Ethical Responses to the Covid-19 Pandemic: Implications for the Ethos and Practice of Anatomy as a Health Science Discipline

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The move of much anatomy teaching online in response to the Covid-19 pandemic has been successfully implemented within very short time frames. This has necessitated a high degree of dependence upon the use of digitized cadaveric resources, has entailed immense workload demands on staff, and has disrupted students’ studies. These educational exigencies have been accompanied by ethical uncertainties for a discipline centered on study of the dead human body. An ethical framework for anatomy is suggested based on the principles of equal concern and respect, minimization of harm, fairness, and reciprocity, in which all staff and students are to be treated with respect and as moral equals. A series of ethical obligations are proposed as a means of maintaining the ethos of anatomy, coping with the suspension of body donation, providing adequate resources, and responding to increased dependence upon external providers. Good academic practice raises more general obligations stemming from the welfare of students, the increased workload of staff, and checking on online assessment and invigilation. As anatomists respond to the educational and ethical lessons prompted by this pandemic, they should plan for future disruptions to normal work patterns by adopting a sustainable and equitable course of action. Anat Sci Educ 13: 549–555. © 2020 American Association for Anatomy.

Key words: gross anatomy education; ethics; Covid-19 pandemic; online delivery; body bequests; ethical framework

INTRODUCTION

The global effects of Covid-19 are very well recognized with their devastating implications for daily life and for the health and wellbeing of whole populations (CSSE, 2020). Universities have not escaped the ramifications, confronted as they have been with its implications for teaching, and even for the nature of the university (Altbach and de Wit, 2020; DePietro, 2020; Hodge, 2020). The immediate impact of the cessation of face-to-face teaching and of the loss of significant cohorts of international students, is leading to re-evaluation of the place of online teaching in the new and as yet untested post-pandemic environment. These and other problems are accentuated by an inevitable loss of revenue from a loss of international students. Enveloping all these developments is the specter of an impact on the nature of campus life, with both educational and social consequences.
the need for community care, clear communications, and clarified expectations (Pather et al., 2020). The time constraints encountered in making the transition to alternative learning strategies have necessitated a high degree of dependence upon digitized cadaveric resources, YouTube videos, and three-dimensional (3D) virtual resources (Longhurst et al., 2020; Pather et al., 2020). Even when external providers offer platforms, learning objects and online design help, it has been recognized that great care is required to ensure that what is being offered is pedagogically sound and of high quality and is relevant to the needs of the institution (Evans et al., 2020; Pather et al., 2020).

Hosting synchronous classes has been identified as a means of partially overcoming a loss of the teacher–student relationship, and a way of breaking down barriers inherent within exclusively digital communication (Evans et al., 2020). Challenging as the teaching has proved, there has been widespread concern at finding the most satisfactory ways of conducting online assessment.

All the anatomists reporting in these publications are forcefully aware of the immense workload demands being made on many staff, accompanied by the equally difficult prospect of redundancy for some professional and technical staff. The loss of access to body donations has been felt by staff as well as students, alongside the inevitable multiple forms of disruption to students’ studies (Pather et al., 2020). The availability of the technology required to mount these changes tends to be taken for granted.

These articles demonstrate an awareness of the importance of ethical issues when making major decisions regarding educational directions, even though they have not been worked through or made explicit. The aim of the present article is to complement these contributions to the educational literature by reflecting on some of the ethical issues raised by (near-) exclusive dependence upon online learning for a discipline centered on study of the dead human body. While this article has been written with Covid-19 in mind, the principles apply to any epidemic, and therefore, have ongoing relevance.

GENERAL ETHICAL DEBATE

General ethical debate on the pandemic has been profuse. Examples of topics covered include ethics guidelines for health care institutions and for institutional ethics services responding to Covid-19 (Berlinger et al., 2020), the ethics of mandatory and voluntary interventions (Hastings Center Bioethics Briefings, 2020), the ethics of surveillance and quarantine (Nuffield Council on Bioethics, 2020a), and ethical principles underlying public health measures (Nuffield Council on Bioethics, 2020b). The issues debated in these areas are far removed from the challenges facing those administering body donation schemes and running dissection programs in an anatomy setting. However, there have also been other ongoing discussions with possible relevance for anatomy situations, namely, the inequitable impact of school closures, the inequitable impact of social distancing, the inequity of work requirements during a pandemic, and ethics guidance for infectious disease outbreaks in low income settings (Johns Hopkins Berman Institute of Bioethics, 2020).

