

**SUPPLEMENTARY TABLE S1**

<b>Theme</b>	<b>Contexts</b>	<b>Mechanisms</b>	<b>Outcomes</b>	<b>Source</b>
<b>Engagement</b>	C: Tutor offers opportunities for student to practise remote consultations	M: Engagement through participation M: Reflective practice	O: Increased confidence with remote patient consultations O: Preparedness for future remote patient consultations	References 6, 13, 14, 26
		M: Apprehension with remote consulting	O: Lack of engagement and participation	References 6, 13, 14, 26
<b>Perception</b>	C: Perception of the role of remote consultations as second-best (for patient care/education)	M: Negatively impacts on student-patient interactions M: Negatively impacts on student-supervisor interaction	O: Reduced clinical skill acquisition	References 15,16,41
	C: Scepticism with remote platform for consulting with patients			
<b>Preparation</b>	C: Appropriate patient selection	M: Team organisation	O: Effective teaching and valuable learning	References 17–19, 27
	C: Inadequate training for remote consulting (student)	M: Unfamiliar with skillset required for remote consulting	O: Low confidence undertaking remote consultations	References 12, 14, 20–22
<b>Supervision</b>	C: Reduced student-supervisor contact	M: Reduced self-efficacy M9: Reduced feedback	O: Dissatisfaction with learning opportunity O: Reduced skill acquisition	Reference 41
	C: Lack of examination skills during encounter	M: Uncertainty with encounter	O: Dissatisfaction with remote consultation	References 6, 7, 41
	C: Technological setbacks	M: Interrupted consultation	O: Negative impact on skill acquisition	References 6, 7, 17, 25, 27, 28, 41

		M: Stressful (student)	
<b>Skills</b>	C: Preference to consult with acute presentations (student)	M: More at ease with skills required for consulting with acute encounters	O: Reduced experience with continuity of care  O: Reduced clinical exposure to management of chronic diseases  O: Increased confidence with acute history taking
	C: Lack of non-verbal cues	M: Breakdown in communication	O: Reduced confidence in remote consulting  O: Reduced rapport with the patient

References 23, 25, 41

References 6, 7, 24, 25, 41

Table S1 . Initial programme theory derived from a literature review and scoping exercise.

