# Evidence Search Service Results of your search request

## What Trusts have done/put in place to deliver undergraduate medical & dental education to students during covid

**ID of request:** 24702  
**Date of request:** 12th August, 2020  
**Date of completion:** 13th August, 2020

If you would like to request any articles or any further help, please contact:  Sarah O'Reilly at [sarah.o'reilly3@nhs.net](mailto:sarah.o)

Please acknowledge this work in any resulting paper or presentation as: Evidence search: What Trusts have done/put in place to deliver undergraduate medical & dental education to students during covid. Sarah O'Reilly. (13th August, 2020). LONDON, UK: Barts Health Knowledge and Library Services.

**Sources searched**  
National Center for Biotechnology Information (NCBI) (1)  
PubMed (65)

**Date range used** (5 years, 10 years): Jan 2020 - present   
**Limits used** (gender, article/study type, etc.): None   
**Search terms and notes** (full search strategy for database searches below):

Google: NHS trust AND medical education OR dental education OR nursing education AND covid OR pandemic

Google: site:nhs.uk training undergraduate students covid

Google: medical OR dental OR nursing AND student AND placement AND undergraduate AND nhs.uk

For more information about the resources please go to: <http://www.bartshealth.nhs.uk/library>.

## Summary of Results

Trusts/ Health boards that have made info available on line.

<https://intranet.southernhealth.nhs.uk/all-about-me/leadership-education-and-development-lead/covid-19-student-placements/>

<https://www.nes.scot.nhs.uk/education-and-training/by-discipline/nursing-and-midwifery/practice-education/covid-19-supervision-and-assessment.aspx>

Association of Dental Education in Europe - member selected resources

<https://adee.org/sites/default/files/Selected%20articles%20that%20may%20be%20of%20interest.pdf>

## Contents

[A. Original Research](#Content5)

1. [#pandemicpedagogy: Using Twitter for knowledge exchange.](#Research722702)
2. [A novel approach to medical school examinations during the COVID-19 pandemic.](#Research722673)
3. [Blended learning via distance in pre-registration nursing education: A scoping review.](#Research722537)
4. [Clinical placements for medical students in the time of COVID-19.](#Research722689)
5. [Coalition for medical education-A call to action: A proposition to adapt clinical medical education to meet the needs of students and other healthcare learners during COVID-19.](#Research722714)
6. [Coordinated responses of academic medical centres to pandemics: Sustaining medical education during COVID-19.](#Research722705)
7. [COVID 19: Disruptive impacts and transformative opportunities in undergraduate nurse education.](#Research722533)
8. [COVID-19 Can Catalyze the Modernization of Medical Education.](#Research722691)
9. [COVID-19 crisis, safe reopening of simulation centres and the new normal: food for thought.](#Research722683)
10. [COVID-19 is a challenge for dental education-A commentary.](#Research722525)
11. [COVID-19 pandemic and the impact on dental education: discussing current and future perspectives.](#Research722524)
12. [COVID-19 Pandemic-Medical Education Adaptations: the Power of Students, Staff and Technology](#Research722724)
13. [COVID-19: Challenges and Opportunities for Educators and Generation Z Learners.](#Research722716)
14. [COVID-19: General practice education in the 'new normal'.](#Research722684)
15. [Covid-19: how to use your time when clinical placements are postponed.](#Research722707)
16. [COVID-19: novel pandemic, novel generation of medical students.](#Research722695)
17. [COVID-19: Perspective of a Dean of Dentistry.](#Research722528)
18. [COVID-19: The immediate response of european academic dental institutions and future implications for dental education.](#Research722529)
19. [Creation of an Interactive Virtual Surgical Rotation for Undergraduate Medical Education During the COVID-19 Pandemic.](#Research722686)
20. [Daily medical education for confined students during coronavirus disease 2019 pandemic: A simple videoconference solution.](#Research722715)
21. [Debriefing: A Place for Enthusiastic Teaching and Learning at a Distance.](#Research722704)
22. [Digital Clinical Placement for Medical Students in Response to COVID-19.](#Research722677)
23. [Enhancing workplace learning at the transition into practice: Lessons from a pandemic.](#Research722703)
24. [From concept to action: alternative dental hygiene clinical education during a pandemic.](#Research722521)
25. [Home Surgical Skill Training Resources for Obstetrics and Gynecology Trainees During a Pandemic.](#Research722687)
26. [Hospital-based dental externship during COVID-19 pandemic: Think virtual!](#Research722527)
27. [I am having trouble keeping up with virtual teaching activities: Reflections in the COVID-19 era.](#Research722721)
28. [Idle medical students review emerging COVID-19 research.](#Research722674)
29. [Impact of COVID-19 on dental education in the United States.](#Research722530)
30. [Innovation in Response to the COVID-19 Pandemic Crisis.](#Research722679)
31. [Interactive pedagogical tools could be helpful for medical education continuity during COVID-19 outbreak.](#Research722678)
32. [Live-Streaming Surgery for Medical Student Education - Educational Solutions in Neurosurgery During the COVID-19 Pandemic.](#Research722680)
33. [Medical and Surgical Education Challenges and Innovations in the COVID-19 Era: A Systematic Review.](#Research722696)
34. [Medical education adaptations during a pandemic: Transitioning to virtual student support.](#Research722699)
35. [Medical education during pandemics: a UK perspective.](#Research722718)
36. [Medical Education During the COVID-19 Pandemic: A Single Institution Experience.](#Research722706)
37. [Medical education: COVID-19 and surgery.](#Research722694)
38. [Medical Students and COVID-19: Challenges and Supportive Strategies.](#Research722690)
39. [Medical Students' Perceptions and an Anatomy Teacher's Personal Experience Using an e-Learning Platform for Tutorials During the Covid-19 Crisis.](#Research722711)
40. [Nurse Educators as Agents of Change in the SARS-CoV-2 Pandemic.](#Research722532)
41. [Pandemically challenged: Developing a ward-based cross-skilling programme.](#Research722700)
42. [Pandemics and Their Impact on Medical Training: Lessons From Singapore.](#Research722717)
43. [Pedagogical foundations to online lectures in health professions education.](#Research722710)
44. [Peer mentoring for medical students during the COVID-19 pandemic via a social media platform.](#Research722688)
45. [Peer teaching medical students during a pandemic.](#Research722720)
46. [Pre-Clinical Remote Undergraduate Medical Education During the COVID-19 Pandemic: A Survey Study .](#Research722692)
47. [Provision of e-learning programmes to replace undergraduate medical students' clinical general practice attachments during COVID-19 stand-down.](#Research722698)
48. [Redefining undergraduate nurse teaching during the coronavirus pandemic: use of digital technologies.](#Research722534)
49. [Strength, Weakness, Opportunity, Threat (SWOT) Analysis of the Adaptations to Anatomical Education in the United Kingdom and Republic of Ireland in Response to the Covid-19 Pandemic.](#Research722712)
50. [Students' perceptions on dental education in the wake of the COVID-19 pandemic.](#Research722523)
51. [Sustainable Medical Teaching and Learning During the COVID-19 Pandemic: Surviving the New Normal.](#Research722708)
52. [Teaching empathy and resilience to undergraduate nursing students: A call to action in the context of Covid-19.](#Research722531)
53. [Technology Enhanced Assessment (TEA) in COVID 19 Pandemic.](#Research722709)
54. [The COVID-19 pandemic: implications for dental education.](#Research722526)
55. [The impact of COVID-19 on the undergraduate medical curriculum.](#Research722675)
56. [The Impact of the Covid-19 Pandemic on Current Anatomy Education and Future Careers: A Student's Perspective.](#Research722713)
57. [The impact of the COVID-19 pandemic on medical education.](#Research722685)
58. [The Present and Future Applications of Technology in Adapting Medical Education Amidst the COVID-19 Pandemic.](#Research722682)
59. [Transition to online is possible: Solution for simulation-based teaching during the COVID-19 pandemic.](#Research722701)
60. [Undergraduate Radiology Education During the COVID-19 Pandemic: A Review of Teaching and Learning Strategies.](#Research722676)
61. [Unmuting Medical Students' Education: Utilizing Telemedicine During the COVID-19 Pandemic and Beyond.](#Research722681)
62. [Using technologies to prevent cheating in remote assessments during the COVID-19 pandemic.](#Research722522)
63. [What can we do for part-time nursing students during the COVID-19 pandemic?](#Research722535)
64. [Zooming-out COVID-19: Virtual clinical experiences in an emergency medicine clerkship.](#Research722693)
65. [The use of gamification in the teaching of disease epidemics and pandemics.](#Research722722)
66. [The challenges of "continuing medical education" in a pandemic era.](#Research722723)

