**Appendix one: table showing a summary of the articles included in the review**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Author reference** | **Title of study** | **Type study** | **Details of study** | **Summary of findings** | **Level of evidence** |
| Rowse 2014  | Catering to millennial learners: assessing and improving fine-needle aspiration (FNA) performance | Case control study | Emailed YouTube video to general surgery residents  | Found in instructional video demonstrating FNA technique, which was viewed less than 2 weeks before “exam” improved scores. Half of the residents didn’t watch video citing time and perceived usefulness of video as reasons. | Level IV |
| Topps 2013  | YouTube as a Platform for Publishing Clinical Skills Training Videos | Cohort study (no control)  | Published videos on PocketSnips in 2005. Had very few viewer hits so published the same on YouTube in 2008 | Publishing on YouTube served its purpose of increasing viewership. However, videos also viewed by random public who left comments. | Level IV |
| Poon 2017  | Pilot Study Evaluating the Impact of Otology Surgery Videos on Otolaryngology Resident Education | Cohort study (no control) | N= 13Made videos and used a questionnaire to see efficacy | Small sample size so couldn’t say if videos superior but a useful adjunct to textbook. Highlighted the significant time required to make videos (10-12 hours for 5-10min video) | Level IV |
| Abdelsattar 2015 | Do You See What I See? How We Use Video as an Adjunct to General Surgery Resident Education | Cohort study (no control) | Total number 70. Medical students n=10, interns n=8, post-graduate year 2 residents n= 11, PGY3s n=10, PGY4s n=9, PGY5s n=7, general surgery staff n=5. | Using video as an assessment tool. There was a positive correlation between score and experience level. Video quality, content and questionnaire not validated. | Level IV |
| Mishra 2017  | Improving Resident Performance in Oculoplastic Surgery: A New Curriculum Using Surgical Wet Laboratory Videos. | Randomised control trail | N=21 divided into 2 groupsOne group given video on lid repair and text instructions but only text for blepharoplasty. Second group given video and written instructions for blepharoplasty but not lid repair | Video seemed to improve aesthetics for lid repair group only. Learners felt they improved. No change in operating times. | Level II |
| Edrich 2016  | A Comparison of Web-Based with Traditional Classroom-Based Training of Lung Ultrasound for the Exclusion of Pneumothorax | Randomised control trail | Total of 170 participants. There were four groups Web (n=54), class (n=56), control (n=20) and emergency medicine physicians (n=38). EM (group EM) performed the pre-test only. Teaching for group class consisted of a standardized PowerPoint lecture conforming to the Consensus Conference on LUS followed by hands-on training. Group Web received a narrated video of the same PowerPoint presentation, followed by an online demonstration of LUS that also instructs the viewer to perform an LUS on himself using a clinically available ultrasound machine and submit smartphone snapshots of the resulting images as part of a portfolio system. Group Web received no other hands-on training. | After training, overall test results of groups Web and class improved whereas the score of group control did not. The test improvement of group Web was not inferior to group class. | Level II |
| Wang 2016  | Improving education: just-in-time splinting video.  | Randomised control trail | N=28Sample size based on power calculation. Shown how to splint, practiced on another, assessed and given a score. 2-12-month interval later, divided into 2 randomised groups (JITT group): watched a short video (3min) before performing procedure again. Control group didn’t see video | Just in time (JIT) group showed a higher score. | Level II |
| Walsh 2016  | 52 Procedures in 52 Weeks: An Innovative Curriculum for Emergency Medicine Residents | Prospective | Did an assessment of their department’s needs to decide which topics to include, 52 procedures included (52-week roster with videos as main source of teaching). Weekly 30min session led by 2nd year resident whom a consultant supervised. Videos from academic faculty around the country, Youtube.com, NEJM, or other online resources. First participants are shown the video then hand on training on simulated or tissue models.  | After 2 years, they surveyed emergency residents. Response rate of 75% for the survey. 85% of respondents found the videos accessible, helpful and found they increased confidence and competency.  | Level VI  |
| Poller 2009  | Use of streamed internet video for cytology training and education | Cohort study (no control group). | Made a 59-minute long video on performing a fine needle aspirate (FNA). Video viewed by 250 people and 70 file downloads in 6 weeks. Emailed a survey to 111 with 15 responses. | Themes of duration of video and the platform for disseminating the information.  | Level VI |