## References for Table S1

6. Mulvihill C, Cooper J, Pavey J, Laake J-P. Remote consultations in primary care during the COVID-19 pandemic: student perspectives. *Postgrad Med J* 2020; postgradmedj-2020-139149.  
DOI: [10.1136/POSTGRADMEDJ-2020-139149](https://doi.org/10.1136/POSTGRADMEDJ-2020-139149)  
PubMed: [33115908](https://pubmed.ncbi.nlm.nih.gov/33115908/)
12. Waseh S, Dicker AP. Telemedicine training in undergraduate medical education: mixed-methods review. *JMIR Med Educ* 2019; 5(1): e12515.  
DOI: [10.2196/12515](https://doi.org/10.2196/12515)  
PubMed: [30958269](https://pubmed.ncbi.nlm.nih.gov/30958269/)
13. Pelaccia T, Viau R. Motivation in medical education *Med Teach* 2017; 39(2): 136–140.  
DOI: [10.1080/0142159X.2016.1248924](https://doi.org/10.1080/0142159X.2016.1248924)  
PubMed: [27866457](https://pubmed.ncbi.nlm.nih.gov/27866457/)
14. Sartori DJ, Olsen S, Weinshel E, Zabar. Preparing trainees for telemedicine: a virtual OSCE pilot. *Med Educ* 2019; 53(5): 517–518.  
DOI: [10.1111/MEDU.13851](https://doi.org/10.1111/MEDU.13851)  
PubMed: [30859605](https://pubmed.ncbi.nlm.nih.gov/30859605/)
15. Chakrabarti S. Usefulness of telepsychiatry: A critical evaluation of videoconferencing-based approaches. *World J Psychiatry* 2015; 5(3): 286–304.  
DOI: [10.5498/WJP.V5.I3.286](https://doi.org/10.5498/WJP.V5.I3.286)  
PubMed: [26425443](https://pubmed.ncbi.nlm.nih.gov/26425443/)
16. Greenhalgh T, Shaw S, Wherton J, Vijayaraghavan S, et al. Real-world implementation of video outpatient consultations at macro, meso, and micro levels: mixed-method study. *J Med Internet Res* 2018; 20(4): e150.  
DOI: [10.2196/jmir.9897](https://doi.org/10.2196/jmir.9897)  
PubMed: [29625956](https://pubmed.ncbi.nlm.nih.gov/29625956/)
17. Palmer RT, Biagioli FE, Mujcic J, Schneider BN, et al. The feasibility and acceptability of administering a telemedicine objective structured clinical exam as a solution for providing equivalent education to remote and rural learners. *Rural Remote Health* 2015; 15(4): 3399.  
PubMed: [26632083](https://pubmed.ncbi.nlm.nih.gov/26632083/)
18. Cantone RE, Palmer R, Dodson LG, Biagioli FE. Insomnia telemedicine OSCE (TeleOSCE): A simulated standardized patient video-visit case for clerkship students. *MedEdPORTAL* 2019; 15: 10867.  
DOI: [10.15766/MEP\\_2374-8265.10867](https://doi.org/10.15766/MEP_2374-8265.10867)  
PubMed: [32051850](https://pubmed.ncbi.nlm.nih.gov/32051850/)
19. Iancu AM, Kemp MT, Alam HB. Unmuting medical students' education: utilizing telemedicine during the COVID-19 pandemic and beyond. *J Med Internet Res* 2020; 22(7): e19667.  
DOI: [10.2196/19667](https://doi.org/10.2196/19667)  
PubMed: [32614776](https://pubmed.ncbi.nlm.nih.gov/32614776/)
20. McKinstry B, Watson P, Pinnock H, Heaney D, et al. Telephone consulting in primary care: a triangulated qualitative study of patients and providers. *Br J Gen Pract* 2009; 59(563): e209–e218.  
DOI: [10.3399/BJGP09X420941](https://doi.org/10.3399/BJGP09X420941)  
PubMed: [19520019](https://pubmed.ncbi.nlm.nih.gov/19520019/)
21. Hewitt H, Gafaranga J, McKinstry B. Comparison of face-to-face and telephone consultations in primary care: qualitative analysis. *Br J Gen Pract* 2010; 60(574): e201–e212.  
DOI: [10.3399/BJGP10X501831](https://doi.org/10.3399/BJGP10X501831)  
PubMed: [20423575](https://pubmed.ncbi.nlm.nih.gov/20423575/)