## A. Original Research

1. **#pandemicpedagogy: Using Twitter for knowledge exchange.**  
   Finn GM Medical education 2020;:No page numbers.

The COVID‐19 crisis has resulted in homeworking becoming the norm internationally. As a result, international, national and institutional medical education conferences, workshops and seminars have been cancelled or postponed indefinitely. Consequently, the opportunity for knowledge exchange and networking has been reduced. Hull York Medical School runs a medical education research unit with associated masters and PhD programmes that rely on conferences as opportunities for postgraduate students to learn from others in the field, showcase their research and innovative pedagogy, as well as network for future employment.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=6286332d812707df0fa01f0ef035b0a6)

1. **A novel approach to medical school examinations during the COVID-19 pandemic.**  
   Birch E. Medical education online 2020;25(1):1785680.

Online teaching for medical students is not an unusual tool used in medical education. Alongside clinical placements, medical students are familiar with online teaching platforms from various members of the faculty. However, the new and necessary method of examining medical students from their own home during the Covid-19 Pandemic is a novel approach. It is vital that medical students continue to be examined, as this establishes the attainment of the curriculum learning outcomes.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=9f29194bf5068ff10d28e60c6f2467cc)

1. **Blended learning via distance in pre-registration nursing education: A scoping review.**  
   Jowsey T. Nurse education in practice 2020;44:102775.

Prior to the Covid-19 global pandemic, we reviewed literature and identified comprehensive evidence of the efficacy of blended learning for pre-registration nursing students who learn across distances and/or via satellite campuses. Following a methodological framework, a scoping literature review was undertaken. We searched six databases (EBSCOHOST (CINHAL plus; Education research Complete; Australia/New Zealand Reference Centre); Google Scholar; EMBASE (Ovid) [ERIC (Ovid); Medline (Ovid)]; PubMed: ProQuest Education Journals & ProQuest Nursing & Allied Health Source) for the period 2005-December 2015. Critical appraisal for critiquing qualitative and quantitative studies was undertaken, as was a thematic analysis. Twenty-eight articles were included for review, which reported nursing research (n = 23) and student experiences of blended learning in higher education (n = 5). Four key themes were identified in the literature: active learning, technological barriers, support, and communication. The results suggest that when delivered purposefully, blended learning can positively influence and impact on the achievements of students, especially when utilised to manage and support distance education. Further research is needed about satellite campuses with student nurses, to assist with the development of future educational practice.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=c6603d3ddf87b6cf1d0292c16fb69378)

1. **Clinical placements for medical students in the time of COVID-19.**  
   Halbert JA The Medical journal of Australia 2020;213(2):69-69.e1.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=36eb1ca2fd1009fefcf5bedb668f3597)

1. **Coalition for medical education-A call to action: A proposition to adapt clinical medical education to meet the needs of students and other healthcare learners during COVID-19.**  
   Newman NA Journal of cardiac surgery 2020;35(6):1174-1175.

With the ongoing coronavirus, journals and the media have extensively covered the impacts on doctors, nurses, physician assistants, and other healthcare workers. However, one group that has rarely been mentioned despite being significantly impacted is medical students and medical education overall. This piece, prepared by both a medical student and a cardiothoracic surgeon with a long career in academic medicine, discusses the recent history of medical education and how it has led to issues now with distance-based learning due to COVID-19. It concludes with a call to action for the medical education system to adapt so it can meet the needs of healthcare learners during COVID-19 and even beyond.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=8aa209ab13d81f5bea03affccf65e187)

1. **Coordinated responses of academic medical centres to pandemics: Sustaining medical education during COVID-19.**  
   Ashokka B. Medical teacher 2020;42(7):762-771.

Background: The Corona Virus Disease-19 (COVID-19) has been declared a pandemic by the World Health Organization (WHO). We state the consolidated and systematic approach for academic medical centres in response to the evolving pandemic outbreaks for sustaining medical education.Discussion: Academic medical centres need to establish a 'COVID-19 response team' in order to make time-sensitive decisions while managing pandemic threats. Major themes of medical education management include leveraging on remote or decentralised modes of medical education delivery, maintaining the integrity of formative and summative assessments while restructuring patient-contact components, and developing action plans for maintenance of essential activities based on pandemic risk alert levels. These core principles must be applied seamlessly across the various fraternities of academic centres: undergraduate education, residency training, continuous professional development and research. Key decisions from the pandemic response teams that help to minimise major disruptions in medical education and to control disease transmissions include: minimising inter-cluster cross contaminations and plans for segregation within and among cohorts; reshuffling academic calendars; postponing or restructuring assessments.Conclusions: While minimising the transmission of the pandemic outbreak within the healthcare establishments is paramount, medical education and research activities cannot come to a standstill each time there is a threat of one.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=1e549dcb4c1758174a91b23fd3d0424f)

1. **COVID 19: Disruptive impacts and transformative opportunities in undergraduate nurse education.**  
   Carolan C. Nurse education in practice 2020;46:102807.

• COVID 19. • Education. • Transformation. • Opportunities. • Challenges.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=5784c2bd85432d5eee338118d10e3588)

1. **COVID-19 Can Catalyze the Modernization of Medical Education.**  
   Chen CH JMIR medical education 2020;6(1):e19725.

