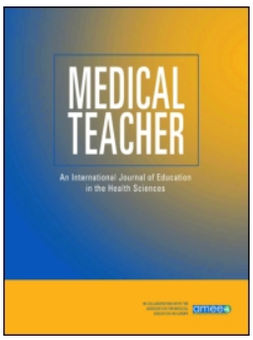

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Medical students consulting from home: A qualitative evaluation of a tool for maintaining student exposure to patients during lockdown

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ABSTRACT

Introduction: Lockdowns during the COVID-19 pandemic had a disruptive effect on medical education when they prevented medical students accessing real patients. To address this, we piloted 35 medical students at home consulting remotely with patients.

Method: We evaluated the intervention using qualitative analysis of post-experience interviews with a sample of 13 students and 10 clinical supervisors.

Results: The experience was perceived by all those interviewed to be both acceptable and educationally valuable. Data analysis revealed different models of implementation according to type of patients involved (acute, recently treated or expert patients) and type of communication platform used (AccuRx, Microsoft Teams or telephone). Practical and educational challenges were identified in relation to the following elements of the experience: patients consulting with students remotely, students being remotely supervised and students undertaking patient contact from home. Strategies for addressing these challenges were directly suggested by interviewees and also inferred from our analysis of the data.

Conclusions: Remotely supervised medical students at home undertaking remote consultations with patients can be acceptable and educationally valuable. The intervention was piloted in a UK graduate entry medical course and so it would be useful to replicate this study in other medical student populations.

KEYWORDS
Clinical skills; communication skills; undergraduate; medicine; clinical

Introduction

Across the globe countries have used periods of national or regional mass home confinement, (lockdowns) as a tool for reducing transmission of Covid 19 during the first wave of the pandemic.

From a medical teacher's perspective, two key things happened in the UK during our first national lockdown:

1. All medical student contact with patients abruptly ceased. Students were withdrawn from clinical placements, sent home and given remote teaching based on written or pre-recorded patient case studies
2. Outside of the acute secondary care setting, face to face consultations became the exception. The norm has become telephone and video consulting.

Some level of clinical contact between medical students and patients is now starting to resume. However, given that it may be years until a suitable vaccine is fully implemented, further lockdowns are likely, meaning that there is an imperative to find new ways of maintaining supervised clinical contact with patients throughout future periods of lockdown and self-isolation. Furthermore, even outside of a lockdown scenario, there is a need to find ways of maintaining supervised clinical contact between medical students in ways that reduce the potential for transmission between students, medical staff and patients.

A great deal has been published already about the practicalities of doctors video or telephone consulting with patients and the impact on patient care of the sudden shift

Practice points

- With appropriate preparation and supervision, students at home can be trusted to consult remotely with patients.
- New skills and strategies are required on the part of both learner and remote supervisor.
- The educational value of the method is dependent on effective patient selection and this can be time consuming.
- Some advantages over more conventional approaches include robust patient consent, potential for a higher 'hit rate' of useful consultations, reduced travel and dead-time for students, access to physically vulnerable patients.
- The impact of internet connection glitches was perceived to be the main potential disadvantage. Three-way telephone conference calling was not used this time but could be piloted in future.

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to remote consulting (Donaghy et al. 2019; Greenhalgh et al. 2020; Portnoy et al. 2020). However, there has been little reference to the possibility the same technology affords for maintaining supervised student contact with patients while both the students and patients are confined to their homes. A systematic review exploring the use of virtual consulting in the context of the COVID-19 pandemic found that whilst educational opportunities using telemedicine were present for doctors, those for students were sparse (Dedeilia et al. 2020).

In this article we describe a method used for maintaining clinical experience during lockdown where students in their own homes conducted remote consultations with patients. We then present the findings of a qualitative study exploring medical students and their clinical supervisors' experience of this novel method in terms of its feasibility, acceptability and educational value.

