



# The new checklist to evaluate educational value of YouTube surgical videos of transurethral resection of the prostate

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**Background:** Transurethral resection of the prostate (TURP) is a widespread, effective way to treat benign prostatic hyperplasia (BPH). Many medical students and junior clinicians increasingly turn to easily accessible online resources to learn this technique, such as videos on YouTube. This study assessed the educational value of YouTube videos about TURP, which are popular among many young surgeons.

**Methods:** We searched YouTube as of August 2, 2022 for videos fulfilling the search terms “transurethral resection of the prostate”, “benign prostatic hyperplasia”, “BPH”, “TURP”, “benign prostatic enlargement”, “bladder outlet obstruction” and “lower urinary tract symptom”. We assessed the educational value of the identified videos using a custom-designed checklist.

**Results:** We identified 47 relevant videos, 20 of which were posted after July 1, 2020. The average number of views was 576,379±208,535 (range, 54–1,385,713). The average quality score of the videos was 7.38±2.53 (range, 4–12) on a 15-point scale, and 20 were judged to be of low educational quality. Quality scores correlated positively with the number of likes ( $R=0.596$ ,  $P<0.01$ ).

**Conclusions:** The educational value of most TURP videos on YouTube appears to be low, with most lacking detailed explanations of preoperative preparations and the surgical procedure. High-quality video resources about TURP need to be developed for medical students and junior surgeons. Standard quality criteria should also be developed and disseminated to ensure the production of accurate learning resources for junior clinicians.

**Keywords:** YouTube videos; transurethral resection of the prostate (TURP); surgical education

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## Introduction

Benign prostatic hyperplasia (BPH) refers to the proliferation of smooth muscle and epithelial cells in the transition zone of the prostate, and it is one of the most common diseases causing urinary obstruction in middle-aged and elderly men. BPH is a benign and progressive

disease, and its incidence increases with age. The incidence of BPH increases with age, with more than 50% of men over the age of 60 and as high as 83% in men over 80 (1). BPH is the leading cause of lower urinary tract symptoms (LUTS), and approximately one-fourth of men worldwide suffer from LUTS (2). LUTS mainly manifests as hesitancy,

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difficulty, reduced urine flow, prolonged voiding time, post-void dribbling, or incomplete emptying, often accompanied by frequency, urgency, and nocturia as LUTS. According to statistics, over 15 million men in the United States aged 30 or older are affected by BPH/LUTS (3), and 45% of men over the age of 45 will develop BPH, reaching 80% in men over 70 (4,5).

Transurethral resection of the prostate (TURP) is the standard treatment for BPH (6,7), in which adenoma in the prostate obstructs the bladder, interfering with the function of the bladder and potentially the kidney (8). Young surgeons increasingly learn their surgical skills by watching videos available online, such as those on the global portal YouTube (9), in contrast to the traditional approach of working “live” with a mentor. This poses a challenge for ensuring educational quality because YouTube video upload has low entry barriers and lacks a comprehensive supervision and evaluation system compared with the official surgical videos with strict access permission provided by some medical schools, resulting in varying quality of existing teaching videos on TURP surgery, and the overall quality level is yet to be determined. As a result, young surgeons may learn techniques and concepts incorrectly, which can have disastrous consequences for patients (10).

Therefore, this study aims to evaluate the quality of existing YouTube videos on TURP surgery teaching, select

high-quality surgical teaching videos, and identify the main shortcomings of existing videos, providing references for subsequent video production for teaching purposes. Here we developed a checklist to assess the educational quality of videos related to TURP, and we applied it to videos freely available on YouTube.

## Methods

We searched YouTube on August 2, 2022 for relevant videos using the following search terms: “transurethral resection of the prostate”, “benign prostatic hyperplasia”, “BPH”, “TURP”, “benign prostatic enlargement”, “bladder outlet obstruction” and “lower urinary tract symptom”. Videos were included if they met these criteria: (I) the title or video should describe the procedure. (II) Videos recorded complete main steps, not just some steps of the operation. (III) Videos were annotated with audio or text. Beyond that, other videos were excluded, such as commercial advertisements and promotional videos. During the process, if there were any disagreements or doubts between the two authors, a joint decision would be made with the help of the third author. We extracted various characteristics of the videos, such as title, duration, number of likes received, and number of views.