Amid the coronavirus disease (COVID-19) crisis, we have witnessed true physicianship as our frontline doctors apply clinical problem-solving to an illness without a textbook algorithm. Yet, for over a century, medical education in the United States has plowed ahead with a system that prioritizes content delivery over problem-solving. As resident trainees, we are acutely aware that memorizing content is not enough. We need a preclinical system designed to steer early learners from "know" to "know how." Education leaders have long advocated for such changes to the medical school structure. For what may be the first time, we have a real chance to effect change. In response to the COVID-19 pandemic, medical educators have scrambled to conform curricula to social distancing mandates. The resulting online infrastructures are a rare chance for risk-averse medical institutions to modernize how we train our future physicians-starting by eliminating the traditional classroom lecture. Institutions should capitalize on new digital infrastructures and curricular flexibility to facilitate the eventual rollout of flipped classrooms-a system designed to cultivate not only knowledge acquisition but problem-solving skills and creativity. These skills are more vital than ever for modern physicians.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=876705a57f21196e59b60afd8f5dc228)

1. **COVID-19 crisis, safe reopening of simulation centres and the new normal: food for thought.**  
   Ingrassia PL Advances in simulation (London, England) 2020;5:13.

BACKGROUND: The world is facing a massive burden from the coronavirus disease 2019 (COVID-19) pandemic. Governments took the extraordinary step of locking down their own countries to curb the spread of the coronavirus. After weeks of severe restrictions, countries have begun to relax their strict lockdown measures. However, reopening will not be back to normal.Simulation facilities (SF) are training spaces that enable health professionals and students to learn skills and procedures in a safe and protected environment. Today's clinicians and students have an expectation that simulation laboratories are part of lifelong healthcare education. There is great uncertainty about how COVID-19 will impact future training in SF. In particular, the delivery of training activities will benefit of adequate safety measures implemented for all individuals involved.This paper discusses how to safely reopen SF in the post-lockdown phase. MAIN BODY: The paper outlines 10 focus points and provides operational tips and recommendations consistent with current international guidelines to reopen SF safely in the post-lockdown phase. Considering a variety of national advices and regulations which describe initial measures for the reopening of workplaces as well as international public health recommendations, we provide points of reflection that can guide decision-makers and SF leaders on how to develop local approaches to specific challenges. The tips have been laid out taking also into account two main factors: (a) the SF audience, mainly consisting of undergraduate and postgraduate healthcare professionals, who might face exposure to COVID-19 infection, and (b) for many simulation-based activities, such as teamwork training, adequate physical distancing cannot be maintained. CONCLUSIONS: The planning of future activities will have to be based not only on safety but also on flexibility principles.Sharing common methods consistent with national and international health guidelines, while taking into account the specific characteristics of the different contexts and centres, will ultimately foster dissemination of good practices.This article seeks to further the conversation. It is our hope that this manuscript will prompt research about the impact of such mitigation procedures and measures in different countries.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=da2bf542e14a585246557d95235775de)

1. **COVID-19 is a challenge for dental education-A commentary.**  
   Bennardo F. European journal of dental education : official journal of the Association for Dental Education in Europe 2020;:No page numbers.

The COVID-19, which appeared to originate in China in December 2019, has spread worldwide pandemically. In this commentary, authors described this new challenge for dental education using the recent literature and experience gained in the Italian University of Catanzaro.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=d8aa75c194ddafab4fe7ca5f7c429fc6)

1. **COVID-19 pandemic and the impact on dental education: discussing current and future perspectives.**  
   Machado RA Brazilian oral research 2020;34:e083.

Due to the COVID-19 pandemic crisis, many dental schools and instructors are rethinking the way they teach and interact with students. New perspectives regarding a change in face-to-face activities, social isolation and the reformulation of clinical activities result in a transition toward e-learning and e-teaching processes. In this review, we discuss some favorable aspects and difficulties associated with virtual teaching and learning, searching for available tools and techniques as well as new perspectives.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=e2a13bde92200a6689362fb916d14d07)

1. **COVID-19 Pandemic-Medical Education Adaptations: the Power of Students, Staff and Technology**  
   Medical Science Educator 2020;:-.

The coronavirus pandemic has profoundly changed the way medical education is delivered globally. Our group reports an insight into the adaptations and innovations made by the School of Medicine at Anglia Ruskin University.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=fa4e5d268a56d7f10e16529ad6fe1197)

1. **COVID-19: Challenges and Opportunities for Educators and Generation Z Learners.**  
   Marshall AL Mayo Clinic proceedings 2020;95(6):1135-1137.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=c052e16e5272e56d6710b33622c818e1)

1. **COVID-19: General practice education in the 'new normal'.**  
   Gupta TS Australian journal of general practice 2020;49:No page numbers.

COVID-19 has provided learning opportunities for medical students, supervisors and the public.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=36252a10b2bf3412f42e0c62233184d2)

1. **Covid-19: how to use your time when clinical placements are postponed.**  
   Henry JA BMJ (Clinical research ed.) 2020;369:m1489.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=e5a1f313778272886bd20683bb708f9c)

1. **COVID-19: novel pandemic, novel generation of medical students.**  
   Wang JJ British journal of anaesthesia 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=105190b68604c6016a3b663b8b24f24d)

1. **COVID-19: Perspective of a Dean of Dentistry.**  
   Emami E. JDR clinical and translational research 2020;5(3):211-213.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=05fc6a0cf0030707dffb18801a15ae65)

1. **COVID-19: The immediate response of european academic dental institutions and future implications for dental education.**  
   Quinn B. European journal of dental education : official journal of the Association for Dental Education in Europe 2020;:No page numbers.

The COVID-19 pandemic has had an immediate and dramatic impact on dental education. The Association of Dental Education in Europe decided to carry out an investigation to assess the immediate response of European Academic Dental Institutions. An online survey was sent to both member and non-member dental schools to investigate the impact on non-clinical and clinical education, assessment and the well-being/pastoral care measures implemented. The preliminary findings and discussion are presented in this paper, for the responses collected between the 25 March and 5 April 2020. The survey at this time of publication is ongoing, and detailed results can be accessed https://adee.org/covid-19-european-dental-education%E2%80%99s-immediate-response.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=f293a3e51958292f66395a6da888d042)

1. **Creation of an Interactive Virtual Surgical Rotation for Undergraduate Medical Education During the COVID-19 Pandemic.**  
   Chao TN Journal of surgical education 2020;:No page numbers.

OBJECTIVE: During the coronavirus 2019 pandemic, medical student involvement in direct patient care has been severely limited. Rotations mandatory not only for core curricula but also for informing decisions regarding specialty choice have been postponed during a critical window in the application cycle. Existing virtual rotations are largely observational or lack patient-facing components. SETTING: A virtual Otolaryngology - Head and Neck Surgery rotation at the University of Pennsylvania (Philadelphia, Pennsylvania) was implemented for medical students, comprising interactive live-streamed surgeries, outpatient telehealth visits, and virtual small group didactics. RESULTS: Medical students enrolled in the virtual surgical rotation were able to engage with attending surgeons and operating room staff while remotely viewing surgical procedures captured with first-person audiovisual technology. Students participated in several different aspects of care delivery in both the inpatient and outpatient setting, similar to their typical responsibilities of an in-person rotation. CONCLUSIONS: The authors will continue to develop the virtual surgical education methodology to further disseminate an interactive video-based medical student elective to other procedural specialties and institutions.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=3f199828d1aeffedeecc6799223d8e8c)

1. **Daily medical education for confined students during coronavirus disease 2019 pandemic: A simple videoconference solution.**  
   Moszkowicz D. Clinical anatomy (New York, N.Y.) 2020;33(6):927-928.