22. DeJong C, Lucey CR, Dudley RA. Incorporating a new technology while doing no harm, virtually. *JAMA* 2015; **314**(22): 2351–2352.  
**DOI:** [10.1001/JAMA.2015.13572](https://doi.org/10.1001/JAMA.2015.13572)  
**PubMed:** [26647252](https://pubmed.ncbi.nlm.nih.gov/26647252/)
23. Harris MA, Freeman KA, Duke DC. Seeing is believing: using Skype to improve diabetes outcomes in youth. *Diabetes Care* 2015; **38**(8): 1427–1434.  
**DOI:** [10.2337/DC14-2469](https://doi.org/10.2337/DC14-2469)  
**PubMed:** [26033508](https://pubmed.ncbi.nlm.nih.gov/26033508/)
24. Little P, White P, Kelly J, Everitt H, et al. Randomised controlled trial of a brief intervention targeting predominantly non-verbal communication in general practice consultations. *Br J Gen Pract* 2015; **65**(635): e351–e356.  
**DOI:** [10.3399/BJGP15X685237](https://doi.org/10.3399/BJGP15X685237)  
**PubMed:** [26009529](https://pubmed.ncbi.nlm.nih.gov/26009529/)
25. Bulik RJ. Human factors in primary care telemedicine encounters. *J Telemed Telecare* 2008; **14**(4): 169–172.  
**DOI:** [10.1258/JTT.2007.007041](https://doi.org/10.1258/JTT.2007.007041)  
**PubMed:** [18534948](https://pubmed.ncbi.nlm.nih.gov/18534948/)
26. Stegers-Jager KM, Cohen-Schotanus J, Themmen APN. Motivation, learning strategies, participation and medical school performance. *Med Educ* 2012; **46**(7): 678–688.  
**DOI:** [10.1111/j.1365-2923.2012.04284.x](https://doi.org/10.1111/j.1365-2923.2012.04284.x)  
**PubMed:** [22691147](https://pubmed.ncbi.nlm.nih.gov/22691147/)
27. Lara S, Foster CW, Hawks M, Montgomery M. Remote assessment of clinical skills during COVID-19: A virtual, high-stakes, summative pediatric objective structured clinical examination. *Acad Pediatr* 2020; **20**(6): 760–761.  
**DOI:** [10.1016/j.acap.2020.05.029](https://doi.org/10.1016/j.acap.2020.05.029)  
**PubMed:** [32505690](https://pubmed.ncbi.nlm.nih.gov/32505690/)
28. Traba C, Holland B, Laboy MC, Lamba S, et al. A multi-modal remote clinical skills mini-course utilizing a teaching TeleOSCE. *Med Sci Educ* 2021; **31**(2): 1–7.  
**DOI:** [10.1007/S40670-020-01201-X](https://doi.org/10.1007/S40670-020-01201-X)  
**PubMed:** [33432278](https://pubmed.ncbi.nlm.nih.gov/33432278/)
41. Darnton R, Lopez T, Anil M, et al. Medical students consulting from home: a qualitative evaluation of a tool for maintaining student exposure to patients during lockdown. *Med Teach* 2021; **43**(2): 160–167.

## SUPPLEMENTARY APPENDIX A

### Student Questionnaire

**\*Patient information sheet attached\***

#### Electronic Questionnaire for Students

##### Information

*Thank you for taking part in this electronic survey. Your participation in the study will help inform, and improve current and future teaching and learning in primary care.*

*Our main objective is to understand what factors influence the effectiveness of teaching and learning experiences with the use of remote consultations in primary care.*

**Your completed form will remain anonymous.** The survey should take no longer than **5-10 minutes** with 20 questions to complete in total. **Please complete all the sections.** When answering the questions, think about your current or previous experience of teaching or learning with remote consultations in primary care.

Remote consultations include those where the patient is not physically present in the room e.g. **phone and video consultations.**

The final section of the questionnaire invites you to participate in an online interview discussing your experiences of remote consultation in more detail. This will be in the form of a semi-structured interview online or by phone. You will be remunerated for your time, which should be no longer than **30 minutes.**

If you require any further information regarding this study please do not hesitate to contact me: [rrmhara9@ucl.ac.uk](mailto:rrmhara9@ucl.ac.uk)

Check this box to indicate your informed consent to participate in this survey and for your data to be used.

