



YouTube as a source of patient information for transrectal ultrasound-guided biopsy of the prostate



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AIM: To assess the quality of YouTube videos explaining transrectal ultrasound (TRUS)-guided biopsies of the prostate.

MATERIALS AND METHODS: A search of YouTube was made for the terms “TRUS”, “TRUS biopsy”, “transrectal ultrasound”, and “prostate biopsy”. Videos were selected from the first 10 pages of results and reviewed by three authors against criteria based on written information from the British Association of Urological Surgeons. They were given a qualitative rating based on how well they provided information on factors such as preparation for the procedure, mechanism of the procedure and possible side effects. Data were also collected on view count, country of origin, likes, and dislikes.

RESULTS: A total of 41 videos were reviewed, with no videos achieving an “excellent” rating, 32 being rated as “very poor”, and only one rated as “good”. Despite the poor-quality information, 39 of the videos were from healthcare organisations or individual surgeons. Videos often lacked specific information, or were targeted at healthcare professionals instead of patients.

CONCLUSION: The information about TRUS-guided prostate biopsies on YouTube was not of a sufficiently high standard to allow patients to make informed decisions. Healthcare professionals hence have a duty to point patients towards adequate sources of reputable information online. Furthermore, there remains an opportunity to produce high-quality, informative, patient-focussed medical YouTube videos.

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Introduction

YouTube (<http://www.youtube.com/>) was founded in 2005 and has since become the largest free video-sharing website, boasting over 1 billion users and 1 billion hours of video watched daily.¹ It has a user-friendly search

function and makes uploaded video available worldwide. Patients may access medical information videos on a range of topics, promoting their autonomy; however, given the uncontrollable nature of the information source, there is significant risk for poor, incomplete, and incorrect communication of health messages.

Prostate cancer is the second most commonly diagnosed malignancy in men, behind lung cancer, accounting for 15% of all cases.² Future predictions of disease burden suggest that compared to 2012, there will be a 68% increase in yearly new cases of cancer worldwide.³ Prostate cancer incidence increases markedly with age, more than any other cancer,

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and as life expectancy is increasing, prostate cancer is likely to still be a significant health burden.

Men with suspected prostate cancer may undergo image-guided prostate biopsy. The Prostate Cancer Risk Management Programme recommends transrectal ultrasound (TRUS)-guided biopsy. This was first described in 1988 as a technique to document and identify prostate cancer with greater sensitivity than simple aspiration cytology.⁴ The use of prostate-specific antigen (PSA) and TRUS biopsy have contributed to a significant number of men now presenting at a stage that may be curable.⁵

The National Institute for Health and Care Excellence (NICE) recommend men are offered information resources, which may include written or visual media, and that feedback is sought to identify the highest quality resources.⁶ Given the ubiquitous nature of YouTube online, it is a likely source for patients to access more information.

Studies assessing the validity of YouTube videos have been performed for a range of diseases, investigations, and treatments, including ureteroscopy, anorexia, dialysis, knee replacement, and gallstone disease.^{7–11} To the authors' knowledge, none have looked at TRUS biopsy. Therefore, the aim of the present study was to assess the quality of YouTube information videos for TRUS biopsy.

Materials and methods

On 4 May 2017, the search function in YouTube was queried with search terms "TRUS", "TRUS biopsy", "transrectal ultrasound", and "prostate biopsy". The exclusion criteria were videos relating to nerve block, transperineal biopsy, MRI–ultrasound fusion biopsy, trans-abdominal ultrasound, videos not focussed on TRUS biopsy, patient testimonies, and those with no verbal audio. The search was limited to those in the English language, but no filters were applied for duration. Forty-one videos in total were selected from the first 10 pages of the search queries. Data were collected for the total views, dislikes, and likes.

Videos were then reviewed and scored independently by three authors (H.A., A.K., F.G.) using pre-agreed criteria, listed in Table 1. These criteria were based upon the British Association of Urological Surgeons (BAUS) written information for patients undergoing TRUS biopsy.¹² This was deemed to be a good source of patient-relevant information that an ideal video should also contain. A total score of 25 was available and a qualitative rating was given based on the reviewer's score: "very poor" (0–5), "poor",^{6–10} "acceptable",^{11–15} "good" (16–20), or "excellent" (21–25). The reviewers' ratings were then compared. All data were recorded and analysed in Microsoft Excel and Fleiss' kappa statistic and the intraclass correlation coefficients were calculated.

Results

Of the 41 videos, based on the reviewers' averaged scores, no video achieved a rating of "excellent", with 32 of the videos being rated as "very poor" (Table 2). Of the "very

Table 1

Scoring criteria for videos, based on British Association of Urological Surgeons written information.

Information topic	Points awarded	Maximum Score available
Alternatives to TRUS	Ultrasound/MRI-guided, transperineal	1
Preparation for procedure	Repeat PSA without biopsy Eat and drink normally on day Nose swab for MRSA If not under local anaesthetic: preoperative assessment Stopping Warfarin	4
Procedure: TRUS	Lay on side with knees drawn up to chest Insertion of ultrasound probe Duration 20 minutes Prophylactic antibiotics	4
Procedure: Biopsy	Local anaesthetic around prostate Needle inserted through probe may cause discomfort	3
Side effects	Series of samples, 10–18 taken Common: haematuria for 2–3 days, blood in semen for 6 weeks, blood in stool, discomfort Uncommon: septicaemia, haemorrhage, failure to detect significant cancer, need to repeat procedure	6
Recovering	Antibiotics for 3 days post-procedure Day case if local, 1 day if general anaesthetic Rest for 48 h afterwards, avoid physically demanding activities	3
Signposting	Fever or shivering, lots of bleeding in urine or back passage with clots	1
Results	14–21 days for biopsy results to become available MDT discussion, possible further investigations such as bone scintigraphy, CT or MRI	2
Further information	Where can the patient get further information?	1
Total		

TRUS, transrectal ultrasound; PSA, prostate-specific antigen; CT, computed tomography; MRI, magnetic resonance imaging; MDT, multidisciplinary team.