The outbreak of coronavirus disease 2019 caused by severe acute respiratory syndrome coronavirus 2 infection has recently spread globally and is now a pandemic. As a result, university hospitals have had to take unprecedented measures of containment, including asking nonessential staff to stay at home. Medical students practicing in the surgical departments find themselves idle, as nonurgent surgical activity has been canceled, until further notice. Likewise, universities are closed and medical training for students is likely to suffer if teachers do not implement urgent measures to provide continuing education. Thus, we sought to set up a daily medical education procedure for surgical students confined to their homes. We report a simple and free teaching method intended to compensate for the disappearance of daily lessons performed in the surgery department using the Google Hangouts application. This video conference method can be applied to clinical as well as anatomy lessons.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=b7c3052b1081de831582342241346b95)

1. **Debriefing: A Place for Enthusiastic Teaching and Learning at a Distance.**  
   Bradley CS Clinical simulation in nursing 2020;:No page numbers.

The current pandemic has required a quick response to the unprecedented suspension of face-to-face instruction in higher education worldwide. The rapid conversion of didactic, laboratory, and clinical courses to distance learning has been challenging, requiring integration of screen-based virtual simulations and other innovative learning activities. The importance of a robust debriefing of these learning opportunities is often neglected, which could be to the detriment of the students. Debriefing is based on strong narrative pedagogy, requiring an engaging and enthusiastic dialog. Despite long days of screen time, it is even more imperative to connect with students to create meaningful learning through a rich verbal debriefing.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=260ae589aab9e4a08b2f4b1c68ac3cf7)

1. **Digital Clinical Placement for Medical Students in Response to COVID-19.**  
   Sam AH Academic medicine : journal of the Association of American Medical Colleges 2020;95(8):1126.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=ca9794c531e15888c613f30129603b68)

1. **Enhancing workplace learning at the transition into practice: Lessons from a pandemic.**  
   Gillespie H. Medical education 2020;:No page numbers.

Taking responsibility for prescribing is one of newly qualified doctors’ greatest stressors.(1) Despite being a routine task, prescribing insulin is particularly stress‐inducing. The global pandemic has made it more important to minimise transitioning students’ stress; yet there are fewer clinicians to support their accelerated transitions. We had planned an intervention during 9‐week ‘Clinical Assistantships’ immediately before qualifying. Students would write insulin ‘pre‐prescriptions’, which supervisors would endorse as prescriptions that were appropriate to dispense. A trained healthcare professional or person with diabetes (‘debriefer’) would conduct one‐to‐one Case Based discussions (CBDs) to help students learn reflectively from experience.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=5770c5cf3e4ec324b10763b94a44ef48)

1. **From concept to action: alternative dental hygiene clinical education during a pandemic.**  
   Kornegay EC Journal of dental education 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=bb50662fcee8d3b4cfeddd3896013098)

1. **Home Surgical Skill Training Resources for Obstetrics and Gynecology Trainees During a Pandemic.**  
   Hoopes S. Obstetrics and gynecology 2020;136(1):56-64.

The coronavirus disease 2019 (COVID-19) pandemic has created a unique educational circumstance in which medical students, residents, and fellows find themselves with a gap in their surgical training. We reviewed the literature, and nine categories of resources were identified that may benefit trainees in preventing skill decay: laparoscopic box trainers, virtual reality trainers, homemade simulation models, video games, online surgical simulations, webinars, surgical videos, smartphone applications, and hobbies including mental imagery. We report data regarding effectiveness, limitations, skills incorporated, cost, accessibility, and feasibility. Although the cost and accessibility of these resources vary, they all may be considered in the design of remote surgical training curricula during this unprecedented time of the COVID-19 pandemic.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=03596e01aa637513c156d18239c55bc5)

1. **Hospital-based dental externship during COVID-19 pandemic: Think virtual!**  
   Stoopler ET Special care in dentistry : official publication of the American Association of Hospital Dentists, the Academy of Dentistry for the Handicapped, and the American Society for Geriatric Dentistry 2020;40(4):393-394.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=9bdfc5660ed9453eebc2b164c0e2d0a8)

1. **I am having trouble keeping up with virtual teaching activities: Reflections in the COVID-19 era.**  
   Machado RA Clinics (Sao Paulo, Brazil) 2020;75:e1945.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=129668f9da21b25794346186cb679054)

1. **Idle medical students review emerging COVID-19 research.**  
   Boodman C. Medical education online 2020;25(1):1770562.

The coronavirus disease (COVID-19) pandemic is causing wide-spread interruptions in medical education. With little warning, clinical rotations were cancelled and medical students were sent home. While pre-clinical students transitioned to online curricula, clinical students were left without discreet educational goals. Simultaneously, medical doctors were scrambling to maintain competence in the face of rapidly evolving COVID-19 information. Here, we describe an education program that integrates medical students into interdisciplinary teams to review emerging COVID-19 research that directly answers questions sent in by medical doctors.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=9b2a4de936cd9ba68f3e3425f736a3e9)

1. **Impact of COVID-19 on dental education in the United States.**  
   Iyer P. Journal of dental education 2020;84(6):718-722.

Dental institutions in the United States are reeling from the consequences of the novel SARS-CoV2 coronavirus, the causative agent of CODIV-19. As oral health care providers, we have been trained on prevention of aerosol transmissible diseases, but we are still grappling with many unknown factors regarding COVID-19. While the Centers for Disease Control and Prevention (CDC), American Dental Association (ADA), and local state agencies are releasing updates on guidelines for dentists and patients, no official information exists for dental institutions on how to effectively follow the recommended guidelines including "shelter in place" with social distancing to protect students, faculty, staff, and patients, and still ensure continuity of dental education. This article discusses the challenges that we face currently and offers some simple strategies to bridge the gaps in dental education to overcome this emergency.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=49ddf7a79a40c02a5a4d64b532aa107e)

1. **Innovation in Response to the COVID-19 Pandemic Crisis.**  
   Woolliscroft JO Academic medicine : journal of the Association of American Medical Colleges 2020;95(8):1140-1142.

The COVID-19 pandemic has disrupted all aspects of academic medical center missions. The number and rapidity of innovative responses to the crisis are extraordinary. When the pandemic has subsided, the world of academic medicine will have changed. The author of this Invited Commentary anticipates that at least some of these innovations will become part of academic medicine's everyday clinical and educational operations. Here, he considers the implications of exemplary innovations-virtual care, hospital at home, advances in diagnosis and therapy, virtual learning, and virtual clinical learning-for regulators, academic medical centers, faculty, and students.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=fd7758fb4b7634c3217240a0c88d2372)

1. **Interactive pedagogical tools could be helpful for medical education continuity during COVID-19 outbreak.**  
   Grzych G. Annales de biologie clinique 2020;78(4):446-448.