*Thank you for your participation!*

---

### SECTION 1: DEMOGRAPHICS & BACKGROUND

1. What is your gender?
  - a. Male

- b. Female
- c. Prefer not to say
- d. Other

2. What is your age?
  - a. <25
  - b. 25-29
  - c. 30-34
  - d. 35-39
  - e. 40+
  - f. Prefer not to say
3. Have you completed a degree prior to starting the medicine course?
  - a. No
  - b. Yes
4. How many clinical attachment/rotations have you completed where you have experienced remote consultations for learning?
  - a. 0
  - b. 1-2
  - c. 3-4
  - d. 5-6
  - e.  $\geq 7$
5. What medical school do you attend?
  - a. St Georges, University of London
  - b. University College London
6. What is your current year of study?
  - a. First **clinical** attachments year
  - b. Second **clinical** attachments year (specialties)
  - c. Third **clinical** attachments year (final year)
  - d. Other (please specify)
7. Have you observed the following types of remote consultations? Please select all that apply.
  - a. Phone
  - b. Video
  - c. Email
  - d. Text messages
  - e. None of the above
  - f. Other (please state)
8. Have you undertaken any of the following remote consultations? Please select all that apply.
  - a. Phone
  - b. Video

- c. Email
- d. Text messages
- e. None of the above
- f. Other (please state)

9. Have you undertaken any of the following types of learning activities in preparation for conducting remote consultations? Please select all that apply.
- a. Lectures/tutorials
  - b. Simulation
  - c. Observation
  - d. Your own reading
  - e. None
  - f. Other (please state)

## SECTION 2: KNOWLEDGE AND SKILLS

10.

Clinical Practice Outcomes	To what extent have you gained knowledge and skills in the following, when a patient is <b>physically present</b> in the room?	To what extent have you gained knowledge and skills in the following, when a patient is <b>remote</b> ?
	1=none at all 2= a little bit 3=some 4=quite a bit 5=a great amount	1=none at all 2= a little bit 3=some 4=quite a bit 5=a great amount
Elicit a clinical history and give information	0 1 2 3 4 5	
Perform a clinical examination		
Prioritise a differential diagnosis following a clinical encounter		
Formulate a plan of investigation and interpret the results of investigations		
Synthesise information from the history, examination and investigation, define the likely diagnosis and draw up a problem list		
Recognise a patient requiring emergency care, and initiate evaluation, management and handover		
Demonstrate patient-centred consultation and management skills		
Negotiate a comprehensive plan for prevention, treatment and management of acute and long-term		

conditions, taking account of the patient's wishes and social context		
Plan, prescribe and adjust medical treatment		
Communicate and collaborate in the multi-professional healthcare environment, demonstrating the ability to lead and to follow		
Integrate professional, legal and ethical guidance and standards into the care of patients		

11.

	Have you had experience with this teaching approach?	To what extent did this approach promote your learning	Please state why you have chosen your response (free text)
		1=none at all 2= a little bit 3=some 4=quite a bit 5=a great amount	
<b>Remote student:</b> student consults with remote patient from home in the presence of their remote supervisor	Yes/no	0 1 2 3 4 5	
<b>Sequential style:</b> student consults with the remote patient alone in clinic and then presents to the supervisor			
<b>Parallel:</b> student consults with the remote patient in the presence of their supervisor			
<b>Observing supervisor</b> conducting remote consultations			



### SECTION 3: INTERACTION WITH THE REMOTE PATIENT

12. With regards to your **interaction** with the patient, which of these factors, if any, do you feel are an advantage or disadvantage when learning from a patient within a **remote consultation**? (please tick all that apply)

	Advantages	Disadvantages
Patient in their own environment		
Ease of communication		
Tutor focus on student		
Establishing rapport		
Interpreting patient cues		
Time taken		
Level of interruption/distractions		
Absence of physical cues for triggering learning		
Technology		
Other (please state )		

13. Please state the extent to which you agree with the following statements:

a. Compared with face to face consultations, where the patient is physically present, I am confident that there is a variety of clinical cases for me to learn from with remote patients

- i. Strongly agree
- ii. Agree
- iii. Neither agree nor disagree
- iv. Disagree
- v. Strongly disagree

(Please comment why you have chosen your response)

b. Compared with face to face consultations, where the patient is physically present, the clinical cases for me to learn from with remote patients are complex.

