

Neurosurgical training: adapting to the new normal

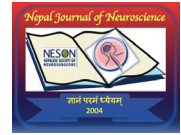
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COVID-19: the problem

The risk of transmitting COVID-19 infection while gathering in groups inside closed spaces and subsequent threat of morbidity and mortality among the health workers due to the disease, has forced medical education-programs globally to rethink and modify their mode of training.¹

The neurosurgical training programs which have been built upon “read one, see one and do one” philosophy now seems impractical to pursue in wake of social distancing measures. Measures like re-scheduling of the duty rosters to keep the whole team from getting exposed, limit on number of health staff allowed inside operating rooms and in rounds, and curbs on amount of interactions with patients along with drastic reduction of routine operative cases in the hospitals, have made teaching and learning activities difficult.^{2,3}

The routine lectures and demonstrations in physical classrooms and bed side teaching rounds have been stopped. Even examinations to evaluate students have either been postponed or cancelled. Conferences, meetings and continued medical education (CME) programs have been cancelled due to government-imposed ban on meetings.^{4,5}

The “New Normal”

This curtailment of physical interactions had generated a vacuum which led to initially slow and sceptical introduction of online education programs.⁶ With rapid widespread acceptance and demand, online deliberations and discussions have now become a new normal. Rather than being physically present in the operating room; virtual classroom, live operating workshops and demonstrations on social platforms are now becoming new ways to learn the practical skills. Cadaveric dissections in anatomy labs have been replaced by videos and online demonstration. Group learning and individual discussions via live chats are been preferred.

Lectures and presentation in classrooms and tutorials in presence of patients have been replaced by online lectures and video demonstrations. Even examinations to evaluate students during the end of their semesters are being taken online.

These measures have prevented large gatherings and chances of dissemination during the congregations. These changes have been adopted not only in teaching institutions but also being encouraged by professional societies and government agencies who are now organising virtual seminars, meetings and workshops. This unlike in the past can be recorded and made available to the participants while they stay at their home or offices. These endeavours have been encouraged at the national level, with Nepal Medical Council accrediting these courses.

Adapting our training programs

Neurosurgical programs worldwide have adapted their programs to meet the challenge. Simply postponing and cancellation cannot help the trainees and the programs. Considering the limitation of duration of program and need of evaluation of the residents, various approaches have been designed (table 1).

Schedule roster of web-based presentations by residents on important topics, research papers as well as audits are being adopted. Programs now advise their students to attend web-based courses offered by

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Format	Modifications adapted	Remarks
Lectures/ demonstration	Virtual lectures on zoom/ GoToMeeting/ Google Meet/ youtube live Recorded video sessions on youtube	To avoid crowded rooms which pose risks to all participants
Cadaveric workshops	Online demonstrations Recorded videos	Cadavers unless treated well and tested negative for COVID are likely to transit infection
Case discussion/ Audits	Virtual grand rounds	Classical or challenging cases can be discussed
Rounds/ Bed side teachings	Limited audience (less than five people)	In places where proven COVID negative cases are kept
Assistance during operations	Limited participation (usually one assistant) Discussion on recorded videos	In cases where proven COVID negative cases are being operated
Direct guidance during surgery	Only during critical phase of surgery Discussion on recorded videos	In cases where proven COVID negative cases are being operated

Table 1: Adaptions suggested to conduct academic sessions in the present COVID-19 challenge

professional societies like American Association of Neurological Surgeons (AANS), Neurological Society of India (NSI) and Nepalese Society of Neurosurgeons (NESON) to name a few. These courses have helped supplement the programs' pre-schedule agendas.

Practical tutorials can be undertaken in small groups on patients who have been tested negative for COVID-19. On operating such patients, even trainees can be trained or allowed to participate.

Virtual classrooms are however long and taxing, increase on-screen time and demand sedentary lifestyle. Trainees are encouraged to take care of individual physical fitness.

To meet the need of social interaction, small group meetings can be conducted in big auditorium under strict physical distancing measures.

Simple prevention protocols

Simple preventive measures have been shown to be effective and are being advised to be adopted strictly in academic and clinical scenarios. It is advisable to wear scrubs during hospital work at all times. The airways and the eyes through which the virus is known to enter one's body, need to be covered. The sources which can harbour and bring the virus near these portals like hands, clothes, masks, phones, stationary items etc should be disinfected frequently. To avoid spreading the infections, it is vital to keep a track of any health issue with the members of team, who on any suggestion of infection should "report, isolate and get tested".^{2,3}

Wear masks

Use protective visors/ eye-shield

Wear appropriate category personal protective equipment (PPE) at all times

Wash hands frequently

Bath after exposure with COVID-19 positive patients

Maintain physical distance

Do not eat or smoke with colleagues in closed spaces

If symptomatic, "report, isolate and test"

Table 2: Simple preventive strategies

Learners' perception and limitations

Though the new founded ease of live virtual learning spaces has helped in spreading knowledge in a wider community, this has also encroached upon personal free time of both the presenter and the attendees as they are often conducted in evenings or early mornings. With increasing number of webinars and virtual meetings, this modality of knowledge transfer can become boring if it stretches over long hours, are frequent or happen to be repetitions and lacks interesting and fresh insights.⁷

Virtual meetings though convenient and safe takes extra time to set up and can get easily off-track if conducted without agenda and within certain protocols. With major chunk of work being done on virtual platform these days, our screen time has prolonged leading to increase in strain on eyes, physical inactivity, headache and even anxiety and increase in blood pressure. The loss of social touch and absence of physical closeness exposes the void of real surroundings and people. At home, the listeners are easily

distracted. The slackness in internet speed and frequent interruptions in this part of the world, make the expectantly smooth run of the online transmission sometime difficult to follow and understand.

Training programs are cognizant of the fact that though these modes of education may increase knowledge and change perception, it would not be able to generate empathy and develop physical skills which can only be obtained on physical interactions and involvement.

A collective response and a balancing act

This phase, though transitional, is going to take a long time to settle and in this course is going to change the way we had perceived and did our trainings in the past. The silver lining to all these changes has been increase in general awareness of personal safety measures in working place, knowledge of using online platforms and portals for learning and conducting evaluations, availability of on-demand and often free materials from experts worldwide and overall development of resilience to keep fighting and staying fit and updated.

Collectively all the training programs at university and national level should forged an alliance to understand the need, deficiencies and opportunity of this COVID-19 period to make the best out of the worst.

This is a time to maintain a balance between overburdening oneself with webinars and virtual work in order to avoid close and crowded places, and loosing opportunity to teach and learn which is vital component of medical profession.

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