

EDITORIAL

Live video transmission for urology workshops: yea or nay?

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What I hear, I forget. What I see, I remember.

What I do, I understand.

Xunzi (340–245 BC, Confucian scholar)

Surgeons have, from the earliest times, had an obligation to teach their craft. Hippocrates instructed: “...*teach them this art, if they shall wish to learn it, without fee or stipulation; and that by precept, lecture, and every other mode of instruction.*” Rembrandt’s *Anatomy Lesson* (Figure 1) builds on Hippocrates’ injunction to teach. Note how engrossed the students are in Dr Tulp’s demonstration.

Dr Tulp’s lecture is aided by the graphical representation of the forearm anatomy dissection. The painting beautifully illustrates the Confucian wisdom, that “*what I see, I will remember*”.

Alva Noë, a renowned art philosopher, says the *Anatomy Lesson*, at its heart, is an attempt by Rembrandt to speak of the power of epistemology – the study of knowledge. Dr Tulp’s lesson gives the students “*the knowledge necessary for comprehending sight*”.¹

In 1946 Edgar Dale introduced the concept of the “Cone of Experience”. The “Cone” or rather a “Pyramid of learning” classifies



Figure 1: Rembrandt’s *The Anatomy Lesson of Dr Nicolaes Tulp*, 1631, Mauritshuis Museum, The Hague

various types of instructional methods. Dale theorised that learners retain more information by what they “do” as opposed to what is “heard”, “read” or “observed”.² “Learning by doing” in contemporary times is known as “experiential learning”.

Teaching the craft of a surgical discipline presents challenges in the modern era. The impact of the European worktime directive (the 40-hour week), emphasises a consultant-led service and increasing super-specialisation – and now COVID 19 – have all impacted training. The use of surgical simulation is an important facet of trying to address these training challenges as are a variety of teaching methods using different adjuncts that include an increasing array of audio-visual materials. Given the disproportionate scarcity of surgical access in low-income settings, data suggests a large unaddressed disease burden worldwide.³ Surgical education thus becomes vital to address this need.

Live surgical broadcasts (LSB) are such an audio-visual adjunct whose use has sparked controversy about their educational role and potential for patient harm. This concern about patient safety added to claims about their lack of teaching value has led several surgical Societies to ban the use of LSBs.^{4,5} The origins of the call to ban live surgery workshops stems from the landmark 2006 workshop case of a 62-year-old Japanese woman who died following cardiothoracic surgery.⁶ There are several ethical aspects posed by LSB that merit consideration and need to be addressed by protagonists of LSB. LSB may put the visiting surgeon in a foreign operating environment, with new or unfamiliar equipment and staff. They may be jetlagged and stressed and may even be required to communicate in a foreign language.⁵ Operations are likely to take slightly longer given the need for teaching and answering questions over the two-way conference audio system. Additionally, the surgeon may become distracted as their concentration is split between the patient and the audience. LSB may also open the patient to inappropriate surgical decision-making, and the oft-

cited concern is the patients’ increased risk of infection given the crowded theatre from the extra transmission personnel.⁴ Consent issues also require consideration as the visiting surgeon may not have time to fully review and consult the patient themselves. Groote Schuur Hospital has mandated a special consent form for LSB to allow patients to be thoroughly informed about the potential risks and benefits.

The European Association of Urology (EAU) endorses the use of live surgery as a technique for the dissemination of surgical knowledge, provided it adheres to a clearly defined regulatory framework. The EAU has published LSB guidelines as to how these potentially deleterious factors of LSB can be mitigated.⁷ The guidelines function as a useful checklist with all aspects of pre- intra- and postoperative care considered. The guidelines also contain useful tips to protect patients, such as the suggestion that surgeon distraction can be reduced by the inclusion of a second operator. The guidelines mandate strict panel instruction to control commentary by refining dialogue with the surgeon exclusively via a moderator, thus limiting interruptions.

Min have proposed that LBS be governed by the same “3Rs” principals as animal research: replacement, reduction, and refinement. The guidelines cover refinement, recorded live with edited surgeon comments would appear to fulfil the “replacement” principal very well. Reduction of case numbers and operation times should be a goal.⁴

Rao and Karim point out, in a BJU comment, that while a lot is written about the drawback of LSB, less is written in its defence.⁸ They cite the advantages for an individual patient to be part of a workshop. Patients would have access to an expert who is able to offer surgical procedures not available locally. A recent systematic review focusing on patient safety during LBS concluded that outcomes were equivalent to outcomes during normal operating



Figure 2: The forerunner of the LSB: Boston City Hospital operating theatre, circa 1890

conditions.⁹ LSBs are considered a unique educational experience in terms of demonstrating the nuances of setting up surgical exposure for novel techniques and the detailed steps in performing the operation including the use of novel accessory devices. Rocco et al. reviewed a database of 200 patients operated over a 12-year period at a popular European laparoscopic and robotic urology congress and found that the rate of complications is low considering the complexity of surgeries.¹⁰

There may even be a wider public good to LSB. This was illustrated in 2018 when three operations were broadcast on national United Kingdom television. The broadcasters argued that the initiative “helped to demystify surgery for people” and helped “reassure the public about the NHS”.¹¹

The educational value of LSB as a teaching tool has also been considered. Their appraisal is largely based on audience opinion rather than objective endpoints. Most of the six studies included in a recent systematic review supported the value of LSB.⁹ Sugarman et al., for example, document that 82% of congress attendees surveyed considered observing LSBs as more valuable than watching pre-recorded videos.¹² By contrast, a survey at the 2011 World Congress of Endourology, found that 66% of 256 respondents believed that videos would be a better learning tool than LSBs.¹³

It must be stated that LSB should not be the “see one” of the old surgical training adage “see one, do one, teach one” (SODOTO); rather it is an educational adjunct that can be incorporated into the reflective feedback between trainer and trainees during the learning curve cases, so that competency and – after many hours of practice – mastery can be achieved. Finally, telementoring also deserves a place in surgical training.¹⁴

In conclusion, the naysayers need to recognise that LSB can be conducted in accordance with the regulatory framework of published EAU guidelines⁷ and can be made safer with pre-workshop preparation of the surgeon, the team, and the technology. The yeasayers need to ensure the quality of transmission optimises the experience and recognise that the educational value of LSB needs ongoing critical assessment. In this issue we have published a paper

entitled *Video transmission of urology surgeries: proof of concept in a resource-constrained environment*. The paper considers how LSB can be achieved with affordable off-the-shelf equipment in a resource-limited environment. This has the potential to make LSB routine and to be used or adapted to a variety of under- and post-graduate settings for surgical education and training to address the surgical skill deficit in developing countries.

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