- i. Strongly agree
- ii. Agree
- iii. Neither agree nor disagree
- iv. Disagree
- v. Strongly disagree

(Please comment why you have chosen your response)

#### SECTION 4: LEARNING WITH REMOTE CONSULTATIONS

14. What is your experience of learning with remote consultations?

a. The reasons for **positive experiences** include (select all that apply):

- i. Variety of cases
- ii. Quantity of cases
- iii. Complexity of cases
- iv. Tutor focus on teaching
- v. Technology
- vi. Efficiency
- vii. Feedback from tutor
- viii. Feedback from patient
- ix. Autonomy of doing own consultations
- x. Other (please state)

b. The reasons for **negative experiences** include (select all that apply):

- i. Variety of cases
- ii. Quantity of cases
- iii. Complexity of cases
- iv. Tutor focus on teaching
- v. Technology
- vi. Efficiency
- vii. Feedback from tutor
- viii. Feedback from patient
- ix. Autonomy of doing own consultations
- x. Other (please state)

15. Please state the extent to which you agree with the statement:

The impact of encountering patients remotely triggers reflection and learning compared with face to face consultations where the patient is physically present

- a. Strongly agree
- b. Agree
- c. Neither agree nor disagree
- d. Disagree
- e. Strongly disagree

(Please explain your response below)

## SECTION 5: INTERACTION WITH YOUR SUPERVISOR

- 16.
- a. Describe how interacting with your supervisor promoted your learning during remote consultations
  - b. Describe how interacting with your supervisor detracted your learning during remote consultations
- 17.
- a. Compared to learning with consultations where a patient is physically present in the room, has the nature or frequency of feedback you received from your tutor different from feedback received with remote consultations? (please comment below)

18. Please state the extent to which you agree the statements:

- a. I believe remote consultations are effective teaching platforms to train medical students in primary care
  - i. Strongly agree
  - ii. Agree
  - iii. Neither agree nor disagree
  - iv. Disagree
  - v. Strongly disagree

19. Please state the extent to which you agree with the statement:

Overall, I believe medical students are missing out on key learning opportunities in primary care by undertaking predominantly remote consultations

- i. Strongly agree
  - ii. Agree
  - iii. Neither agree nor disagree
  - iv. Disagree
  - v. Strongly disagree
- (Please explain your response below)

20. Has the predominance of remote consultations in primary care impacted your desire to be a GP?

- i. Significantly increased desire
- ii. Increased desire
- iii. Neither increase or decrease
- iv. Decreased desire
- v. Significantly decreased desire

Thank you for taking part in the questionnaire. If you consent to take part in the second part of the study involving a 20-30 minute remote interview, please leave your email address below. This will remain separate to your responses from the questionnaire.

## GP Tutor Questionnaire

\*Participant information sheet attached\*

### Electronic Questionnaire for GP Supervisors

#### Information

*Thank you for taking part in this electronic survey. Your participation in the study will help inform and improve current and future teaching and learning in primary care.*

*Our main objective is to understand what factors influence teaching and learning experiences with the use of remote consultations in primary care*

*Your completed form will remain anonymous. The survey should take no longer than **5-10 minutes** with **15 questions** to complete in total. **Please complete all the sections.** When answering the questions, think about your current or previous experience of teaching or learning with remote consultations in primary care. These can include both **phone and video consultations**.*

*The final section of the questionnaire invites you to participate in an online interview discussing your experiences of remote consultation in more detail. This will be in the form of a semi-structured interview online or by phone. You will be remunerated for your time which should be no longer than **30 minutes**.*

*If you require any further information regarding this study, please do not hesitate to contact me: [rmhara9@ucl.ac.uk](mailto:rmhara9@ucl.ac.uk)*

Check this box to indicate your informed consent to participate in this survey and for your data to be used.

