lower patient
33 satisfaction scores than those not reporting involvement in research. As for
34 the association between teaching and patient satisfaction, these associations
35 should be read with caution due to the uncertainty about whether every
36 surgeon involved in research or publishing actually reported it on their web
37 page.
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5 Almost half of the websites analysed did not publish any information on
6 patient satisfaction. The reputation of healthcare organisations for
7 commitment to quality patient care still stands as the main criteria for patients
8 in choosing healthcare providers^{36,37}. Measuring and incorporating patient
9 satisfaction to the culture of healthcare organisations should be a strategic
10 goal for all healthcare providers³⁶. Lee reported that 90% of hospitals
11 currently have some form of patient satisfaction survey and most of the results
12 are published in a national or regional database³⁸. If a trust fails to maintain
13 good patient satisfaction, it will risk rendering poor quality care and loss of
14 service consumers³⁹. Contrary to this, Fenton et al identified that patients who
15 were more satisfied had a 26% increased risk of mortality⁴⁰. They cautioned
16 against the use of patient satisfaction without further investigation.
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36 *Strengths and limitations of study*

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40 To the best of our knowledge, this is the first study to conduct a
41 comprehensive analysis of the availability of web-based information relating to
42 individual consultant surgeons in any field of medicine. The study looked at
43 the profiles for consultant orthopaedic surgeons only, and did not consider
44 other surgical fields.
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54 The assessment tool used in this study to rate each website was developed in
55 line with recommendations from the Government's white paper³, and
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3 reviewed by a group of clinicians and academics. This tool could be
4 developed further for future studies through involvement of patient groups to
5 determine which factors they consider to be important in accessing the
6 information about consultants in order to exercise choice.
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11 12 13 14 15 16 *Policy implications and future research* 17

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20 Our study has demonstrated a lack of available public information offered by
21 healthcare providers' websites on consultant surgeons. Such information is
22 essential for patients to be able to make an informed choice⁴¹. Whilst
23 information on waiting times and technical issues are easy to obtain, other
24 performance indicators such as quality of care and safety issues are more
25 difficult to obtain and interpret⁴². Our findings are consistent with evidence
26 from others suggesting that patients are insufficiently informed to be able to
27 exercise choice effectively⁴³.
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40 Future research should examine differences in the availability of online
41 information in other fields of medicine and identify mechanisms that can be
42 introduced to improve consistency in information provision across the
43 healthcare sector to help improve the patient experience. Further research
44 is also needed to evaluate not just the availability of online information, but
45 also the quality, accuracy and reliability of this information, and consistency of
46 information reporting across different trusts. Comparisons should also be
47 made between the information available on both public and private providers.
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5 Although there are a variety of different types of information available to
6 patients to help them make healthcare choices, it is not clear how each of
7 these items link to patient satisfaction and patient outcomes, and our analyses
8 of the associations between patient satisfaction and involvement in teaching,
9 research or publishing are limited by lack of consistency in reporting each
10 item of information. Further research is needed to determine how different
11 items of information link to patient satisfaction. For valid and generalizable
12 results to be obtained, the mechanisms of obtaining patient satisfaction in
13 different trusts will need to be standardised.
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27 This study was an evaluation of the information availability in traditional web
28 pages. In recent years, use of social media has seen a rapid expansion with
29 the majority of people who surf the internet using social media (e.g. blogs,
30 social networks, etc.)⁴⁴. Social media clearly, therefore, has a potential role to
31 play in shaping how future healthcare choices are made⁴⁵. Future research
32 should identify how patients use social media in making choices relating to
33 their healthcare.
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47 *Conclusions*

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50 Despite the government policy encouraging patients to make more choices in
51 relation to healthcare, our findings demonstrate that there is a paucity of data
52 available to patients through online media to allow them to make informed
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3 choices about which consultant they wish to be referred to. This finding
4 highlights the need for standardisation across websites that provide
5 information about consultants to patients, or indeed, the need for a centralised
6 online tool that can allow patients to access all the required information about
7 available consultants. The most notable areas that websites should look to
8 improve are in the reporting of website update cycle, involvement in teaching,
9 research and the publication of research, and patient satisfaction, all of which
10 were only reported by about half of all websites.
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Table 1. Assessment tool/template used to assess (A) the descriptive content of each website and (B) the quality of information contained in each website that is relevant to the surgeon.

Item	Response categories
Part A: Website Description	
Accessibility	easy to open, page not found, no longer exists
Last date of update of information	yes/no; if yes, how old?
Availability of authorship information	yes/no
Type of author	professional organisation, profit organisation, educational institution, instrument company, club, others
Target audience information	yes/no
Type of target audience	general public, healthcare providers, patients, insurers, targeted workers
Part B: Adequacy of content	
Picture of surgeon	yes/no
Highest qualification	primary medical degree, MRCS, FRCS, others
Area(s) of general interest*	yes/no
Area(s) of specialist interest(s)*	yes/no
Mortality rate	yes/no
Morbidity rate**	yes/no
Research	yes/no
Research publications	yes/no
Teaching	yes/no
Management and leadership skills	yes/no
Patient satisfaction	excellent, good, average, poor, not given

* The area(s) of interest include(s) descriptions such as, for example, lower limb surgery, upper limb surgery, spinal surgery, etc. The specialist interest(s) include(s) descriptions such as sports injuries, soft tissue surgery, arthroscopic surgery, trauma surgery, etc.

** Morbidity: complications related to orthopaedic procedure(s).

Table 2: Frequency (%) of websites that indicated last date of update

	frequency
not stated	86 (44.3%)
0-6 months	17 (8.8%)
7-12 months	28 (14.4%)
13-18 months	40 (20.6%)
19-24 months	11 (5.7%)
2-3 years	16 (8.2%)

For peer review only

Table 3: Frequency (%) of websites that targeted specific types of audiences. Each row is not mutually exclusive as some websites targeted more than one type of audience.

	frequency
not stated	11 (5.7%)
general public	139 (71.6%)
health care providers	98 (50.5%)
patients	126 (64.9%)
insurers	21 (10.8%)
target workers	9 (4.6%)

For peer review only

Table 4: Frequency (%) of websites that contained promotional materials. Each row is not mutually exclusive as some websites targetted more than one type of audience

category	frequency
none	25 (12.9%)
product	109 (56.2%)
technique	5 (2.6%)
service	35 (18.0%)
advertisement	96 (49.5%)

For peer review only

Table 5: Frequency (%) of websites indicating involvement in research and/or publishing of research

	Yes	no
Involvement in research	96 (49.5%)	98 (50.5%)
Publications	92 (47.2%)	102 (52.6%)

For peer review only

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Table 6: Frequency (%) of websites that stated level of patient satisfaction

	frequency
excellent	0 (0%)
good	30 (15.5%)
average	65 (33.5%)
poor	1 (0.5%)
not given	98 (50.5%)

For peer review only