ETHICAL FRAMEWORK FOR ANATOMY

In searching for appropriate principles, a starting place is provided by the United Kingdom (UK) Government’s framework for pandemics (MEAG, 2019). This group provides independent advice to the UK government on moral, ethical, and faith considerations on health and social care-related issues. Since the onset of the pandemic, MEAG has provided advice following requests from government on moral and ethical aspects of the coronavirus (Covid-19) response.

Its overarching principle of equal concern and respect for all involved in a pandemic applies to all involved in anatomical teaching and research. This encompasses the need to keep people informed of decisions as they are taken and to welcome their input. This is because good communication is fundamental to respect, so that all involved in changes and adaptations to teaching are consulted and are adequately prepared for likely new directions, especially when these will involve them in added responsibilities. A second principle is minimization of harm, encompassing physical, psychological, social, and economic harm. In anatomy, this principle covers the three groups of affected individuals, namely, students, staff, and the families of donors. Allied with minimization of harm is a third related principle, that of fairness, with its expectation that fairness will be shown toward students and staff, and also to the families of those who have donated their bodies. A fourth principle is that of reciprocity; within the anatomical context this implies that those who are asked to take on greater burdens, as in adapting teaching to an online mode, should be adequately supported and rewarded by all relevant authorities. What shines through is that individuals (both students and staff) are to be treated as moral equals, and that respect is due to all those involved (Nuffield Council on Bioethics, 2020b). If these principles are to have the effect they are designed to have, implementation has to be consistent and reasonable, based on good judgment that itself is controlled by reliable evidence (Gadd, 2020).

In searching for an ethical framework for anatomy, the fallback position has generally been medical ethics, that is, ethical principles that apply to clinical medicine. This has provided principles such as informed consent, autonomy, beneficence/non-maleficence, justice, dignity, respect, confidentiality, and truthfulness, where the person in mind is the patient, and the relationship is between the medical/health practitioner and the patient (Campbell et al., 2005; Beauchamp and Childress, 1999). Although anatomy looks to these principles for guidance, the anatomist – dead human body relationship represents a major move from the medical practitioner – living patient relationship. Nevertheless, each of the medical ethical principles carries over in limited form into the anatomy environment.

These principles came to the fore in the light of the unethical retention of organs and human tissue following postmortems in a number of countries, but highlighted in the UK by commissions that promulgated helpful sets of guidelines (Department of Health, 2001; Retained Organs Commission, 2002). Their focus was on respect for the families of the deceased, understanding for the feelings and grief of family members, informed consent for the retention of tissue and organs, and the centrality of a gift relationship with emphasis on donation rather than taking and retaining. These principles are relevant to anatomy and body donation, as demonstrated by the ethical guidelines drawn up by the IFAA that are based on notions of informed consent, respect, transparency, and with prohibition on the commercialization of human tissue (FICEM, 2012). These guidelines have proved foundational for the manner in which bodies are made available for anatomical examination, that is, by donation rather than the use of unclaimed bodies (Jones and Whitaker, 2009, 2012).

These guidelines may appear irrelevant for discussion of the move to online teaching, and yet, that would be short-sighted since they provide a mirror into the ethos of anatomy, an ethos that applies even to those anatomy departments that do not rely on dissection. The reason is that all anatomical
concepts are dissection-based from the earliest beginnings of modern anatomy with Vesalius (Jones, 2017) through to the present day with the emergence of concepts such as the cadaver as first patient and humanistic anatomy (Ferguson et al., 2008; Štrkalj, 2016; Hasselblatt et al., 2018). Online teaching, as much as dissection room-based teaching, requires a knowledge base provided by these diverse sets of inputs.

