

## #Urology: A Systematic Review and Commentary (1489 words)

### **Abstract**

**Objective:** To review the emerging use of social media to enhance urology training and identify any further opportunities in this field. Social media has become ubiquitous for personal use, but its contribution to urology is unknown.

**Methods:** Custom website searches of Facebook, YouTube and Twitter for a range of urological terms was performed. Results were categorised depending on whether the communication was specialist discussion, public discussion or between specialists and the public. The number of 'tweets' per day using the urology hashtag since July 2010 was collated into a graph to assess trend.

**Results:** YouTube was the most used platform for urologists discussing specialist material (46.1%) when compared to Twitter (44.4%) and Facebook (16.7%). Facebook was most used by non-specialists (41.9%) whereas Twitter had many distinct user groups. Use by urologists is increasing.

**Conclusion:** Facebook, YouTube and Twitter are all used differently, reflecting their unique profile of advantages and disadvantages. Social media is an increasingly useful adjunct to traditional teaching methods, providing scope for significant development in urology training through group collaboration, distance learning and research. Social media is a very powerful tool which will continue to revolutionise urology teaching and training.

## **Introduction**

The rise of social media (SoMe) over the last decade has caused a seismic shift in the way society functions. A recent report by Bain & Company (Barry et al., 2011) estimated that 60% of internet-connected individuals in the US participate daily in SoMe, with Europe not far behind. Despite being a popular buzzword in the world of business, science has been slow to harness its potential; in a 2011 study (Priem et al., 2011) only 2.5% of UK and US academics had a Twitter account.

SoMe can be defined as websites and applications that enable users to create and share content or participate in social networking. They are commonly used for personal reasons, entertainment and for marketing by businesses. However, integration with medicine has proven difficult with medical trainees being disciplined for sharing information deemed unprofessional (Chretien et al., 2009).

## **Materials and Methods**

With these obstacles and opportunities in mind, a systematic website review was carried out to better understand the current application of SoMe in urology teaching and training using the top three SoMe websites on Alexa Global Traffic Rank as of 1st March 2015 (Table 1b). Google custom website searches were constructed using tabulated search terms and synonyms (Table 1a), selected on the basis of encompassing principle sub-specialties of urological specialties<sup>1</sup> and considered representative of urological activity online. A limitation of this study was that many other key aspects of urology, such as overactive bladder, were omitted from the search in order to keep total data size manageable.

When more than 100 results were returned, they were sorted by relevance and the first 100 interpreted (deemed to be the maximum amount of manageable data). This data was categorised based on whether the SoMe interaction was between urological specialists, from specialist to the public or just public discussion about the topic (columns 2 through 5). Table

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<sup>1</sup> As according to Royal College of Surgeons Website

1b shows absolute values of urological activity which is then analysed further in Table 1c.

This shows the different types of activity on the sites.

## **Results**

**Table 1a: Search Terms Used on Social Media Websites and Categorised Results**

Key Urology Search Terms	Specialist Discussion	Specialist to Public	Public Discussion	Other
Urology	44.00%	48.00%	3.33%	4.67%
Urology Teaching	60.67%	27.67%	5.00%	6.67%
Urology Training	50.33%	36.00%	5.67%	8.00%
Bladder Cancer Teaching	35.67%	25.17%	32.50%	6.67%
Bladder Cancer Training	41.00%	14.00%	25.05%	19.95%
Testicular Cancer Teaching	44.83%	19.53%	26.61%	9.02%
Testicular Cancer Training	32.33%	13.53%	45.11%	9.02%
Prostate Cancer Teaching	26.83%	15.53%	47.61%	10.02%
Prostate Cancer Training	17.00%	27.00%	53.00%	3.00%
Enuresis Teaching	9.00%	18.50%	62.00%	10.50%
Enuresis Training	11.50%	12.50%	57.50%	18.50%

**Table 1b: Search Results for Relevant Terms and Social Media Traffic Ranks**

Website	Alexa Traffic Rank	Urology Results	Urology Training Results	Urology Teaching Results
Facebook	2	263,000	43,700	21,000
YouTube	3	228,000	8,870	2,220
Twitter	8	77,900	896	286

**Table 1c: Categories of Results on the Different Social Media Websites**

Category	Facebook	YouTube	Twitter
Specialist Discussion	16.7%	46.1%	44.4%
Specialist to Public	37.1%	21.9%	18.7%
Public Discussion	41.9%	25%	22.0%
Other	4.3%	7%	14.9%

Facebook is the most widely used SoMe site with 890 million daily active users during December 2014. It was primarily used by urologists to raise their professional profiles (81% of the “Urology Teaching” returns pertained to a urology hospital department or clinic website, Table 1c). A Pew Internet study revealed that 72% of internet users search for health information online (S Fox, 2013), therefore it is sensible that urologists are providing

information to potential patients. The public also heavily use Facebook to discuss urological information, contributing 41.9% of activity.