We developed a checklist, based on the literature (6-9), to assess the educational quality of the videos (*Table 1*). The checklist included information about the video uploaders as well as information related to the following five items: introduction, case presentation, anatomical demonstration, outcomes of the procedure, and associated educational content. Each of these items was further divided into sub-items. Each sub-item was assigned a value of 1 point, and the total number of points was summed to obtain a final score, which ranged from 0–18. A higher total score indicated higher educational quality. Total scores from 0–6 were defined as “low” educational quality; 7–12, “moderate”; and 13–18, as “high”.

Each video was assessed by an investigator who had previously been trained in the TURP procedure by an experienced urology surgeon. Each video was also independently assessed by two urology surgeons from the same medical center, each of whom had previously performed at least 25 TURP operations. The three scores were averaged to obtain the final score used in all data analyses. If the two scores from the experienced surgeons differed by more than 3 points, then a second investigator

### Highlight box

#### Key findings

- Most YouTube videos related to transurethral resection of the prostate (TURP) are not of high educational value, in large part because they do not demonstrate preoperative preparations or explain the steps of the surgical procedure in detail.

#### What is known and what is new?

- It is well known that junior clinicians tend to use online resources like YouTube to learn new techniques. However, whether these online resources can offer correct medical techniques is unclear.
- The new finding of this study is that most videos of TURP on YouTube are of low quality by performing what appears to be the first assessment of the educational quality of TURP videos on YouTube.

#### What is the implication, and what should change now?

- Junior clinicians need to use online resources to learn TURP critically and standard quality criteria should be developed and disseminated to ensure the production of accurate learning resources for junior clinicians.

**Table 1** Assessment of the educational value of 47 YouTube videos about transurethral resection of the prostate

Item or sub-item	N (%)
Information about the video creators and introduction	
Information about the video creators	38 (80.9)
Title of the video, including the procedure	47 (100.0)
Conflict of interest disclosure	0
Case presentation	
Patient anonymity and privacy protection	47 (100.0)
Baseline patient characteristics	7 (14.9)
Preoperative work-up and treatments	5 (10.6)
Assessment of prostate size via imaging	1 (2.1)
Introduction to the surgery	21 (44.7)
Anatomical demonstration	
Standardized surgical procedures, presented step by step	14 (29.8)
Detailed explanation of critical steps	21 (44.7)
Cystoscopy during the operation	41 (87.2)
Outcomes of the procedure	
Operating time <1 h	2 (4.3)
Associated educational content	
Diagrams, photos, snapshots or tables	38 (80.9)
Subtitles	18 (38.3)
Audio explanation	22 (46.8)

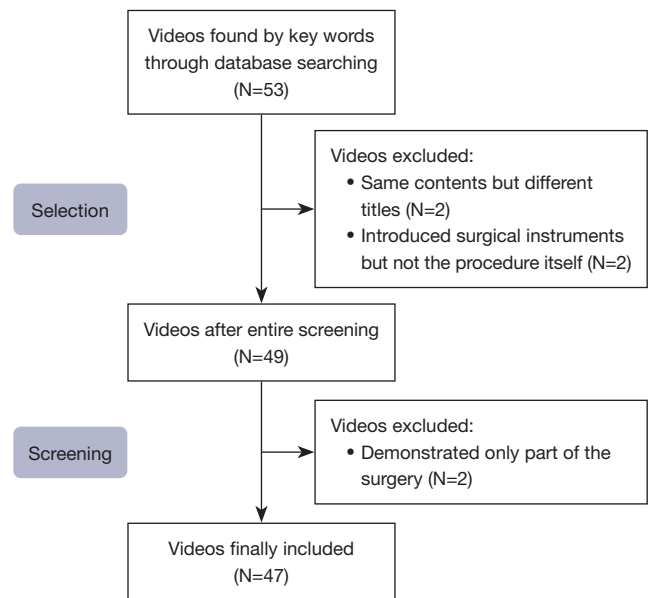
assessed the video, and the four scores were averaged to obtain the final score.