Training and education are essential for medical students. During the COVID-19 outbreak, numerous schools and universities have had to close. Ensuring pedagogical continuity requires alternatives to the traditional classroom, especially in medical education. Usual distance learning tools such as videos and downloadable handouts are not sufficient to promote efficient teaching. Distance learning requires self-motivation and does not give you direct access to your instructor. Some students fear the loss of human contact with an instructor - like asking questions during and after class - which promotes learning, understanding and communication. Moreover, classical distance learning methods do not offer immediate feedback that can help students in their understanding of the lecture. In this context, interactive pedagogic tools (IPT) could be useful for medical education continuity and for maintaining human contact necessary in pedagogy. We briefly evaluated interactive pedagogic tool compared to traditionnal distancial tools on medical students. This study showed the importance to have direct contact with a teacher and feedback during a lecture and to not exclusively perform distance learning without direct interaction and feedback. Hence, in the present context, we encourage teacher to use this type of tools to maintain direct interaction with students - which is essential in pedagogy - and ensure a qualitative pedagogical continuity.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=40ee14c5d027afded924cb2702721012)

1. **Live-Streaming Surgery for Medical Student Education - Educational Solutions in Neurosurgery During the COVID-19 Pandemic.**  
   Jack MM Journal of surgical education 2020;:No page numbers.

OBJECTIVE: The COVID-19 pandemic significantly altered medical student education. The ability for students to be a part of the operating room team was highly restricted. Technology can be used to ensure ongoing surgical education during this time of limited in-person educational opportunities. DESIGN: We have developed an innovative solution of securely live-streaming surgery with real-time communication between the surgeon and students to allow for ongoing education during the pandemic. RESULTS: We successfully live-streamed multiple different types of neurosurgical operations utilizing multiple video sources. This method uses inexpensive, universal equipment that can be implemented at any institution to enable virtual education of medical students and other learners. CONCLUSIONS: This technology has facilitated education during this challenging time. This technological set-up for live-streaming surgery has the potential of improving medical and graduate medical education in the future.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=ee8b6631135dd73ec1e8d2e41c66d1a8)

1. **Medical and Surgical Education Challenges and Innovations in the COVID-19 Era: A Systematic Review.**  
   Dedeilia A. In vivo (Athens, Greece) 2020;34(3 Suppl):1603-1611.

The aim of this systematic review was to identify the challenges imposed on medical and surgical education by the COVID-19 pandemic, and the proposed innovations enabling the continuation of medical student and resident training. A systematic review on the MEDLINE and EMBASE databases was performed on April 18th, 2020, and yielded 1288 articles. Sixty-one of the included manuscripts were synthesized in a qualitative description focused on two major axes, "challenges" and "innovative solutions", and two minor axes, "mental health" and "medical students in the frontlines". Shortage of personal protective equipment, suspension of clinical clerkships and observerships and reduction in elective surgical cases unavoidably affect medical and surgical education. Interesting solutions involving the use of virtual learning, videoconferencing, social media and telemedicine could effectively tackle the sudden cease in medical education. Furthermore, trainee's mental health should be safeguarded, and medical students can be involved in the COVID-19 clinical treatment if needed.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=43ee0423077d5992585d98bac729e8be)

1. **Medical education adaptations during a pandemic: Transitioning to virtual student support.**  
   Hodgson JC Medical education 2020;54(7):662-663.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=8470fefe0247e8d4de0b422e349c763e)

1. **Medical education during pandemics: a UK perspective.**  
   Mian A. BMC medicine 2020;18(1):100.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=67a89dd594f8ad4e3ab43b250fdbb5a0)

1. **Medical Education During the COVID-19 Pandemic: A Single Institution Experience.**  
   Singh K. Indian pediatrics 2020;57(7):678-679.

Social distancing to curb the COVID-19 pandemic has caused suspension of classroom teaching in all educational institutions. We implemented a novel online classroom platform at our institute to continue medical education. The program attracted encouraging feedback from the students. It may serve as a model for uninterrupted teaching and training during times of crisis.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=c8db95bac7b302c7190241ea6f2c03d0)

1. **Medical education: COVID-19 and surgery.**  
   Khan S. The British journal of surgery 2020;107(8):e269.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=01a5d0cccb41aa08a8f182a68562bb61)

1. **Medical Students and COVID-19: Challenges and Supportive Strategies.**  
   Chandratre S. Journal of medical education and curricular development 2020;7:2382120520935059.

As coronavirus disease 2019 (COVID-19) pandemic continues to spread across the world, it is also adversely affecting medical student education. In addition, COVID-19 poses several challenges to medical students' physical and mental health and their professional identity formation. Medical students are experiencing increasing anxiety due to the COVID-19 disruption. Medical students show higher rates of depression, suicidal ideation, and stigmatization around depression and are less likely to seek support. It is therefore important to safeguard their mental health and implement effective strategies to support their educational, physical, mental, and professional well-being.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=a6f222906b029b820ff9a537210bba65)

1. **Medical Students' Perceptions and an Anatomy Teacher's Personal Experience Using an e-Learning Platform for Tutorials During the Covid-19 Crisis.**  
   Srinivasan DK Anatomical sciences education 2020;13(3):318-319.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=82e6c23b1ca3adfa673e2697f2b18f94)

1. **Nurse Educators as Agents of Change in the SARS-CoV-2 Pandemic.**  
   Klar RT Nursing for women's health 2020;24(4):253-255.

The coronavirus pandemic caused a rapid and seismic shift in the provision of nursing education. In this commentary, I provide examples of how faculty and students at my university made the shift and what we have learned from the experience thus far.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=58e8269ea042d4c354f1a4cdaad0faed)

1. **Pandemically challenged: Developing a ward-based cross-skilling programme.**  
   Bakewell Z. Medical education 2020;:No page numbers.

Due to the COVID‐19 pandemic, North Bristol NHS Trust (NBT) doctors were redeployed to unfamiliar clinical teams, where they would work at the level of a fully‐registered Foundation doctor. As undergraduate clinical teaching fellows, we were re‐purposed to rapidly produce a training programme to refresh the medical knowledge of doctors who were from a wide variety of non‐medical specialities and grades. Building on our experience of facilitating medical students, wedevised medical ward‐based scenarios in an informal Objective Structure Clinical Examination (OSCE) style to promote focused active learning and prompt further independent study.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=01b10b3ac93e467774db0b86b8cdf1ef)

1. **Pandemics and Their Impact on Medical Training: Lessons From Singapore.**  
   Liang ZC Academic medicine : journal of the Association of American Medical Colleges 2020;:No page numbers.

The ongoing COVID-19 crisis has hit Singapore hard. As of February 25, 2020, Singapore had the 4th highest number of confirmed COVID-19 infections outside of China, only trailing behind South Korea, Italy, and Japan. This has had reverberating effects on Singapore's health care system, and has, consequently, also affected medical education all the way from the undergraduate to the postgraduate level. While efforts are underway to contain disease spread and transmission, the authors believe that this is an opportune time to examine and reflect on the impact that medical crises like COVID-19 can have on medical training and education and to evaluate "business continuity plans" to ensure quality medical education even in the face of constant disruptions from pandemic outbreaks. Medical training is as important a mandate as patient care and service. The authors believe that even in trying times like this, rich and precious lessons can be sought and taught, which will immensely benefit medical students and residents-the health care leaders of tomorrow. In this Perspective, the authors discuss the various ways in which the COVID-19 crisis has affected medical instruction in Singapore and explore pertinent practical and creative solutions for the continuity of medical training in these trying times, drawing on their previous experience with the Severe Acute Respiratory Syndrome (SARS) outbreak in 2003 as well as the current ongoing COVID-19 crisis.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=631fc91e21e0aa9ff02918f47fd2d495)

1. **Pedagogical foundations to online lectures in health professions education.**  
   Seymour-Walsh AE Rural and remote health 2020;20(2):6038.