Description of the intervention

We piloted this teaching intervention during 22nd–26th June 2020 for the full second year cohort of students undertaking the Cambridge Graduate Medical Course (a total of 35 students spread across 9 primary care organisations (PCOs)). Prior to the pandemic, since starting the course, these students had spent a total of 17 weeks on clinical placements, three weeks of which had been in the same PCO. By this stage students had completed much of their basic clinical communication and examination skills. These students were due to return to their PCO for a further week's attachment during the week in question.

Following lockdown, JF discussed with both the students and the primary care physicians involved in delivering these placements the feasibility and acceptability of students in pairs undertaking remote patient consultations from home. All students felt they could arrange internet access and a device with a camera and were willing to participate. Only one of the PCOs declined to participate in the intervention (citing pandemic-related issues of workload) so an additional PCO was recruited which, although experienced in teaching, had not taught these particular students before. Each student took part in 3 remote clinics, the format being that: students were consulting from their own home; the supervising doctor was based in a primary care centre or their own home; the patient was based in their own home.

Prior to the attachment, supervising doctors were sent detailed written guidance on obtaining valid patient consent to take part in the remote student consultations and the students were sent a detailed written agreement to sign outlining professionalism and information governance standards for consulting from their own home. A general outline about practical methods of implementing remotely supervised student consultations was also circulated. This suggested using Microsoft Teams, AccuRx (a clinical video-consultation tool) or, if necessary, telephone and included written and video guidance. However, the outline was kept deliberately broad in order to utilise the supervising doctors' own insights and initiative regarding what method was likely to work best in their own local practice setting.

Research method

Ethical approval

Ethics approval was obtained from The University of Cambridge Psychology Research Ethics Committee ref PRE 2020.069

Sample and data collection

Before the attachment, all 35 students and 14 doctors involved in undertaking and supervising the remote consultations were invited to take part in individual interviews with a researcher following completion of the attachment. The 14 doctors were qualified family physicians ('GPs') who had all taught medical students within their PCO previously. The 35 students were all graduate students from both science and non-science backgrounds with a minimum 2.1 or above honours degree.

Three researchers undertook the interviews: two medical students from a different Cambridge medical course (TL and MA) and the academic general practitioner (family physician) with overall responsibility for primary care teaching at Cambridge (RD). Each student interview was undertaken by MA and TL working together. The doctor interviews were undertaken by RD.

The topic guide covered perceptions of feasibility, acceptability and educational value of students remote consulting from their own home. However, interview structure was kept sufficiently broad to allow the interviewers to probe and explore insights as they arose during the interviews. In the interviews we were also able to identify how the students and supervising doctors adapted to the previously unforeseen challenges via the different accounts of how the experience was organised and conducted in each individual context.

Interviews were conducted and recorded using the video-conferencing platform Zoom. The video element of each recording was immediately deleted and the audio element was uploaded to a professional transcription company. Transcripts were then imported to NVivo 12 for analysis.

Data analysis

Although thematic analysis of the data was approached from a phenomenological perspective (aiming to gain insights into participants' experience and meanings) we also followed elements of Paille's six steps of grounded theory analysis (Paillé 2011) in order to remain open to the possible emergence of explanations and theory. Data analysis proceeded as follows:

1. A preliminary layer of phenomenological analysis (Paillé and Mucchielli 2016) was undertaken by RD. This involved immersion in the data, note making on key points and quotes from each interview followed by reflective notes on first impressions of meanings and themes arising from across the dataset.
2. Meanwhile TL and MA undertook initial coding of the interviews, cross checking with each other throughout the process to ensure consistency in the codes used.
3. RD, TL and MA reviewed the initial coding, identifying new codes and generating conceptual categories according to the meanings and interrelationships identified. They considered relationships that appeared to be emerging between the categories, and how these described and

explained participants' experience. Where the results of this process appeared to conflict with the original first layer phenomenological analysis, codes and categories were reviewed for errors and omissions.