### Statistical analysis

Data were analyzed using SPSS 26 (IBM, Chicago, IL, USA). Associations between the characteristics of the videos and their final scores for educational quality were assessed using Pearson correlation analysis in SPSS. Results associated with  $P < 0.05$  were considered significant.

## Results

The final analysis included 47 YouTube videos about TURP (Figure 1, Table 2). The average duration was  $16.7 \pm 14.3$  (range, 0.8–103.93) min, and the average number of views was  $576,379 \pm 208,535$  (range, 54–1,385,713). The average

**Figure 1** Flowchart of video inclusion.

final educational quality score was  $7.38 \pm 2.53$  (range, 4–12) of a total possible 18 points. Of the 47 videos, 20 were of low quality, 27 were of moderate quality, and none were of high quality. Nearly half of the videos were posted after 1 July 2020, with 10 posted in the first half of 2021 (Figure 2).

The longest video showed the entire surgical procedure without any narration or comments. The shortest video simply showed cystoscope images of some steps in the surgical procedure. The three videos obtaining the highest score of 12 points in the study demonstrated TURP to treat BPH or prostatic abscess. In 41 of 47 videos, the procedure was carried out using cystoscopy, and information was conveyed using diagrams, photographs or tables. Measures for protecting patients' anonymity were taken in all 47 videos.

Only seven videos demonstrated the preoperative collection of patient information, while only one preoperatively assessed prostate size via imaging, as recommended by the American Urological Association (2). Fewer than half introduced the surgery, and only 14 showed the operation step-by-step. Only 22 provided audio explanation or commentary, and 18 featured subtitles, and five demonstrated preoperative preparations.

## Discussion

Medical students and junior clinicians increasingly turn

**Table 2** Characteristics of the 47 videos included in the study

Title	Date posted	Length (min)	Video resolution	Likes	Views	Total score
Button TURP in action	2011/3/25	2.92	Moderate 480p	18	19,883	7
Button TURP in action	2011/3/25	2.92	Moderate 480p	18	19,833	8
Bipolar Transurethral Resection of the Prostate (TURP)	2011/9/28	2.52	Moderate 480p	45	39,995	5
Azayem Procedures—TransUrethral Resection of the Prostate (TURP)	2012/6/7	13.32	Moderate 480p	178	100,739	6
Transurethral resection of the prostate without postoperative irrigation	2013/4/8	3.55	Moderate 480p	206	159,149	11
TURP Transurethral Resection Prostate, Penis and Bladder—PreOp® Surgery—Patient Education	2013/12/8	4.5	High 720p	1019	380,865	7
Modified Blandy's Technique for Bipolar Trans Urethral Resection of Prostate by Dr. N.P.Gupta	2015/7/14	7.98	Moderate 480p	153	27,347	11
Plasmakinetic TURP and Plasma vaporisation in 100 cc prostate. Dr.Farid Gadimaliyev	2015/9/19	16.18	Moderate 480p	19	4,819	5
Bipolar turp 5 How to check landmarks assess prostate and stabilize resectoscope sheath	2015/11/7	5.23	Low 360p	165	38,623	9
Bipolar turp 6 How to resect right lobe of prostatic adenoma	2015/11/7	5.45	Low 360p	99	20,125	9
TURP for prostatic abscess	2015/12/12	18.67	Low 360p	84	8,632	12
Transurethral resection of prostate TURP with 120 cc abscess cavity. Dr.Farid Gadimaliyev	2015/12/26	27.7	Low 360p	13	2,917	6
Bipolar Turp for BPH	2016/7/13	10.89	High 720p	273	54,007	12
T.U.R.P.	2016/7/21	28.48	Low 360p	11	2,420	4
TURP VIO resezione trans uretrale della prostate con RESETTORE BIPOLARE	2017/3/1	13.35	Low 360p	15	7,222	6
En Bloc HoLEP post-TURP	2017/3/8	23.75	Low 360p	22	2,950	9
TURP Transurethral Resection Prostate Surgery, patient education series	2017/6/5	2.23	Moderate 480p	1546	1,385,713	7
Matthew Sand—TURP with Plasma Button and Plasma Loop	2017/12/7	2.2	Low 360p	0	6,971	6
David Wilkinson—Plasma-OvalButton TURP	2017/12/7	2.47	Low 360p	0	5,276	6
Amazing Cutting Loop for Urology TURP by BONSS RF Plasma Bipolar LOOP, put an end to TURS	2018/6/8	20.52	Low 360p	6	724	4
Urolift vs. TURP: minimally invasive surgery takes on gold standard treatment for BPH	2018/6/10	5.93	Extremely high 1,080p	566	50,403	10
TURP—Animated Atlas of BPH and OAB	2018/11/29	0.8	Moderate 480p	6	2,000	9
TRANSURETHRAL RESECTION OF PROSTATE (TURP) BY PROF MAZHAR KHAN	2018/12/16	17.18	Low 360p	29	1,455	5
TURP   Transurethral resection of Prostate for enlarged prostate   Enlarged Prostate Surgery	2018/12/17	40.25	Moderate 480p	51	6,668	5
Transurethral Resection of Prostate (TURP) Surgery   Step by Step Procedure   Urology	2020/1/6	10.92	Extremely low 240p	14	1,135	4
220 Gm Prostate Bipolar TURP by Dr Debadarshi Rath	2020/6/14	13.22	Low 360p	194	1,438	4
TURP-Transurethral resection of prostate   Dr Brojen Barman	2020/8/2	9.25	Low 360p	36	2,986	9
Transurethral resection of ProstateTURP\Prostate operation\turp operation\turp surgery\bph surgery	2020/8/20	21.05	Low 360p	166	8,532	6