Professional and tertiary health professions education (HPE) has been markedly challenged by the current novel coronavirus (COVID-19). Mandates for training organisations to reduce social contact during the global pandemic, and make learning available online, provide an opportunity for regional, rural and remote clinicians and students to more easily access learning and professional development opportunities. Online lectures, while posing an opportunity for regional, rural and remote HPE, entail potential risks. Educators who are familiar with face-to-face pedagogies may find a transition to remote, digital interaction unfamiliar, disarming, and therefore they may not design maximally engaging lectures. The strategies used in a face-to-face lecture cannot be directly transferred into the online environment. This article proposes strategies to ensure the ongoing effectiveness, efficiency and engagement of lectures transitioning from face-to-face to online delivery. Cognitive learning theory, strategies to promote learner engagement and minimise distraction, and examples of software affordances to support active learning during the lecture are proposed. This enables lecturers to navigate the challenges of lecturing in an online environment and plan fruitful online lectures during this disruptive time. These suggestions will therefore enable HPE to better meet the existing and future needs of regional, rural and remote learners who may not be able to easily access face-to-face learning upon the relaxation of social distancing measures. Strategies to provide equitable HPE to learners who cannot access plentiful, fast internet are also discussed.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=15f29cdaef86c6f69746aeae73f17999)

1. **Peer mentoring for medical students during the COVID-19 pandemic via a social media platform.**  
   Rastegar Kazerooni A. Medical education 2020;54(8):762-763.

In many contexts, medical students collaborate with health care workers to deliver patient management and care in emergencies like the COVID‐19 pandemic. In others, medical students are experiencing an unintended pause in their education due to global university closure over COVID‐19 concerns. In either situation, students find themselves coping with mental and emotional issues, including stress, anxiety, and fear, that may require significant psychological and physical effort. Therefore, it is important that medical schools not only care about students' mental health but also implement strategies to support their understanding of crisis management, self‐mental care, and other principal measures in order to strengthen their coping skills and mental preparedness.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=2b56703a66c5b01cedde33081bba8a0b)

1. **Peer teaching medical students during a pandemic.**  
   Roberts V. Medical education online 2020;25(1):1772014.

Our personal views about the challenges of continuing to deliver peer teaching during a pandemic. We are a group of 4(th) year medical students who are part of a student society which has delivered structured, highly formulaic peer-led teaching sessions for the past three years. During the COVID-19 pandemic, the reduced access to our normal clinical teaching highlighted the importance of peer-led teaching sessions. We wanted to continue with our peer-taught sessions but knew we would have to devise a new format to make our teaching accessible to our peers wherever they were. Here, we describe the challenges of online peer teaching during the COVID-19 pandemic and our reflections of the future implications to our group.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=3615c07582f6c91a7c47221a0927c7b4)

1. **Pre-Clinical Remote Undergraduate Medical Education During the COVID-19 Pandemic: A Survey Study .**  
   Shahrvini BB Research square 2020;:No page numbers.

Background : The COVID-19 pandemic has necessitated a sudden transition to remote learning in medical schools. We aimed to assess student perceptions of remote learning during the pre-clinical curricular training phase. Methods: A survey was distributed to first- and second-year medical students enrolled at the University of California San Diego School of Medicine in March 2020. Frequencies of responses to structured multiple-choice questions were compared regarding impacts of remote learning on quality of instruction and ability to participate, value of various remote learning resources, living environment, and preparedness for subsequent stages of training. Responses to open-ended questions about strengths and weaknesses of the remote curriculum and overall reflections were coded for thematic content. Results: Of 268 students enrolled, 104 responded (53.7% of first-year students and 23.9% of second-year students). Overall, students felt the quality of instruction and their ability to participate had been negatively affected. Most (64.1%) preferred the flexibility of learning material at their own pace. Only 25.5% of respondents still felt connected to the medical school or classmates. Most second-year students (56.7%) felt their preparation for the USMLE Step 1 exam was negatively affected and 43.3% felt unprepared to begin clerkships. In narrative responses, most appreciated the increased flexibility of remote learning but recognized that digital fatigue, decreased ability to participate, and lack of clinical skills and hands-on lab learning were notable deficits. Conclusions: Videocasted lectures uploaded in advance, electronic health record and telehealth training for students, and training for teaching faculty to increase technological fluency may be considered to optimize remote learning curricula.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=1562c62496a37426721a0785b39b23da)

1. **Provision of e-learning programmes to replace undergraduate medical students' clinical general practice attachments during COVID-19 stand-down.**  
   Roskvist R. Education for primary care : an official publication of the Association of Course Organisers, National Association of GP Tutors, World Organisation of Family Doctors 2020;:1-8.

Senior medical students at the University of Auckland, New Zealand spend most of their learning time in clinical attachments. Experiential apprentice-style training is traditionally recognised as an important aspect of obtaining competency. In March 2020 they were stood down from their general practice placements in the context of a national response to the COVID-19 pandemic. Acute conversion of their general practice education from experiential clinical exposure to online and offsite learning was required. This paper describes the steps taken and the underlying theoretical foundations for our expediently developed online course. Our online learning programme has three online components, reflecting the domains of educational environment theory: asynchronous discussion forums; a symposium facilitating social interactions and teacher presence, and a portfolio facilitating personal goal aspects. The latter is underpinned by a multi-theories model of adult learning, built upon the scaffolding framework that supports our entire medical curriculum. Within this theory, we propose a five-stage model of learning. Learning from this experience contributes to the body of knowledge around online education, particularly in meeting the needs of a clinical attachment traditionally grounded in experiential learning. It is hoped that the mechanisms described here might be useful to other educators facing similar challenges.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=013e00bae49e86b65d49940cb2920ba6)

1. **Redefining undergraduate nurse teaching during the coronavirus pandemic: use of digital technologies.**  
   Leigh J. British journal of nursing (Mark Allen Publishing) 2020;29(10):566-569.

During the current coronavirus pandemic, undergraduate nurse teaching is facing many challenges. Universities have had to close their campuses, which means that academics are working from home and may be coping with unfamiliar technology to deliver the theoretical part of the undergraduate nursing curriculum. Emergency standards from the Nursing and Midwifery Council have allowed theoretical instruction to be replaced with distance learning, requiring nursing academics to adapt to providing a completely virtual approach to their teaching. This article provides examples of tools that can be used to deliver the theoretical component of the undergraduate nursing curriculum and ways of supporting students and colleagues in these unprecedented times.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=f3adf5057bacb7329426cac5b2484c04)

1. **Strength, Weakness, Opportunity, Threat (SWOT) Analysis of the Adaptations to Anatomical Education in the United Kingdom and Republic of Ireland in Response to the Covid-19 Pandemic.**  
   Longhurst GJ Anatomical sciences education 2020;13(3):301-311.