*Thank you for your participation!*

---

#### SECTION 1: DEMOGRAPHICS & BACKGROUND

1. What is your gender?
  - e. Male
  - f. Female
  - g. Prefer not to say
  - h. Other

2. How long have you supervised and taught medical students in primary care?
  - a. < 1 year
  - b. 1-2 years
  - c. 3-5 years
  - d. 6-10 years
  - e. >=10 years
  
2. How long have you been doing **telephone** consultations with patients?
  - a. 6 months or less
  - b. 6 months – 1 year
  - c. 1-2 years
  - d. 2-5 years
  - e. 5-10 years
  - f. >10 years
  
3. How long have you been doing **video** consultations with patients?
  - a. 6 months or less
  - b. 6 months – 1 year
  - c. 1-2 years
  - d. 2-5 years
  - e. 5-10 years
  - f. >10 years
  
4. Are you a GP or F2 Trainer?
  - a. Yes
  - b. No
  - c. Other (Please state)
  
5. Which platform do you use to teach medical students through remote consultations? Please tick which applies to you
  - a. Phone
  - b. Video
  - c. Email
  - d. Text messages
  - e. None of the above
  - f. Other (Please state)
  
6. Have you undertaken specific training **to teach** using remote consultations in primary care?
  - a. No
  - b. Yes (please state )

## SECTION 2: KNOWLEDGE AND SKILLS

7. a. Have you had experience with any of the following teaching approaches with remote consulting?

Teaching approaches	Please select if you have had experience	Please comment on the strengths	Please comment on the weaknesses
<b>Remote student:</b> <i>student consults with remote patient from outside the practice in the remote presence of their supervisor</i>	Yes/No		
<b>Sequential style:</b> <i>student consults with the remote patient alone in clinic and then presents to the supervisor who may then reconsult with patient</i>	Yes/No		
<b>Parallel:</b> <i>student consults with the remote patient in the physical presence of their supervisor</i>	Yes/No		
<b>Observation:</b> <i>Physically present student observes supervisor conducting consultations with remote patient</i>	Yes/No		
Other (please specify):			

8. Please state the extent to which you agree with each of the statements:

- a. I am confident in undertaking **telephone consultations**

- i. Strongly agree
- ii. Agree
- iii. Neither agree nor disagree
- iv. Disagree
- v. Strongly disagree

- b. I am confident in undertaking **video consultations**

- i. Strongly agree

- ii. Agree
- iii. Neither agree nor disagree
- iv. Disagree
- v. Strongly disagree

c. I feel confident to teach and supervise medical students in consultations where the patient is **physically present in the room**

- i. Strongly agree
- ii. Agree
- iii. Neither agree nor disagree
- iv. Disagree
- v. Strongly disagree

d. I feel confident to teach and supervise medical students through **telephone** consultations

- i. Strongly agree
- ii. Agree
- iii. Neither agree nor disagree
- iv. Disagree
- v. Strongly disagree

e. I feel confident to teach and supervise medical students through **video** consultations

- i. Strongly agree
- ii. Agree
- iii. Neither agree nor disagree
- iv. Disagree
- v. Strongly disagree

f. I am confident in selecting appropriate patients for students undertaking remote video or teaching consultations

- i. Strongly agree
- ii. Agree
- iii. Neither agree nor disagree
- iv. Disagree
- v. Strongly disagree

Please comment on your selection

9. Which statement do you agree with about the impact of remote teaching on time spent teaching?

- i. Takes less time on average
- ii. Takes about the same time on average
- iii. Takes more time on average



- a. I am confident in using remote consultations to teach the following aspects of being a doctor to medical students (please select all that apply):
- i. Elicit a clinical history and give information
  - ii. Perform a clinical examination
  - iii. Prioritise a differential diagnosis following a clinical encounter
  - iv. Formulate a plan of investigation and interpret the results of investigations
  - v. Synthesise information from the history, examination and investigation, define the likely diagnosis and draw up a problem list
  - vi. Recognise a patient requiring emergency care, and initiate evaluation, management and handover
  - vii. Demonstrate patient-centred consultation and management skills
  - viii. Negotiate a comprehensive plan for prevention, treatment and management of acute and long-term conditions, taking account of the patient's wishes and social context
  - ix. Plan, prescribe and adjust medical treatment
  - x. Integrate professional, legal and ethical guidance and standards into the care of patients
  - xi. None