**Table 2** (continued)

Table 2 (continued)

Title	Date posted	Length (min)	Video resolution	Likes	Views	Total score
TURP Operation Dr.Monowarul Islam	2020/9/7	8.1	Low 360p	1	180	9
TURP	2020/10/10	3.68	Moderate 480p	1	116	5
Transurethral resection of Prostate (TURP) and Vesicolithotomy— Video abstract [ID 273375]	2020/11/4	5.97	Extremely high 1,080p	196	39,400	9
TURP 1/10000 by Dr. Kenji Niimura Case 1 2/4	2021/3/30	14.72	Low 360p	0	54	6
BPH Treatments: Urolift vs. TURP vs. Medications   Answering YouTube Comments #10   Mark Scholz, MD	2021/4/16	5.48	Extremely high 1,080p	90	4,629	6
TURP   LASER Prostatectomy   Enlarged Prostate (BPH) Surgical Treatment Options	2021/4/20	7.42	Extremely high 1,080p	607	72,797	7
BPH PART 2 (diagnosis and management including TURP)	2021/4/26	74:12:00	High 720p	27	1,608	12
TURP 1/10000 by Dr. Kenji Niimura Case 2 2/5	2021/4/28	14.5	Low 360p	0	65	5
TURP 1/10000 by Dr. Kenji Niimura Case 2 1/5	2021/4/28	14.92	Low 360p	1	159	5
TURP 1/10000 by Dr. Kenji Niimura Case 2 3/5	2021/5/16	14.5	Low 360p	0	101	5
TURP 1/10000 by Dr. Kenji Niimura Case 2 5/5	2021/5/29	11.22	Low 360p	0	239	5
TURP 1/10000 by Dr. Kenji Niimura Case 2 4/5	2021/5/29	14.5	Low 360p	0	56	5
Monopolar TURP in very large Prostate of 180 grams (Unedited)	2021/6/4	103.93	Moderate 480p	67	4,720	8
Transurethral Resection of the prostate (TURP)	2021/7/13	2.72	Extremely high 1,080p	2738	194,093	10
Step by step TransUrethral Resection of the Prostate (Bipolar)   Surgical Videos	2021/8/20	40.52	Moderate 480p	132	8,152	12
Monopolar TURP	2021/8/30	13.57	Low 360p	28	2,480	5
TRANSURETHRAL RESECTION OF THE PROSTATE (TURP)	2021/9/14	9.8	High 720p	296	16,907	10
TURP Surgery for Enlarged Prostate BPH	2021/10/20	11.25	Moderate 480p	3	136	10
Step By Step of TURP Dr Angadjyot Singh, Moderator—Dr Vinay Tomar	2021/11/15	38.78	Low 360p	6	262	11