**CORE VALUES**

Much of the ethical discussion in anatomy has focused on the respect to be shown the dead human body, and therefore, to ways in which these bodies are obtained, treated, used, and ultimately disposed of (Champney, 2011; Riederer and Bueno-López, 2014; Winkelmann, 2016). In considering the move to wholesale online teaching these values are regarded as foundational, leading to the following ethical obligations.

**Ethical Obligations Underlying the Ethos of Anatomy**

Over recent years there has been a major move in the direction of viewing anatomy as a humanistic discipline alongside its scientific credentials (Štrkalj, 2016). The ethical implications of this trend stem from an emphasis on the bodily remains as being those of a once living person, rather than concentrating solely on the fragments of a dissected body. This reminder has seen the rise of commemorations and memorials in association with the donation of bodies for medical education (Hildebrandt, 2010; Pawлина et al., 2011; Jones et al., 2014). Online teaching should not lose sight of these messages that anatomy, no matter how it is taught, is dealing with the remains of fellow human beings, and hence, the ethical unacceptability of treating cadavers, including virtual cadavers, merely as research, and teaching tools (Jones, 2016a). If this were to occur, it would represent a substantial backward step into a reductionist view of the human body and its constituent parts.

This can be avoided if there is ongoing ethical reflection on the values that govern treatment of the dead human body, and on the personal dimensions of anatomy. Anatomy teaching involves the development of nontraditional independent skills (NTIDS) (Evans et al., 2020), that are person-centered and introduce the notion of the “care” of people, and in some cases extend to viewing the dead body as the students’ first patient/teacher (Coulehan et al., 1995; Winkelmann and Guldner, 2004; Talarico, 2013). It would be deleterious if this dimension was to be lost with the move to online teaching, as it would represent a move toward treating virtual body images as ethically neutral data far removed from any connection with real people. If this were to happen long-term, it would be counterproductive for contemporary anatomy with its increasing stress upon its link to professionalism and the humanities.

**Ethical Obligations Involved in Suspension of Body Donation**

Where cadavers are utilized for teaching and where body donations are suspended during a pandemic, the families of the donors become an object of ethical concern. This is not an unknown situation, since bodies are declined on a variety of grounds, including the virological or microbiological status of the donor in life, the existence of other diseases that might expose staff and students to unacceptable risks, excessive body weight, and an oversupply of bodies (FICEM, 2012; Jones, 2016a). There are no ethical problems here as long as prospective donors and their families have been informed in advance that these are grounds on which the donation may have to be rejected. While a pandemic of the Covid-19 magnitude could not have been foreseen, stipulation of this as a ground for rejection of the body, as in the IFAA guidelines, provides adequate informed consent.

Besides the suspension of donations, there will in all likelihood be donated bodies in storage that will not be utilized for dissection or will be underutilized. Although these are primarily administrative decisions, they have ethical dimensions arising from the need to use them in line with the wishes of the donors. Wastage of human material is unethical, as is its use for purposes other than those for which consent has been provided.

Consequently, every effort is to be made to utilize available human tissue for the benefit of present or future students. This may take a number of forms, which will generally come into play once lockdown has come to an end. These include in dissecting room sessions with future groups of students, and/or for making videos to illustrate dissecting sessions as carried out in one’s own institution by one’s own staff. These videos could replace actual dissection sessions as and when required, and/or as accessory guides to accompany live dissection room sessions.

**Ethical Obligations Linked to Lack of Adequate Resources**

The technical resources required for functioning at a high standard in an online environment are considerable. Apart from staffing, the technology required for effective communication in anatomy departments and their host institutions on the one hand, and in the students’ places of study on the other is considerable. This has ethical overtones since failure at this level will harm students. By zealous attention to their ethical responsibilities, anatomists need to ensure that the standard of what is being offered to students is as close as possible to what was offered pre-Covid-19. It also needs to seek equality across all sectors of the student population, since those from disadvantaged communities will be disproportionately disadvantaged if the technology and space available to them are substandard (Pacheco et al., 2020).

