Quality and Reliability of YouTube Videos for Patient Education in Surgical Drains

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Background

- Surgical drains are medical devices that are routinely used for surgeries that require high level of maintenance, discomfort, or to decrease potential infection.[1]
- YouTube is a predominant video sharing platform on the internet, progressively utilized for disseminating health-related information.[2]
- Multiple studies have researched the quality of data present on YouTube with poor results.[3,4]
- However, there are still no objective assessments of the quality of information on YouTube regarding surgical drains.

Objectives

- Understand factors that predict which videos will be of higher educational value.
- Analyze the utility of YouTube videos as a patient resource for surgical drains.
- Analyze whether the current YouTube algorithm adequately promotes high-quality videos for patients.

Fig 1: Screen capture of informational webinar[5]

Methods

- YouTube was searched using the phrases “drain care”, “suction drains”, “surgical drain”, “JP drain”, “blake drain”, “penrose drain” and “closed suction drain.”
- 50 videos from each search were screened for inclusion.
- YouTube Shorts, non-English videos, duplicate videos, and videos unrelated to the medical field were excluded.
- Videos were analyzed using Modified DISCERN, Global Quality Score (GQS), and JAMA Benchmark metrics of video quality, educational value, and transparency, respectively.
- Statistical analysis of video metadata and expert-determined scores was performed using Kruskal Wallis tests, with post-hoc Dunn tests as applicable.

Results

- Three-hundred-seven videos with a combined 22,479,489 views were analyzed.
- Most videos were webinar/informational videos for patients (52.1%), published by third parties (39.7%) or health organizations (31.3%).
- The mean mDISCERN score was 13.9/25, with most videos being classified as “fair” (46.6%).
- The mean GQS was 2.98/5 and mean JAMA Benchmark was 3.17/4. Higher mDISCERN, GQS, and JAMA scores were significantly associated with patient target audience ($p<0.01$) and webinars/informational videos for patients ($p<0.01$).
- Videos made by verified users also were significantly associated with a higher popularity on VPI ($p<0.05$).

Item	Questions
1	Are the aims clear and achieved?
2	Are reliable sources of information used?
3	Is the information both balanced and unbiased?
4	Are additional resources listed for reference?
5	Are areas of uncertainty mentioned?

Items in the modified DISCERN criteria

Score	Criteria
1	Poor quality, poor flow, most information missing, not useful
2	Generally poor quality and poor flow, some information missing, very limited use
3	Moderate quality, suboptimal flow, some important information is adequately discussed but others poorly discussed, somewhat useful
4	Good quality and generally good flow, most of the relevant information is listed but some topics not covered, useful
5	Excellent quality and excellent flow, very useful

Items in the Global Quality Score index

Item	Criteria
1	Authorship – authors and contributors, their affiliations and relevant credentials should be provided in the video or video description
2	Attribution – references and sources for all content should be listed clearly, and all relevant copyright information noted
3	Disclosure – Video “ownership” should be prominently and fully disclosed, as should any sponsorship, advertising, underwriting, commercial funding
4	Currency – dates that content was posted and updated should be indicated

Items in the JAMA benchmark metrics

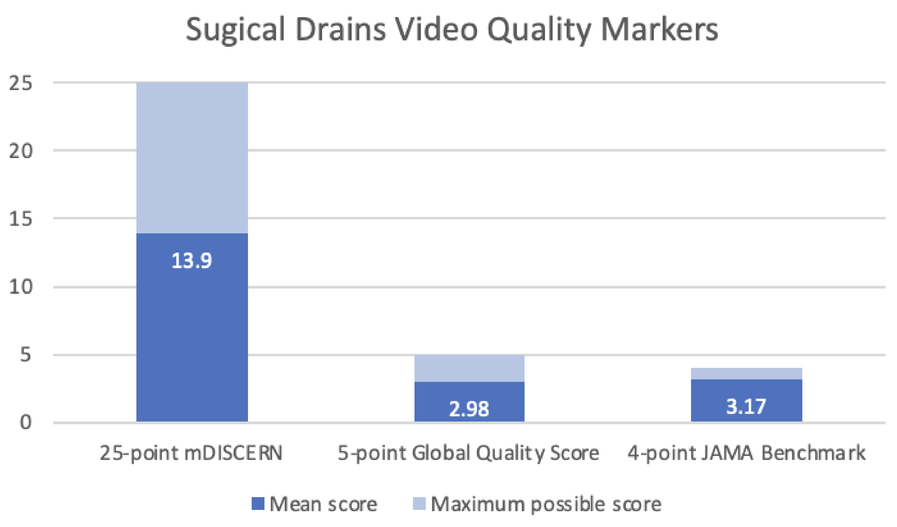

Fig 2: Surgical drains video quality markers

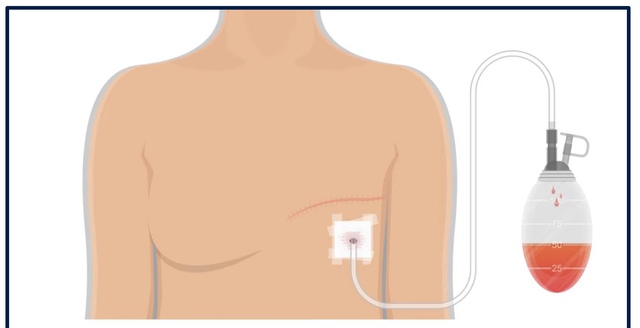

Fig 3: Screen capture of animation[6]

Discussion

- Higher mDISCERN, JAMA, and GQS scores were associated with creators that were either physicians or healthcare organizations.
- These videos were much more likely to be of a higher quality, educational value, and transparency.
- Videos created by patients or third parties scored significantly lower on mDISCERN while GQS was significantly lower for third parties.
- However, most videos were not made by healthcare organizations or physicians which could lead patients toward incorrect/erroneous information.

Conclusion

- The quality of YouTube videos may not be sufficient for patient education on surgical drains.
- A majority of the videos were created for patients (50.83%), but most were not made by healthcare providers (73.94%) or health organizations (68.4%).
- Lower transparency and reliability scores may give rise to concerns about bias.
- It is important to consider vetted educational or healthcare sources for patient education to avoid the utilization of inaccurate medical resources that may be utilized by patients.

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