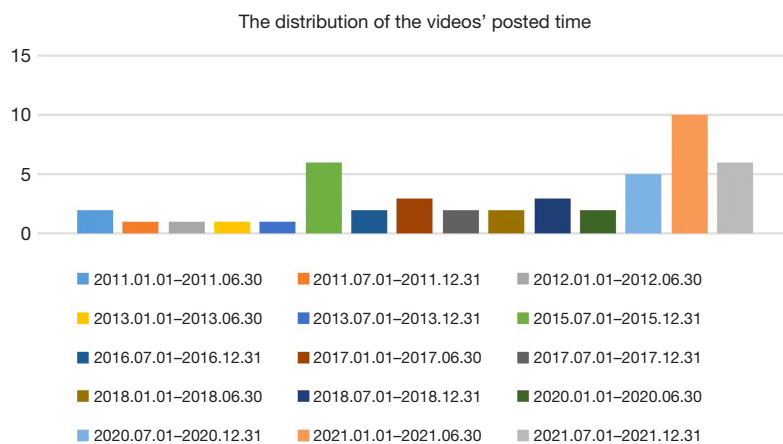


Figure 2 Distribution of videos by upload date, divided into 6-month intervals. Y-axis represents the number of the videos in each column.

to easily accessible online resources for learning new techniques, such as videos on YouTube (9-15). Indeed, two-thirds of TURP videos in our analysis were produced in 2021–2022. However, such online resources are generally not curated by medical experts, so whether viewers are learning correct medical techniques and principles is unclear (16-22). Here we performed what appears to be the first assessment of the educational quality of TURP videos on YouTube, for which we custom-designed a quality checklist. Our results suggest that most videos of this procedure on YouTube are of low quality, emphasizing the need for medical instructors and mentors to guide junior clinicians' use of online resources and the need for experts to produce learning videos of adequate quality. In this regard, our custom-designed checklist may be useful as an initial set of minimum standards.

We found that fewer than half of the videos provided introductory background to TURP or an audio explanation, and even fewer had subtitles. Most did not show preoperative work-up. We did not find a significant correlation between educational quality score and the number of likes and views, which is consistent with other studies of videos demonstrating information on surgical treatment of BPH on YouTube is highly biased and misleading (8,9) and which indicates that the most-viewed videos are usually not of high instructional value. These observations suggest an urgent need to standardize quality criteria for the production of surgical videos.

There are two major limitations in our research. Firstly, while our analysis is based on a relatively small number of videos, all of which focused on a single surgical procedure, it suggests the need for a more extensive investigation on the educational quality of medical resources online and the standardization of criteria for producing such resources. Our quality checklist may provide a starting point for developing such standards. Secondly, we found that YouTube is just one of the resources for medical students to learn new surgical techniques and patients to assess some information of a certain disease. Nowadays, there is a way combining conventional education with virtual reality (VR) videos to educate outpatients for bowel preparation before colonoscopy (23). This example suggests that exploring the value of the new techniques used in medical education is a topic for future researchers to pay attention to.

## Conclusions

Most YouTube videos related to TURP are not of high

educational value, in large part because they do not demonstrate preoperative preparations or explain the steps of the surgical procedure in detail. Standard quality criteria should be developed and disseminated to ensure the production of accurate learning resources for medical students and junior clinicians.

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## Footnote

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*Ethical Statement:* The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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