Results of qualitative analysis of semi-structured interviews

Interview participants

23 interviews took place in total: one for each study participant recruited. 13 out of the 35 students on the placement and 10 out of the 14 supervising doctors took part in the study. Of the 9 primary care organisations (PCOs) that delivered the remote attachment, these participants were distributed as follows:

- The 10 doctors represented 7 of the 9 PCOs.
- The 13 students interviewed represented 5 of the 9 PCOs
- 4 of the 9 PCOs were represented in both the student and doctor interviews
- Only one of the 9 PCOs was not represented in either interview.

The gender balance of the students interviewed matched the total course cohort i.e. 31% male; 69% female. 100% of the interviewed students had studied a science subject for their previous degree compared to 85% of the total year group.

The profile of doctors interviewed aligned with the total group of doctors supervising. 60% of the interviewed doctors were female (compared to 57% in the entire group); 60% were partners in a practice (compared to 57% in the whole group), 50% were approved to supervise trainee family physicians (compared to 57% of the whole group). In terms of number of years' experience as a family physician the distribution of the interviewees was: less than 10yrs = 30% (whole group 21%), 10–20yrs = 30% (whole group 21%), 20–30yrs = 30% (whole group 43%), 30 + yrs = 10% (whole group 15%)

1) Different models that emerged in terms of how the remotely supervised remote consultations were organised and implemented

a) Patient Selection and its effect on the teaching method

The experience varied according to three different types of patients selected. Patient selection was time consuming but when done well, made the experience very valuable.

All the doctors interviewed said that they selected and consented the patients themselves. A clear view emerged that this was a very time-consuming element of the method.

> Doctor Z7270 'I think it was quite time consuming selecting the patients. You know, the GP selecting the patients, because every time we called them to book them, you would almost do a mini consult in advance'

Consequently, some of the doctors expressed the view that in future, they would aim to delegate this task to their administrative staff. However, doctors and students expressed the view that the educational value of the method was strongly related to the appropriateness of the patients selected:

> Doctor Z2455 'We had to just pre-select the right patients. So, from a list of, sort of, I don't know, in the morning, kind of, 80–100 patients just finding the ones that were the most value.'

Our analysis of the interviews suggests three types of patients that were selected and that this affected how the student consultations were implemented.

i. Acute Patients
Doctors picked these patients off a list of patients requesting a 'same day' consultation with a doctor (with some reference to the reason given for the consultation). Any prior contact with a doctor was only for the purpose of consenting the patient.

> Doctor Z2665 'I tried to get … patients that we knew but that we hadn't seen before that were presenting with acute stuff so that the students could take a nice fresh history'

ii. 'Recently seen and sorted' patients
These patients had a recent consultation with a doctor in the practice, who had treated their presenting problem. They were then asked if they would be willing for a medical student to contact them later to take their history from them again.

> Doctor Z4652 'We, actually, cherry picked the patients from a little bit earlier on in the week or the previous week and just asked them to tell their story as they had to us.'

iii. 'Star' Patients
Patients with complex or long-term conditions who are well known to the doctors and who have over the years given of their time by being willing for medical students to interview them about their medical history and condition. In this example they were often used as an option of last resort when it had not been possible to source category i or ii patients

> Doctor Z2940 'so the first one was a star patient because I'd tried five different people … So, then I thought I'm just going to call this lady who I've been seeing loads recently, who has an interesting history …'

It was apparent from the interviews that the teaching method varied according to which of the above category of patient was used. Acute patients were generally seen with real time supervision from the doctor. 'Star' patients and 'recently seen and sorted' patients enabled students to take histories and report back to the supervisor without needing real-time or subsequent follow up from the supervisor. However, acute patients appeared to be students' preferred type, one reason being that they were perceived to be a better test of clinical reasoning skills.

Acute patients tended to be seen by pairs of students (one consulting and one observing) whereas groups of four students appeared to have been used on occasion with the other two categories of patients.

b) Technology Platforms Used: AccuRx, Microsoft Teams and Telephone

AccuRx was simple to set up but often unreliable (particularly with 4 in a virtual room). Microsoft Teams

had better reliability but was more complicated to use for clinical purposes. Telephone was trouble free but did not enable direct real-time supervision.