These comments apply to anatomy teaching in countries with ample technological resources. A major ethical concern for anatomy as a global profession is to contemplate the situation in countries with inadequate finances to support students in anything resembling the manner outlined by Evans et al. (2020) and Pathar et al. (2020). Anatomy education is a global phenomenon, so that inequality within any parts of the anatomical community should be of concern to all, as enunciated by the IFAA guidelines. Consequently, anatomists should not confine their attention to those departments and programs in well-established and resource-rich countries. Reports from departments with a minimum of technical resources are urgently required from an ethical perspective in order to give those from resource-rich territories the opportunity to support them and help them cope with the demands of an online environment. While it is far easier to make this statement than find ways of rectifying the imbalance, the
Ethical Obligations Concomitant on Increased Dependence upon External Providers

Dependence upon external rather than local expertise, as may occur in some online teaching, is an educational matter. Ethical queries arise when there is sharing of digital images, as in YouTube presentations, and when there is commercialization of human material. Both have previously been addressed in other contexts (Jones, 2016b; Champney et al., 2019).

The ethical consideration regarding the use of YouTube-derived material for human dissections and demonstrations is the provenance of the material, whether the material had been donated, and if it had, the dimensions of the consent provided by the donor prior to death (Barry et al., 2016; Miller and Lewis, 2016; Jones, 2016b). A broad directive has been provided in the Good Practice Recommendations of the IFAA. The relevant recommendation reads: “Limits need to be placed on the extent to which images or other artifacts produced from donations are placed in the public domain, including in social media, both to respect the privacy of the donor (and their surviving relatives) and to prevent arousing morbid curiosity. No individual should be identifiable in images” (FICEM, 2012; Jones, 2016a). In terms of online teaching, the questions to be addressed include the nature and extent of the consent provided by donors in the institution where the online material was generated, the non-identifiability of the donors, and similarities or differences between the respective legislations. In other words, could the dissections found on YouTube have been conducted in one’s own institution and country? Is there congruence between the ethical expectations and legislation in the two locations? (Jones, 2016b).

Use of commercial companies for the display of human material raises the specter of commercialization. This is not inevitable, and it is not an argument against employing commercially-derived material, but it serves as a caution. The IFAA guidelines are explicit: “There should be no commercialization in relation to bequests of human remains for anatomical education and research. This applies to the bequest process itself, where the decision to donate should be free from financial considerations, and also to the uses to which the remains are put following bequest…..” (FICEM, 2012) Although no actual remains will be used in an online environment, they could feature in videos obtained online. In discussing commercialization within a body donation context, Champney et al. (2019) highlighted three themes: (1) the consent, understanding and information provided to the donor and family, (2) the treatment of the deceased by the organization handling the donation, and (3) the safety, ethical, and legal aspects applying in the society, in which the body is used. Care is required to ensure that commercial elements do not enter at any of these stages. These considerations are relevant for an online context, and they should be taken into account before any decision is reached about use of available online material.

Unfortunately, the time available for preparing online teaching was minimal in most cases, with very little advance warning. It is hardly surprising that in this less than ideal situation staff utilized whatever resources were available to them. Their awareness of the provenance of some of this material may have been limited. This is understandable but unfortunate, and should prompt the IFAA to underline the ethical importance of clarifying the provenance of all material being used from the internet.

GOOD ACADEMIC PRACTICE

While the major thrust of this article has been on the discipline of anatomy, the analysis of ethical considerations linked to online teaching has raised more general obligations concerning the welfare of both students and staff. These extend beyond the confines of anatomy, and have broad relevance across all areas within an institution of higher learning. The underlying assumption is that good academic practice will be ethical practice.

Ethical Obligations Stemming from the Welfare of Students

The leading elements here center on the disruption for students, the support provided for students in making the sudden transition from traditional to online learning, the adequacy of the communications employed to support students and their welfare, and the expectations placed on students and their performance. The ethical principles required to govern the manner in which these transitions are handled revolve around respect, fairness, and the minimization of harm. The aim is to circumvent any inequality resulting from the unavailability of resources in the home environment, the lack of quiet spaces for study, inadequate broadband speeds and computer facilities, and the lack of support at home and/or by the host university. While there will be no way of completely avoiding some of these inequalities, the aim should be to minimize them as far as possible.