The Covid-19 pandemic has driven the fastest changes to higher education across the globe, necessitated by social distancing measures preventing face-to-face teaching. This has led to an almost immediate switch to distance learning by higher education institutions. Anatomy faces some unique challenges. Intrinsically, anatomy is a three-dimensional subject that requires a sound understanding of the relationships between structures, often achieved by the study of human cadaveric material, models, and virtual resources. This study sought to identify the approaches taken in the United Kingdom and Republic of Ireland to deliver anatomical education through online means. Data were collected from 14 different universities in the United Kingdom and Republic of Ireland and compared adopting a thematic analysis approach. Once themes were generated, they were collectively brought together using a strength, weakness, opportunity, threat (SWOT) analysis. Key themes included the opportunity to develop new online resources and the chance to engage in new academic collaborations. Academics frequently mentioned the challenge that time constrains could place on the quality and effectiveness of these resources; especially as in many cases the aim of these resources was to compensate for a lack of exposure to cadaveric exposure. Comparisons of the actions taken by multiple higher education institutions reveal the ways that academics have tried to balance this demand. Discussions will facilitate decisions being made by higher education institutions regarding adapting the curriculum and assessment methods in anatomy.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=80911de32e5534aef84ce0746ab343ff)

1. **Students' perceptions on dental education in the wake of the COVID-19 pandemic.**  
   Van Doren EJ Journal of dental education 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=3434dc04e6a65249db6de533eb0af857)

1. **Sustainable Medical Teaching and Learning During the COVID-19 Pandemic: Surviving the New Normal.**  
   Yusoff MSB The Malaysian journal of medical sciences : MJMS 2020;27(3):137-142.

During the first phase of the Movement Control Order, many medical lecturers had difficulty adapting to the online teaching and learning methods that were made compulsory by the institutional directives. Some of these lecturers are clinicians who need to juggle between clinical work and teaching, and consider a two-week adaptation during this period to be not enough. Furthermore, converting traditional face-to-face learning to online formats for undergraduate and postgraduate clinical programmes would reduce the learning outcomes, especially those related to clinical applications and the acquisition of new skills. This editorial discusses the impact that movement restrictions have had on medical teaching and learning, the alternatives and challenges and the way forward.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=f03b17ea89cdcf4dd154ab2c1f884b3b)

1. **Teaching empathy and resilience to undergraduate nursing students: A call to action in the context of Covid-19.**  
   Taylor R. Nurse education today 2020;:104524.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=9a84e94030517d619aab6c14b913021c)

1. **Technology Enhanced Assessment (TEA) in COVID 19 Pandemic.**  
   Khan RA Pakistan journal of medical sciences 2020;36(COVID19-S4):S108-S110.

Online teaching and learning is not a new phenomenon. For the last many years, it has been mainly used as a part of face to face teaching. Assessment is an essential part of teaching and learning, as it establishes the achievement of course learning outcomes by the students. Computer-based assessment is in place for a long time now, however, online assessments have been less practiced. This is because of the issues of validity, reliability and dishonesty. During the COVID 19 pandemic, the educational environment has taken a paradigm shift in many medical schools, both nationally and internationally. This situation demands a method of assessment that is safe, valid, reliable, acceptable, feasible and fair. This paper describes the different formats of online assessment and their application in formative and summative assessments during and after the COVID 19 pandemic.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=24ff99b8c13608d28476cf8b09667ac6)

1. **The COVID-19 pandemic: implications for dental education.**  
   Deery C. Evidence-based dentistry 2020;21(2):46-47.

Aim This narrative review aims to report on the impacts of COVID-19 on the provision of dental education in the 67 dental schools in the United States (US). Having set the scene and current challenges, it aims to suggest some strategies to overcome the issues facing dental schools going forward.Background In the US the Occupational Safety and Health Administration classified dentists in the very high risk category because of the potential for exposure to the virus as a result of aerosol generating procedures (AGP). In the last 20 years there have been two previous outbreaks of coronaviruses (severe acute respiratory syndrome and Middle East respiratory syndrome) which resulted in no long-term changes in the provision of dental education. The recent paper from Wuhan, China described action in the height of the infection but no sustainable actions to deliver dental education going forward.Challenges The challenges identified include: protecting the health of students, faculty and staff; ensuring the continuity and quality of dental education; ensuring confidence in health and safety measures; and keeping up with guidance. There is some variation across the US but most schools have suspended clinical teaching and implemented stay at home policies. Others have implemented social distancing in laboratories including clinical skills. The final challenge is ensuring that students have the teaching, experience and are assessed to ensure the competency of the graduating student.Solutions Technology in teaching and learning offers many opportunities. For didactic teaching distance learning has been implemented. There are 'off the shelf' programmes for teaching and assessment. The development of bespoke content is time consuming and one solution is for schools to share material. Although still requiring social distancing, manikins and haptics offer some opportunities for skills training. The need for excellent information sharing with faculty and students is emphasised.Conclusion Schools should re-evaluate their policies and curricula and incorporate appropriate methods of distance learning permanently into their teaching. Students should have outreach and multi-professional support in order to allow them to assist in the community during public health crises. Finally, gaps have been identified in US dental schools preparedness for pandemics.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=92fdad3bf604b2bbd95c1614f1730f05)

1. **The impact of COVID-19 on the undergraduate medical curriculum.**  
   Sandhu P. Medical education online 2020;25(1):1764740.

The coronavirus pandemic has impacted medical education globally. As universities seek to deliver medical education through new methods of modalities, this continuing of education ensures the learning of the future workforce of the NHS. Novel ways of online teaching should be considered in new medical curricula development, as well as methods of delivering practical skills for medical students online.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=3e29e52deaee1161395aed5b966996a9)

1. **The Impact of the Covid-19 Pandemic on Current Anatomy Education and Future Careers: A Student's Perspective.**  
   Franchi T. Anatomical sciences education 2020;13(3):312-315.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=4d22e537df9886128599421b90bb5c0a)

1. **The impact of the COVID-19 pandemic on medical education.**  
   Al Samaraee A. British journal of hospital medicine (London, England : 2005) 2020;81(7):1-4.

The coronavirus pandemic has caused major disruption of systems worldwide, including education and health services. The duration and scale of the impact is yet to be established. The effect of the pandemic on medical education should be managed on the basis of early response, alternative education options and future changes and actions.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=32adfe59419946514df9452156a466ac)

1. **The Present and Future Applications of Technology in Adapting Medical Education Amidst the COVID-19 Pandemic.**  
   Remtulla R. JMIR medical education 2020;6(2):e20190.

The coronavirus disease (COVID-19) pandemic has not only been catastrophic toward patient health but has also proven to be incredibly disruptive to several industries and sectors, including medical education. However, many medical schools have employed various technological solutions in order to minimize the disruption to medical education during this unpredictable time. This viewpoint reviews the various current and potential applications of technology in order to adapt medical education amidst a global pandemic.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=a6cecda2c661aa98a5369dd109383905)

1. **Transition to online is possible: Solution for simulation-based teaching during the COVID-19 pandemic.**  
   Torres A. Medical education 2020;:No page numbers.