AccuRx integrates with many computer-based clinical systems and is specifically designed to allow a patient to meet in a virtual consulting room with up to 3 other individuals, all at separate locations. In many cases it appeared the intention was to undertake the consultations using AccuRx, but they often switched to other methods.

i. **AccurRx**
Participants commonly mentioned significant problems with time lag and audio/video breakup with AccuRx, particularly once there were four people in the virtual consulting room. Techniques mentioned for dealing with this were: using telephone or Microsoft Teams instead; talking more slowly; the observing student taking over the consultation. Some students attributed the unstable connection to the speed of their own or the patient's internet connection, although several interviewees mentioned that they did not encounter the same level of problems after they switched to Microsoft Teams. [We discovered later that AccuRx circulated an apology regarding a failed update that resulted in major stability issues occurring nationally during the second day of the attachment].

ii. **MS Teams**
Interviewees expressed the view that although Microsoft Teams was more stable, it was more complicated to use for clinical purposes. One reason given was that a separate Microsoft Teams meeting had to be created manually for each consultation and sent to the patient in order to prevent the possibility of a patient joining a subsequent consultation with a different patient. [AccuRx on the other hand creates new links automatically and sends them to the patient using contact information from the electronic patient record]. Students also mentioned that patients appeared to find the process of joining a consultation more complicated using MS Teams.

iii. **Telephone**
Students loved the lack of technical issues associated with using the telephone. They also liked the ability it afforded to refer to written prompts and write notes during the call. Lack of real time observation by the supervising doctor was identified as one downside of using the telephone. Also, phone calls tended not to be used for acute patients (perhaps because they lacked the facility for direct real-time supervision). Since consulting with acute patients was students' preferred option, this appeared to be a drawback of using the telephone. (Three-way telephone conference calling did not appear to have been used).

From the interview data, it appeared that AccuRx (and possibly Microsoft Teams) were used for acute patients whereas Microsoft Teams and telephone were more commonly used for 'recently seen and sorted' patients and 'star' patients.

2) The student and supervisor experience of the student consulting from their home.

a) Supervisor conceptions:

All the supervisors interviewed appeared comfortable in retrospect with the idea of students consulting from home. They appeared to be very satisfied with how the students had set up and maintained an appropriate environment and appearance for home consulting. Only one doctor could recall a potential issue with the home environment, but this was quickly addressed at the time and did not appear to have put the doctor off the method.

> Doctor Z7270 'my colleague said … that one of the students did seem to be distracted, and looking sideways during the video. … So I think he [the supervisor] stopped it and said is everything alright, is your environment okay, shall we bring you back in for the next consultation? And he said yeah …, I think there was definitely some kind of noise distraction that was affecting his ability to consult. … and so his colleague took over … and he responded well to the feedback, and there weren't any further issues.'

b) Student experience of consulting from their home

i. **Benefits**
Consulting from home was acceptable to all the students interviewed. Some positively enjoyed not having to travel–citing not only savings in travel time but also in being able to organise their time better and have less dead time.

ii. **Arranging the scene**
Locations used included bedroom, dining room, home office and bookable rooms in university accommodation. Students described in detail the lengths to which they went to prepare their situation. Practical arrangements included: dressing smartly, putting do not disturb notices on their door, pre-warning the rest of the household, arranging the background, relocating that week to a different family house where they could have a more private room or better wifi, booking out a room somewhere else in their student accommodation so they didn't have to use their bedroom.

iii. **The Weight of Responsibility**
A range of comments suggested that, despite making appropriate arrangements, the fear of being disturbed or overheard still appeared to have figured prominently in students background mental processes during their experience.

> Student Z7988 [fear of] '… family members just like storming in through the door, although I did warn them that I was going to do our meeting consultation … you never know if they will forget. So if someone's in the back of your mind, like, oh, if you hear a noise or something, that can distract you sometimes from the consultation.'