These are ethical imperatives and not simply educational ones, although good ethical practice will lead to good educational initiatives. Various devices employed to assist students include automatic upgrades of marks by, say, 5%, active online teaching with opportunities for discussion and feedback, and use of as much practical online teaching as feasible. The avenues explored will be determined by local circumstances and the availability of both staff and resources. Ethical practice will push an institution to provide as much additional support (educational and psychological) as can be provided for students, with especial emphasis on those who are disadvantaged, including those suffering from a range of disabilities. An institution has to ensure that the support those with disabilities would normally receive are adequately catered for in this new environment, where the demands will probably be greater. These considerations are of major relevance during online assessments (see below).

Reference above to the responsibilities of institutions is important, since it indicates that anatomists should not be expected to shoulder burdens that lie outside their jurisdiction. When they become aware of different forms of stress suffered by students, from psychological to financial, their responsibility is to be as empathic as possible in the first instance, but mainly to direct the students to the expertise made available by their institution.
A question that is coming increasingly to the fore is whether students, who are learning online, should be charged the same fees as if they were on campus and receiving in-person instruction (Barkan, 2020; Demuyakor, 2020; Massa, 2020; Young, 2020). Regardless of the position adopted by institutions, and regardless of the financial pressures under which many of them are currently operating, the consequences for students are momentous. The attraction of the campus experience, namely, making friends, networking with peers, relating to students from other disciplines, joining clubs, playing sport, and let alone interacting with faculty, are largely lost. The experience of being a student and of receiving a broad education has, it is argued, been diminished. The ethical concern here is that if tuition fees are not reduced to reflect these losses, students are being overcharged and treated inequitably. This is a matter of economic justice (Barkan, 2020). However, this view is not shared by all educationalists, with some pointing out that colleges have fixed costs, that online instruction involves far more than Zoom, and that the quality of online instruction does not have to be inferior to in-person instruction (Massa, 2020). The longer online teaching is required will, in all probability, be matched by an increase in the quality and depth of online offerings, and a nuances of the educational and ethical arguments.

**Ethical Obligations Raised by Increased Workload for Staff**

Besides the ethical principles of respect, fairness, and the minimization of harm relevant to students, reciprocity will also apply to staff, in that those asked to take on greater burdens should be adequately supported and rewarded. The fear is that in a situation where an institution is experiencing financial constraints, an immediate response is to reduce staff numbers. Understandable as this may be on administrative and economic grounds, the institution will be failing ethically if it ignores its duty of care based on showing respect and fairness to its staff and dealing with them on the basis of reciprocity. The task of adapting teaching to an online mode has proved intense and highly demanding, involving a range of academic and technical staff (Pather et al., 2020; Evans et al., 2020), involving work that is far removed from business as usual. An institution that fails to act reciprocally, and takes its staff for granted, is functioning in an ethically suboptimal fashion.

Support staff, including technicians, teaching assistants, and demonstrators, will probably have been drafted into undertaking quite different work from that for which they were employed, essential work in the preparation of online teaching resources (Pather et al., 2020). Recognition should be given to these groups of staff, especially since in some situations they may be deemed expendable by those in authority coping with financial pressures brought on by Covid-19. This is where fairness, equality, and respect are to be controlling drivers.

A central issue for academics working in research-intensive universities is that the more time devoted to teaching preparation inevitably takes staff away from research, in addition to which laboratories will have been closed for periods of time during lockdown. Although these flow-on effects will have been inevitable, they have an ethical dimension, namely, that staff should not be penalized for the negative effects these may have had on research output. This is an outworking of reciprocity, that the efforts of staff to support students and the university should be balanced by an empathic understanding of the obstacles confronting staff.