Table 2

Video ratings based on reviewers' averaged scores.

Excellent	0
Good	1
Acceptable	4
Poor	4
Very poor	32

poor" videos, 12 were excluded, owing to reasons including: lack of sound, non-English language, and focussing on the wrong procedure. The total number of views was 939,799, mean views were 22,922, mean length was 3 minutes 48 seconds, and mean "likes" and "dislikes" were 18 and four, respectively. Almost all (39) of the videos were from

healthcare organisations or individual surgeons, with 26 of them based in the USA.

The kappa statistic for the three reviewers was 0.787, and the intraclass correlation coefficient was 0.940. A recurring issue with the videos was that they targeted healthcare professionals as opposed to patients: 14 videos were focussed on diagnostic techniques. The remaining patient-focussed videos often only addressed one aspect of the procedure, such as just the indication for a biopsy, or just the preparation for the procedure. Furthermore, general details were given, for example, in a patient experience video, rather than the sort of specific information deliverable in an information leaflet. The mean score for each section of the scoring criteria are listed in Table 3. Side-effects of the procedure, given the highest weighting in the scoring system, were poorly addressed, with 28 videos failing to mention any complications at all, while six videos only focussed on one or two specific complications. With a mean length of 3 minutes 48 seconds, most videos were simply too short to cover the procedure comprehensively. Notably, the best scoring video, “Prostate Biopsy” by mdconversation, was 16 minutes 12 seconds long, well above the mean.¹³

Discussion

The quality of information provided in YouTube videos to inform patients about TRUS biopsies was analysed. Despite targeted searching, many of the top results were irrelevant, focussed on the wrong procedure, or were not targeted at patients. Although patients may ignore these inappropriate videos, among the relevant videos, the quality of information was generally poor. They often lacked basic advice on preparing for the procedure, side effects, or recovery after the procedure.

The best-rated video was awarded a score of 19 from all three reviewers. Despite providing good-quality information, this video was also over 16 minutes long, well above the mean video length of 3 minutes 48 seconds, which could dissuade some viewers. Indeed, many previous studies have excluded videos with a length over 10 minutes, so this video would not have been analysed.^{7–11}

The present results were limited to the videos on the first 10 pages of the search, which may have excluded some higher-quality videos, but it was unlikely that viewers

would go beyond 10 pages of search results. The present study went beyond previous studies, which tend to be limited to 5 pages of results.^{7–11}

Although it could be argued that YouTube videos created by individuals would adhere to BAUS-derived standards, patients may turn to them as sources of medical information. Previous studies involving video material for procedures such as knee arthroscopies and cataract surgery showed videos improved patient comprehension and understanding of the procedure, and also improved satisfaction.^{14,15} This highlights the need for easily accessible, comprehensive patient information videos for a procedure such as TRUS biopsy. Given the present findings, patients are most likely to receive poor-quality information via YouTube, which is inadequate to make an informed decision about the procedure or benefit their patient experience.

Another limitation is the sole use of the BAUS guidance for the scoring system. Some of the points listed may be more relevant to individual practice rather than quality of video; however, it provided a good basis as a guide for the general topics a comprehensive video should cover. The few videos that offered alternative advice in some sections still scored well above the mean, as they went into more detail across the scoring system, so the overall qualitative rating they were assigned was not affected.

The present results are similar to previous studies on the quality of medical information provided in YouTube videos.^{7–11} YouTube cannot be recommended as a source of medical information for TRUS biopsies, or indeed other medical procedures. In this digital age, patients are more than likely to consult the Internet for advice, and healthcare professionals have a duty to direct them towards high-quality sources of information. Furthermore, as almost all the videos were posted by medical organisations and professionals, anything posted online should be of high quality. Content posted by medical professionals could be viewed as more trustworthy, which could have a negative impact on patients if it is of a low standard; however, the present study also revealed there are unexplored opportunities for medical professionals to produce high-quality, patient-focussed informational videos online.

In conclusion, YouTube provides an unparalleled resource of free, easy to access videos, many of which provide information on medical procedures; however, these videos are unregulated, and much of the information is not of a sufficiently high standard to allow patients to make informed decisions when compared to professionally produced information leaflets. This was found to be the case for TRUS biopsies of the prostate. Healthcare professionals hence have a duty to point patients towards adequate sources of reputable information online. Furthermore, there remains an opportunity to produce reputable, high-quality, informative, patient-focussed medical YouTube videos.

Conflicts of interest

The authors have declared that no competing interests exist.

Table 3

Mean score for each section of scoring criteria.

Information topic	Mean score (max score)
Alternatives to TRUS	0.06 (1)
Preparation for procedure	0.24 (4)
Procedure: TRUS	0.83 (4)
Procedure: biopsy	0.55 (3)
Side effects	1.05 (6)
Recovering	0.15 (3)
Signposting	0.17 (1)
Results	0.07 (2)
Further information	0.07 (1)
Overall	3.36 (25)

TRUS, transrectal ultrasound.

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