However, statements to this effect, and descriptions of the lengths they went to set up an appropriate home environment, demonstrated how seriously students took their

professional responsibilities towards professionalism and information governance.

3) The student and supervisor experience of remote supervision

i) Connection glitching and freezing adds complexity the clinical supervision dynamic

The worry of potential or actual technology failure emerged as by far the most stressful and challenging aspect of the experience for both the supervisors and the students. Comments by the supervising doctors suggested they took this in their stride and the students appeared to observe that this was the case. However, for students, there was the added stress of not knowing what to do when the connection froze and wondering how long it would be before the supervisor stepped in and called time-out:

> Doctor Z2940 'So there were times when the technical difficulties … they were kind of looking to me, like what should we do. So, I did have to dip in a few times, oh let's try this, or let's try that. But it didn't take away from the flow I don't think. It seemed okay.'

> Student Z9349 '… both of us felt that they saw it wasn't working and watched to see what we would do. Which is interesting, but we can't do much because we didn't set up the consultation and we don't have access to the Teams to set up for a patient, and it wouldn't be appropriate to anyway. So, I think maybe if they could step in a little bit sooner if there was a problem with that would be useful.'

Nevertheless, one student felt that it was important for tutors to hang back so that students learn how to handle glitching within the consultation:

> Student Z2103 'Like I, sort of, thought maybe the GP would just jump in once there was technical issues, but they, kind of, hung back so it was, kind of, us that were like trying to reassure the patient and like trying to see if that connection … if the technical connection was there. I think, that was useful because, I think, it's going to be more of a skill going forwards, I guess. Yes, learning how to handle that was, yes, it was useful'

Students also mentioned that if there was glitching while they were observing rather than consulting, it was difficult to step in and say they couldn't hear it. Equally, supervisors mentioned feeling uncertain at times regarding what the student had seen or heard . A benefit of having at least two students involved in the consultation appeared to be the facility to switch the consulting role to a different student when one had a connection problem.

At least two students mentioned the stress of glitching and freezing might have been diminished had there been an advice sheet or commonly agreed protocol between student and supervisor on how to handle technical and other issues presented by remote consulting.

ii) Lack of Informal Contact Between Students and Supervisors

Doctors and students identified that supervising students remotely resulted in a lack of informal contact between student and supervisor.

> Student Z9895 'I could ask questions after or before each patient consultation, but I felt like there wasn't as much time spent with the tutor. Because obviously when you're in the practice in person you have lunch breaks and coffee breaks and you can discuss cases and ask questions then.'

One doctor felt that this lack of informal one-to-one contact with students meant they had to be more intentional about checking in with students about issues that cropped up. Another doctor felt it meant they had to be less challenging in the feedback they gave. This was because they felt that the lack of informal contact reduced the level of rapport they had with learners and also made it more difficult to gauge how feedback had been received:

> Doctor Z7270 'I was probably more inclined to be more neutral … I guess normally when they're in, they would feel more comfortable, you would be more comfortable, you'd ask a bit more about their life, and how they got here, and how they were. And you lose all that in a video, it's very much down to business immediately. So I guess with that, you've got slightly less rapport, it's harder to give feedback. Or feedback can be taken in the wrong way, or taken more personally, I think, by video. Whereas when they're in the room with you, you can kind of understand their … whether they've got it, and how they respond immediately, in a much clearer way, I would say, yeah.'

Despite this, students generally felt that they still had good levels of rapport with their supervising doctors. However, many of the students had previously got to know their supervisors through having been physically placed at their PCO within the last two years. Nevertheless, they felt that their supervisors were sufficiently skilled to have built an effective relationship with them quickly without this–although they did feel that a preliminary tutorial or 'getting to know you' session between students and supervisor would be particularly important in that situation.

iii) Where is 'the gaze' in a three-way consultation?

Doctors referred to the altered communication dynamics of managing three-way student consultations remotely compared to in the flesh.