YouTube is more skewed towards passive viewing, with 300 hours of content uploaded every minute. A similar number of total "Urology" results to Facebook were found (228,000 vs 263,000) but 14.3% more were relevant to doctors indicating urologists were most likely to use YouTube than other SoMe. This is supported by a study of urologists views towards SoMe (Fuoco and Leveridge, 2015). 48% of "Urology Training" videos supplied urological information including lectures, procedures and even robotic surgery guides. Other notable uses were career videos, days in the life of urological doctors, urological news roundups, interviews and opinions of leading members of the field. The high use reflects the passive format of this video information repository.

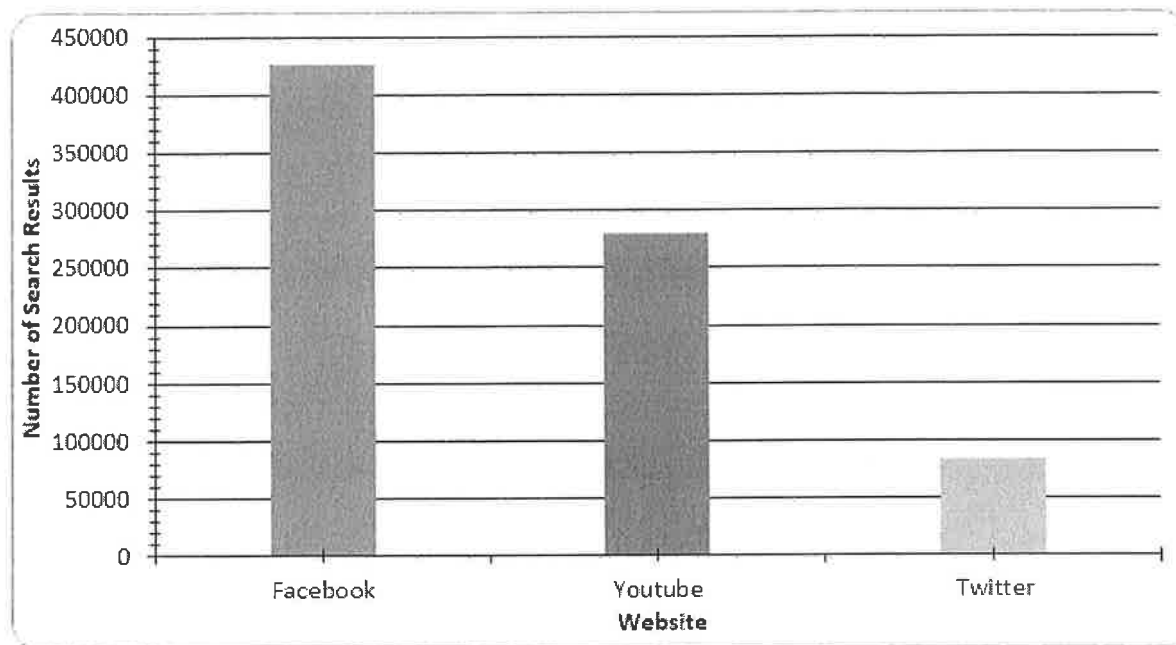
Twitter has 288 million monthly active users posting 500 million tweets<sup>2</sup> per day. It has more clearly defined user groups with 46% of results disseminating urological research and attempting to stimulate traffic on publications. However, there was a dearth (275) of "Urology Teaching" results, just 1% of which was actual teaching material. The remainder were mainly users posting personal opinions and facts. Hospital Twitter accounts were used to advertise jobs, communicate with patients and market conferences to urological users.

The most striking finding was that the three platforms are used by urologists differently. Facebook, the most popular (Figure 2), is primarily used for departmental advertisements and public fundraising due to its inherently personal nature. YouTube is mainly used for distribution of technical scientific information and careers advice due to the ease of communication via video. Twitter tends to be used for the dissemination of research findings and discussions. The future applications of urological teaching and training have to be sensitive to the advantages of each platform: Twitter is better for discussions than YouTube, which is more suited for delivering lecture content.

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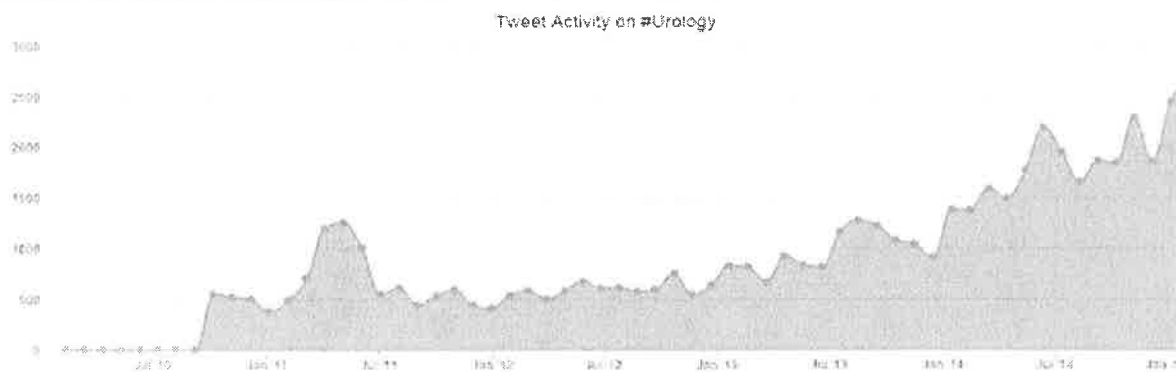
<sup>2</sup> 140 character messages