Particular attention should be devoted to those who are disadvantaged in some way, such as with a recognized disability where normal degrees of support may prove inadequate in an online environment. Additionally, others may be disadvantaged by additional demands placed on them working in a home environment, with family responsibilities not encountered in the same way when working away from home. For instance, evidence is mounting that female academics are publishing less during the pandemic, due possibly to the intersection of work, school, and home life (Viglione, 2020). The principle of solidarity stresses the sharing of burdens to ensure that those asked to bear additional burdens are supported in ways that protect them from suffering unfairly (Nuffield Council on Bioethics, 2020b).

**Ethical Obligations Inherent Within Online Assessment and Invigilation**

These are probably the most self-evident of all the queries raised in this article, and accentuate concerns around plagiarism, collusion, trust, and integrity, as brought out very well by Pather et al. (2020). Additional ethical considerations appear when seeking ways of addressing these concerns in an online environment, and the nature and role of invigilation when students are siting examinations away from the far more controlled environment of an educational institution. This is particularly sensitive in competitive examinations.

One means of protecting the integrity of examinations sat remotely is by using artificial intelligence, using a commercial app to check on the compatibility of students’ computer and microphone. The process of proctoring or remote invigilation will see a third-party software incorporated into students’ computers to monitor their activities during remote exams. This software, as with the Proctorio service, will allow the system to check student identities, lockdown browsers, record keystrokes, scan student’s rooms, and identify suspicious behavior. The app takes a baseline photo of the student to verify their identity and analyses their activity, gaze, and background noise (Skyring and Personeni, 2020).

The ethical requirements of such a system demand that it protects students’ privacy, ensures the integrity of personal data, and is accurate, giving neither false negatives nor false positives. Ethical discernment has to balance two negatives, privacy and implications, against cheating. However, if the privacy of large numbers of students were to be impinged in order to prevent a small number of students from cheating, legitimate questions would be raised. There is also the question of whether this form of invigilation should be mandatory or whether there should be the opportunity to opt out, and what the consequences of that would be.

**Limitations of the Study**

As with all studies responding to the Covid-19 pandemic, the present one was written within a narrow timeframe and set out to address a specific context. The context is that of anatomists and the particular circumstances within which they operate. These can be regarded as limitations, although it can be argued that they have advantages as well as disadvantages. This is because it is important to respond rapidly to a world-shattering...
event when it is happening rather than wait until it is past. The latter provides hindsight and there will be ample time for reflections on how anatomists and others responded to the pandemic. But, anatomists and their students need help now, and the argument of this article has been that thinking ethically about our responses is best commenced immediately, no matter what the limitations may be.

CONCLUSIONS

In 2017, Jones wrote that “Anatomy does not remain stationary, and neither can the expectations of any one society remain isolated from those of similar and very dissimilar societies. Further, the lessons of history may prove far more relevant to current challenges than could ever have been foreseen. For instance, today, it has to contend with the pressures and opportunities opened up by cyberspace” (Jones, 2017).

When these words were penned there was no way in which the events of 2020 could have been foreseen. A major concern at that time was that the widespread availability of anatomical dissections on media, such as YouTube, may have the effect of diminishing the trust between institutions, donors, families, and communities (Jones, 2017). The concern was that, should this eventuate, negative consequences for body donation could follow. It was becoming clear that technology was beginning to have profound implications for anatomy including its ethical dimensions. The advent of massive online learning has brought these matters to a head, and regardless of the long-term outlook for anatomical education, anatomy educators have had a wake-up call. Anatomists should not view the pandemic-driven online learning as a once-off, but as the inauguration of a way of teaching and learning that will contribute to the overall experience of anatomy into the future. The issue is what place it will occupy and what role ethical deliberation will play in determining its role and contribution.

A great deal could have been learned from the history of pandemics, both recent and in the distant past, a history that was largely overlooked by most countries (Griffin and Denholm, 2020; Lau et al., 2020). Anatomists should not fall into the same trap as politicians and policy makers, but take seriously both the educational and ethical lessons emerging from the Covid-19 pandemic and re-orientate their thinking in light of the lessons learned.

NOTE ON CONTRIBUTOR

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