One supervising doctor identified that compared to a teaching consultation taking place in a physical room, it was less clear where the line of communication lies at any point in a three way video consultation:

> Doctor Z0144 'in the surgery … if the student was talking to me, she would have had to turn herself, physically turn herself slightly away from the patient and not make eye contact with the patient anymore. Whereas when you're doing it on a screen you're almost making eye contact with everybody at the same time because you're looking into the camera. So it's a lot more difficult to shift the focus from student talking to patient to student talking to tutor, I think.'

However, another supervising doctor felt that managing this three way dynamic was actually easier over video than in the flesh as they could turn off their video camera at points in the consultation to overtly signpost that they were positioning themselves further into the background than the student.

iv) 'Before and after' time

Doctors and students frequently referred to the impact of remote supervision on the pre-brief and de-brief time which, had student and supervisor been physically in the same room, would have naturally occurred between patients.

> Doctor Z6772 'It's just the before and after part really, the ease and the … clunkiness … in terms of actually having the pre and post-consultation discussion, really.

> … we were sort of essentially talking expecting the patient to join the meeting at any time so you're really just quickly squeezing a few words in and it just felt a little bit rushed. Whereas … say the patient had arrived for a face to face, then whether you take an extra minute or two or three or four having a pre consultation discussion doesn't matter too much and then you choose to then say, I'm going to go and collect the patient.'

Remote debriefing after a consultation was not too difficult to manage because students and doctors could remain in the virtual consulting room after the patient had left. However, students regretted the loss of being able to discuss the patient with their supervisor before the consultation started. This omission occurred because AccuRx sent the link for the virtual consulting room to the patient first after which doctor had to copy the link and send it to the student. As a result, the patient would arrive in the virtual consulting room before, or very soon after the students. Not having access to the clinical record from their homes, the students found this lack of pre-brief meant they had no prior information about the patient. They found this particularly difficult when patients assumed that students knew their history from the clinical notes.

Interviewees discussed potential future solutions including giving the patient instructions to delay entering the virtual consulting room for a specified period after they received the link. However, the drawback identified with this proposal was that it could be difficult to predict the right amount of discussion time needed, which could introduce possibility of student and doctor running out of things to talk about. In at least one interview this led to a recognition that having student and doctor together in a real room and having a patient sitting outside waiting to be called-in afforded the clinician a great deal of control over optimising the discussion time before and after each consultation.

It appeared that WhatsApp was a method used by at least one doctor to talk with students in-between consultations.

v) No hiding?

Students and doctors expressed the view that the supervising doctor was less likely to get distracted when remotely supervising a video consultation as it required them to concentrate on what was going on. One student felt this resulted in better feedback than when they were both based at the same location.

There was also the view that during remotely supervised video consultations, the student in the pair who was observing their colleague consult also had to stay more alert than when physically in the room because they were on camera too.

However, at least one doctor mentioned how students might use the excuse of technical issues to absent themselves from consulting, whereas when they are physically on placement, absenteeism was more overtly recognisable.

4) Student Perceptions Concerning the Educational Value of Remote Consulting

Some students saw remote consulting simply as a second-best learning experience for when face to face consultations were unavailable. Others, however, felt it had inherent educational value. Both viewpoints appeared to be based to a large degree on how students perceived remote consulting to affect their relationship with the patient and their learning of clinical skills.

i) Perceived Effect on Learning Clinical Skills

Inability to practice examination skills was a common reason given for preferring face to consulting (although there was a view that this was less important than in hospital ward placements).

> Student Z7988 'I think it's not as bad as … yes, as it would be being in a ward. Because a lot of it is down to taking a history …'

However, others felt remote consulting was a skill they needed to learn because it had now become an essential part of medical practice.

> Student Z4013 'I think it was good experience to do video consultations, especially as it might be going towards that in the future.'

Students also valued the way it forced them to have to take better histories when they could not examine the patient or even (in some cases) visualise them.