| Al-Hadithy N 2012  | Smartphones in orthopaedics | Narrative review | Talks about using a smart phone for platforms, applications such as using e-books, logbooks, guidelines, competency-based assessment, surgical technique guides and viewing videos.  | Concerns about patient confidentiality, patient data and photos stored on personal devices.  | Level V  |
| Kleinpell 2011  | Web-based resources for critical care education | Narrative review | Evaluated websites using a tool and summarised the web resources | Comprehensive list and review of online resources but not relevant for long as web-based resources change often. Included some studies of online videos.  | Level V  |
| Pitcher 2016  | Common femoral artery access on YouTube: what practice are shown and who is delivering the message | Cross sectional study | The YouTube search revealed 2460, 4680 and 1800 videos found with 33 showing femoral artery access technique. Vascular specialists had fewer and older videos. | Vascular surgeons should improve their visibility in online learning resources. | Level V1 |
| Frongia 2016  | YouTube as a potential training resource for laparoscopic fundoplication | Cross sectional study  | 71 videos were found on YouTube. Evaluated the Surgical and educational proficiency using the objective component rating scale (OCRS) and educational quality rating score (EQRS) | Marked variance in quality of videos. They recommend filtering for quality based on uploading source and duration of video. Advocate platforms that include videos for medical professionals. Likes/dislikes not a good predictor. | Level VI  |
| Rapp 2016  | YouTube is the most frequently used educational video source for surgical preparation | Cross sectional survey | N=86 with a response rate of 91% | Learners used video more often and used YouTube videos. Helpfulness of videos scores 3.7.  | Level V1 |
| Lee 2015  | YouTube as a potential training method for laparoscopic cholecystectomy | Cross sectional study | The first 100 videos searched for on YouTube under “laparoscopic cholecystectomy) were analysed. N=73 videos were finally included Categorised by upload source and quality based on an arbitrary scoring system based on laparoscopic cholecystectomy procedure. | Found two categories of potential viewers: medical personnel and individuals seeking medical information. Found that quality not determined by number of likes/dislikes and number of views. Videos had high variability. Videos from tertiary centres had highest quality. Viewers might not recognise discrepancy in quality. | Level V1  |
| Ward 2019  | Assessment of YouTube as an informative resource on facial plastic surgery procedures | Cross sectional study | Three researchers searched YouTube and found a total of 240 videos. Two researchers also evaluated 70 of the 240 videos. Evaluated by looking at the qualification of the author video and DISCERN score.  | YouTube can present biased information and be unclear about qualifications of the author | Level V1  |
|  |  |  |  |  |  |
| Ahmet 2018  | Is video-based education an effective method in surgical education? A systematic review | Systematic review | 9 articles included, eight were RCT and one case-controlled trial. Included a methodology review of articles, which were fair to moderate. | Video usage can lead to significant gains in knowledge compared with traditional teaching. Recommend use in addition to standard techniques. Combined audio and video increases knowledge retention. | Level 1 |
| Dinscore and Andres 2010  | Surgical videos online: A survey of prominent sources and future trends. | Narrative review | Discusses online resources like YouTube, YouTube EDU, WebSurg and ORLive and quality appraisal of these sites.  | Quality of videos can be assessed using JAMA Benchmarks (or modifications) or DISCERN criteria. A future trend might be the use of Twitter and the use of mobile devices.  | Level V  |
| Rossler 2012  | Medical information on the internet: quality assessment of lumbar puncture and neuroaxial block techniques on YouTube | Cross sectional study | Videos on YouTube evaluated (38 of 2321 videos included in analysis). Using 5 key points (for SA) or 4 points (for LP) and 3 safety points. Also looked at sterile technique. | Videos available readily yet of poor quality. Incomplete details of key points (13%) or safety points (11%) in videos are dangerous for the patient.  | Level V1 |
| Koya 2012  | YouTube and the expanding role of videos in dermatologic surgery education | Opinion article | Provides a list of internet sources for surgical videos and dermatology content posted on YouTube |  | Level V11  |