In March 2020, Polish universities had to suspend all on‐site activities due to the SARS‐CoV‐2 pandemic. As a result, we were faced with the problem of how to convert a simulation‐based course in geriatrics into distance‐learning. The main focus of the original course (30 academic hours) is to expose fourth‐year medical students, working in teams of three, to eight simulated cases including acute dyspnea (pneumonia), behavior change (somatic delirium), and cardio‐pulmonary deterioration.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=c68656ef0e56837cbf5c7088782b36fc)

1. **Undergraduate Radiology Education During the COVID-19 Pandemic: A Review of Teaching and Learning Strategies.**  
   Darras KE Canadian Association of Radiologists journal = Journal l'Association canadienne des radiologistes 2020;:846537120944821.

The Coronavirus disease 2019 (COVID-19) pandemic has altered how medical education is delivered, worldwide. Didactic sessions have transitioned to electronic/online platforms and clinical teaching opportunities are limited. These changes will affect how radiology is taught to medical students at both the pre-clerkship (ie, year 1 and 2) and clinical (ie, year 3 and 4) levels. In the pre-clerkship learning environment, medical students are typically exposed to radiology through didactic lectures, integrated anatomy laboratories, case-based learning, and ultrasound clinical skills sessions. In the clinical learning environment, medical students primarily shadow radiologists and radiology residents and attend radiology resident teaching sessions. These formats of radiology education, which have been the tenets of the specialty, pose significant challenges during the pandemic. This article reviews how undergraduate radiology education is affected by COVID-19 and explores solutions for teaching and learning based on e-learning and blended learning theory.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=c1b2064340e6a1aa206eaee1b94c92bf)

1. **Unmuting Medical Students' Education: Utilizing Telemedicine During the COVID-19 Pandemic and Beyond.**  
   Iancu AM Journal of medical Internet research 2020;22(7):e19667.

Due to the coronavirus disease (COVID-19) pandemic, medical schools have paused traditional clerkships, eliminating direct patient encounters from medical students' education for the immediate future. Telemedicine offers opportunities in a variety of specialties that can augment student education during this time. The projected growth of telemedicine necessitates that students learn new skills to be effective providers. In this viewpoint, we delineate specific telehealth opportunities that teach core competencies for patient care, while also teaching telemedicine-specific skills. Schools can further augment student education through a variety of telemedicine initiatives across multiple medical fields. The explosion of telemedicine programs due to the pandemic can be a catalyst for schools to integrate telemedicine into their current curricula. The depth and variety of telemedicine opportunities allow schools to continue providing high-quality medical education while maintaining social distancing policies.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=b1045a64ca25323ff82881e23ccf7dc5)

1. **Using technologies to prevent cheating in remote assessments during the COVID-19 pandemic.**  
   Lee J. Journal of dental education 2020;:No page numbers.

1. **What can we do for part-time nursing students during the COVID-19 pandemic?**  
   Choi EPH Medical education 2020;54(7):667-668.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=ad0ff342a2bec7cd3de87dd887d52ded)

1. **Zooming-out COVID-19: Virtual clinical experiences in an emergency medicine clerkship.**  
   Chandra S. Medical education 2020;:No page numbers.

In the setting of the novel 2019 coronavirus (COVID‐19) pandemic, it has been challenging to provide medical students in the Emergency Medicine (EM) clerkship meaningful clinical experiences that would meet clinical course goals and objectives, as well as satisfy Liaison Committee for Medical Education (LCME) requirements. During the EM clerkship, students play an integral role in interviewing patients, formulating treatment plans, facilitating patient discharges, and counseling patients. Immediately available direct and indirect supervision are paramount to ensure student learning and safe patient care. The authors present a novel clinical educational experience for senior medical students in an EM clerkship that fulfills specific clinical course learning objectives, while still providing students the opportunity to interact live with patients. We designed a virtual clinical experience where students performed supervised ‘virtual callbacks’ for patients recently evaluated in the ED. Student feedback on this experience has been positive. Completing the COVID‐19 callbacks decreased some of the clinical burden on the department. Patients, too, were grateful for the follow‐up.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=fb4b82e141608b54accea30822b93475)

1. **The use of gamification in the teaching of disease epidemics and pandemics.**  
   Robinson LA FEMS microbiology letters 2018;365(11):No page numbers.

With the launch of the teaching excellence framework, teaching in higher education (HE) is under greater scrutiny than ever before. Didactic lecture delivery is still a core element of many HE programmes but there is now a greater expectation for academics to incorporate alternative approaches into their practice to increase student engagement. These approaches may include a large array of techniques from group activities, problem-based learning, practical experience and mock scenarios to newly emerging approaches such as flipped learning practices and the use of gamification. These participatory forms of learning encourage students to become more absorbed within a topic that may otherwise be seen as rather 'dry' and reduce students engagement with, and therefore retention of, material. Here we use participatory-based teaching approaches in microbiology as an example to illustrate to University undergraduate students the potentially devastating effects that a disease can have on a population. The 'threat' that diseases may pose and the manner in which they may spread and/or evolve can be challenging to communicate, especially in relation to the timescales associated with these factors in the case of an epidemic or pandemic.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=4637fec9e531516a9a9db1dd3ba24771)

1. **The challenges of "continuing medical education" in a pandemic era.**  
   Lim EC Annals of the Academy of Medicine, Singapore 2009;38(8):724-6.

Closure of medical schools or the barring of "live patient" contact during an epidemic or pandemic is potentially disruptive to medical education. During the SARS epidemic, the use of web-based learning, role play, video vignettes and both live and mannequin-based simulated patients minimised disruptions to medical education. This article examines the pedagogical innovations that allow clinical teaching to continue without medical students examining actual patients, and proposes a contingency plan in the event of future outbreaks that may necessitate similar containment measures.

### Opening Internet Links

The links to internet sites in this document are 'live' and can be opened by holding down the CTRL key on your keyboard while clicking on the web address with your mouse

### Full text papers

Links are given to full text resources where available. For some of the papers, you will need an **NHS OpenAthens Account**. If you do not have an account you can [register online](https://openathens.nice.org.uk/).

You can then access the papers by simply entering your username and password. If you do not have easy access to the internet to gain access, please let us know and we can download the papers for you.

### Guidance on searching within online documents

Links are provided to the full text of each document. Relevant extracts have been copied and pasted into these results. Rather than browse through lengthy documents, you can search for specific words as follows:

**Portable Document Format / pdf / Adobe**  
Click on the Search button (illustrated with binoculars). This will open up a search window. Type in the term you need to find and links to all of the references to that term within the document will be displayed in the window. You can jump to each reference by clicking it.

**Word documents**  
Select Edit from the menu, the Find and type in your term in the search box which is presented. The search function will locate the first use of the term in the document. By pressing 'next' you will jump to further references.

**Disclaimer**  
We hope that you find the evidence search service useful. Whilst care has been taken in the selection of the materials included in this evidence search, the Library and Knowledge Service is not responsible for the content or the accuracy of the enclosed research information. Accordingly, whilst every endeavour has been undertaken to execute a comprehensive search of the literature, the Library and Knowledge Service is not and will not be held responsible or liable for any omissions to pertinent research information not included as part of the results of the enclosed evidence search. Users are welcome to discuss the evidence search findings with the librarian responsible for executing the search. We welcome suggestions on additional search strategies / use of other information resources for further exploration. You must not use the results of this search for commercial purposes. Any usage or reproduction of the search output should acknowledge the Library and Knowledge Service that produced it.