> Student 9349 '… having to adjust to asking questions that you would have found out the answers for in an exam, but asking the patient the questions instead, which is good I think practical medical experience …'

ii) Perceived Effect on Relationships with Patients

Some students expressed the view that remote consulting made their relationships with patients more difficult. One reason given was a view that it was more difficult to develop rapport. Examples quoted were reduced non-verbal communication and (when using video) the inability to interject with encouraging noises. Another reason was the potential for moments that felt awkward, such as having to ask a patient to repeat something sensitive (after an audio glitch) or not being able to pass the tissues when a patient cries.

However, students also perceived positive effects of remote consulting on their relationship with patients. Some felt that patients were often more relaxed and open when at home, that housebound patients were incredibly pleased to have someone to talk to or that jokes concerning technical issues had the effect of building a more relaxed atmosphere. One student also expressed the view that since the process of consenting patients for remote student consultations was inherently formalised, it felt more robust and resulted in patients who really were pleased to talk to them.

> Student Z5557 'They wanted to talk to us. I think sometimes in a GP [primary care placement] as well when the patient comes into the room and they see student doctors, and the doctor just says, oh is it okay if they're here, they kind of have to say yes. I mean, they can say no, but probably sometimes the pressure will cause them to just be like, oh yeah it's fine. But they have to formally consent so the GP rang them before speaking to us in the same room and so it was like they actually wanted to speak to us.'

Discussion

Acceptability and educational value

Our analysis found that having students remote consulting from home was acceptable both to the students and their

supervising doctors. The interviewees also appeared to be of the view that it was acceptable to patients too. However, rather than simply being acceptable it was clear that many of those interviewed saw it as important to developing the skills for remote consulting that they are likely to need in the future. Our study suggests that although it presents new practical and educational challenges for students and supervisors, these challenges can be overcome if faculty have an intentional approach towards addressing them. Interventions suggested by this study include:

- Techniques for signposting the line of communication in a three-way video consultations
- Supervisors having a low threshold for initiating one to one 'check-ins' with students
- Giving adequate attention to the provision of 'before and after time'
  (… or sourcing an approved video conferencing platform that enables the patient to wait in a virtual waiting room until the doctor and students are ready to admit them)
- Having a preliminary 'getting to know you session' if the students and supervisor are unfamiliar to each other
- Clear guidelines or agreed protocols between student and doctor on how to handle operational mishaps (e.g. connection breaking up)
- Training students in interpersonal skills for handling remote consulting 'awkward moments'

Delivery platforms

When it worked, the dedicated clinical video consulting system did appear to be much simpler to use, particularly with acute patients, then a generic videoconferencing platform. Although it was less reliable, it is yet to be determined to what extent the technical issues with lag and breakup were down to poor internet connection and what was down to the failed national software update that took place during the attachment. Telephone consulting could be an ideal backup solution if conference calling could be leveraged as it could reduce issues related to poor internet connection whilst enabling the direct real-time remote supervision that students needed for consulting with acute patients. However, although telephone conferencing might offer an upgrade in terms of reliability combined with real-time supervision, it could be a downgrade in other respects. This is because Donaghy et al. (2019) found that the visual aspect of video consulting offered distinct advantages for doctors and patients over telephone consulting … and many of the reasons they identified could just as easily apply to learners and supervisors as doctors and patients.

Information governance and consulting from home

Due to the pandemic, undertaking remote consultations from home–and maintaining high professional standards in the process–is now familiar territory to many doctors. Nevertheless, some experienced clinicians may feel nervous about letting medical students enter this territory for the first time. To these clinicians, the results of our study provide substantial reassurance and proof of concept. For example, none of the doctors interviewed expressed any concerns in retrospect about having given students supervised access to their patients in this manner. Our study also shows how seriously the medical students treated the professional responsibilities associated with consulting from home.