**Figure 2: Total Number of Urology Search Results per Website Reviewed**



In an effort to ascertain whether there had been an increasing or decreasing trend of urological SoMe use, the number of tweets (using the urology hashtag) each day since July 2010 was also collected and analysed (Figure 3). The graph shows a consistent increase in the number of tweets each day since 2010, with irregular peaks that could represent important research paper releases or conferences stimulating urological Twitter activity. Overall, the use of Twitter by urologists is increasing: a new era of online urological interaction beckons.

**Figure 3: Number of #Urology Tweets per Day since July 2010**



## **Discussion**

A large proportion of the search results were not directly related to training or teaching; most were consistent with conventional usages of networking, entertainment and marketing.

However, important groundwork is being laid by encouraging leading urologists to sign up to SoMe, creating future possibilities for both teaching and training.

Twitter, Facebook and YouTube are firmly rooted within modern society and currently urology does not make the best use of them. SoMe could be used as an adjunct to standard teaching techniques once the specific requirements of teaching and training can be better met by SoMe. SoMe offers many unique advantages to provide education and training for the urological trainee that cannot be fulfilled by traditional teaching methods. This review has identified three exciting areas for development: constructive group collaboration, SoMe in research and distance learning.

Leading urological journals use Twitter to highlight significant articles of interest to readers: a necessity given that 300 of 15112 PubMed results for 'radical prostatectomy' were produced in the first quarter of 2014 (Nason et al., 2015). Furthermore, the 'International Urology Journal Club' #urojc operates for two days a month on Twitter (Thangasamy et al., 2014). This network of individuals could be used in a constructive format by nuanced discussion of controversial topics with contributors linking evidence supporting their viewpoints. This might allow consensus to be reached on contentious topics within urology such as the use of MRI scanning to replace repeat biopsy in active surveillance of prostate cancer (Moore et al., 2013, Johnson et al., 2014).

Other branches of medicine have used SoMe to co-ordinate large scale research projects: STARSurg was a multi-centre project across 109 UK hospitals where recruitment, organisation and results were conducted largely through SoMe. Within urology, a similar collaborative effort could be an efficient way to run national or worldwide projects, standardise patient care protocols and investigate how best to manage certain conditions.

One use would be to ascertain the current standard practice around the UK or the world over, for example how to approach investigating and managing testicular pain or how soon to trial without a catheter in a patient after an acute urinary retention episode.

Furthermore, there is an opportunity to use data from SoMe in future research. In 2013, Twitter data was used to map and predict the spread of the flu epidemic around the world by filtering the Twitter datastream for geo-tagged flu-related tweets (Jiwei and Claire, 2013). A distribution map was then constructed, showing how it changed over time. Urology can use this publicly available data to better link conditions and risk factors, in the same way Facebook has been used to correlate personal interests with obesity (Chunara et al., 2013). There are many similar possibilities in this field.

SoMe (and internet-based resources) allow teachers to overcome geographical separation from their trainees and deliver educational content via “push” technology directly to an individual’s computer or mobile phone (Bahner et al., 2012). Alongside discussion of cases, an effective SoMe teaching session could stream live videos of operations performed by consultants using Google Glasses to SoMe, with a live Q&A on Twitter. The event could be advertised on Facebook and the recording uploaded to YouTube afterwards: each SoMe platform playing a different role.

Whether for personal or professional uses, doctors face ethical dilemmas in engaging with SoMe. It is debatable whether discussions about patient care (even if patient confidentiality is maintained) and training should take place in such a public forum, although transparency should be encouraged. SoMe tends to blur the boundary between an individual’s public and professional lives and even conservative privacy settings may be insufficient to shield potentially unprofessional behaviour from those who search thoroughly. Similarly, these platforms may not be appropriate for doctors to express radical opinions in their professional capacity.

## **Conclusion**

With the growing use of SoMe to disseminate information about papers and conferences (5,900 “live” tweets were sent referencing the American Urological Association’s 2014 Annual Meeting (Wilkinson et al., 2014)) and the potential opportunities for the delivery of teaching and training, it is inevitable that SoMe will be integral to a future urologist’s career. Whether for more conventional reasons such as marketing on Facebook or personal reasons on Twitter, SoMe will continue rising as new opportunities to fully utilise its potential in teaching are developed. SoMe will provide a paradigm shift in how urology approaches learning, training and relationship building amongst doctors and patients.



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Figure 3 data and graph sourced from <http://www.symplur.com/healthcare-hashtags/urology/>  
Statistics sourced from company webpages.