Inequality and consulting from home

Concerns have been voiced in the media that shifts to online learning during the pandemic could have a disproportionate impact on socially disadvantaged university students (Hall and Batty 2020). Our results describe the considerable lengths to which students went to make suitable practical arrangements for home-based consulting. However, the arrangements described are commonly dependent upon socially determined elements (for example, private living space, control over environment, fast internet connection etc.). The medical education community is already sighted on mitigating the impact of social difference and inequality on home-based, online assessments (Davis et al. 2020; Choi et al. 2020). However, our findings suggest that, medical schools may also wish to consider these factors when implementing medical students consulting from home.

Strengths and weaknesses of study

One strength of the study is interviewees had peer to peer rapport with their interviewers due to medical students interviewing medical students and a clinical educator interviewing a clinical educator. However, given that this clinical educator was the academic family physician with overall responsibility for primary care teaching at Cambridge (RD), it could be argued that the doctor interviewees may not have been as open about their thoughts as otherwise. Alternatively, these interviewees may have actually been more forthcoming about problems and deficiencies with the pilot, if they perceived that they were talking to a senior member of faculty who was in a position to influence change.

Suggestions for further research

The educational pilot evaluated in this paper took place during a period of lockdown, with students on a graduate entry medical course, many of whom already knew their supervisors from previous placements, and without the use of telephone conference calling.

Further research would useful to determine the degree to which these study findings are replicated with medical students who:

- Are not on graduate entry medical courses
- Have not previously met their supervisor in person
- Are not in a period of lockdown, so that this method of contact with patients is a choice rather than a necessity
- Use telephone conference calling for remote consulting from home with real time supervision

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Disclosure statement

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Glossary

Primary Care Organisation (PCO): An organisation that provides primary health care services in the UK. Previously in the UK these may have been called 'practices' however the PCO term encompasses wider models of primary care organisation and provision than the conventional practice model.

Remote Consultations: Consultations occurring via telephone, internet or video link. See UK General Medical Council guidance on remote consultations at https://www.gmc-uk.org/ethical-guidance/ethical-hub/remote-consultations.

Video Consulting: The use of video as a method of consultation between doctor and patient. See the following guidance document as an example of its use during the COVID pandemic: https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/03/C0479-principles-of-safe-video-consulting-in-general-practice-updated-29-may.pdf.

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References

Choi B, Jegatheeswaran L, Minocha A, Alhilani M, Nakhoul M, Mutengesa E. 2020. The impact of the COVID-19 pandemic on final year medical students in the United Kingdom: a national survey. BMC Med Educ. 20(1):1–11.

Davis MG, Haas MRC, Gottlieb M, House JB, Huang RD, Hopson LR. 2020. Zooming in versus flying out: virtual residency interviews in the era of COVID-19. AEM Education and Training. DOI:10.1002/aet2.10486.

Dedeilia A, Sotiropoulos MG, Hanrahan JG, Janga D, Dedeilias P, Sideris M. 2020. Medical and surgical education challenges and innovations in the COVID-19 Era: a systematic review. *In Vivo*. 34(3 Suppl):1603–1611.

Donaghy E, Atherton H, Hammersley V, McNeilly H, Bikker A, Robbins L, Campbell J, McKinstry B. 2019. Acceptability, benefits, and challenges of video consulting: a qualitative study in primary care. Br J Gen Pract. 69(686):e586–e594.

Greenhalgh T, Koh GCH, Car J. 2020. Covid-19: a remote assessment in primary care. BMJ. 368:m1182.

Hall R, Batty D. 2020. 'I can't get motivated': the students struggling with online learning. *The Guardian*, May 4th [accessed 2020 Sept 23]. www.theguardian.com/education/2020/may/04/i-cant-get-motivated-the-students-struggling-with-online-learning.

Paillé P. 2011. L'analyse par théorisation ancrée. CRS. 1994(23): 147–181.

Paillé P, Mucchielli A. 2016. L'analyse qualitative en sciences humaines et sociales-4e éd. Éditeur: Armand Colin.

Portnoy J, Waller M, Elliott T. 2020. Telemedicine in the Era of COVID-19. J Allergy Clin Immunol Pract. 8(5):1489–1491.