### **SECTION 3: ATTITUDES AND ATTRIBUTES**

10. Please state the extent to which you agree with each of the statements

- a. I believe remote consultations are effective platforms to consult with patients
- i. Strongly agree
  - ii. Agree
  - iii. Neither agree nor disagree
  - iv. Disagree
  - v. Strongly disagree
- b. I believe remote consultations are effective platforms to train medical students in primary care
- i. Strongly agree
  - ii. Agree
  - iii. Neither agree nor disagree
  - iv. Disagree
  - v. Strongly disagree
- c. In my experience medical students engage with teaching with remote consultations
- i. Strongly agree
  - ii. Agree
  - iii. Neither agree nor disagree
  - iv. Disagree

- v. Strongly disagree
- d. I believe medical students are missing out on key experiences in primary care by undertaking predominantly remote consultations
  - i. Strongly agree
  - ii. Agree
  - iii. Neither agree nor disagree
  - iv. Disagree
  - v. Strongly disagree

#### SECTION 4: EXPERIENCE

11. Please state the extent to which you agree with each of the statements

- a. I have had positive experiences of teaching medical students with remote consultations
  - i. Strongly agree
  - ii. Agree
  - iii. Neither agree nor disagree
  - iv. Disagree
  - v. Strongly disagree
- b. The reasons for **positive** experiences, if any, include (select all that apply):
  - i. Variety of cases
  - ii. Quantity of cases
  - iii. Student engagement and learning
  - iv. Technology
  - v. Student feedback
  - vi. Efficiency
  - vii. Feedback delivery to student
  - viii. Patient satisfaction
  - ix. Other (please state)
- c. The reasons for **negative experiences**, if any, include (select all that apply):
  - i. Variety of cases
  - ii. Quantity of cases
  - iii. Student engagement and learning
  - iv. Technology
  - v. Student feedback
  - vi. Efficiency
  - vii. Feedback delivery to student
  - viii. Patient satisfaction
  - ix. Other (please state)

12. Does the absence of the physical presence of the patient in the consulting room affect the interaction you have with your student?
  - a. No
  - b. Yes (please comment why)
  
13. What has been the impact of an increase in remote consultations on medical students learning in primary care?
  - i. Strongly positive
  - ii. Positive
  - iii. Neither positive nor negative
  - iv. Negative
  - v. Strongly negative
  
14. Please provide any additional comments that you feel may be useful in terms of your experience of teaching remote consultations in primary care.

Thank you for taking part in the questionnaire. If you consent to take part in the second part of the study involving a 20-30 minute remote interview, please leave your email address below. This will remain separate to your responses from the questionnaire.

## SUPPLEMENTARY APPENDIX B

### Semi-structured Interview Guide for Students

#### Information (prior to interview)

*Hello, my name is Roaa Al-bedaery.*

*Thank you for agreeing to take part in today's interview, as part of a study looking at teaching through remote consultations in primary care. The interview should take no longer than 30 minutes. There are topics which I will ask about, but overall the interview follows no strict structure, and we can be guided by our discussions. Please avoid using any patient identifiable information when discussing your experiences.*

*Can I confirm you have read the participant information sheet sent to you before the interview? If you have any questions about the study and what the interview involves, please feel free to ask me at any time. Can I also confirm you have completed the consent form to participate in this interview? Just to remind you, the interview will be recorded and deleted once it has been transcribed. There will be no identifiable data on the final transcription, which will be stored in a secure folder. If you wish to see a transcript before it is anonymised this can be requested 1 week from the date of the interview.*

*Do you have any questions?*

*Thank you, are you ready to start the interview?*

\*follow-up questions in italic will be asked if they are appropriate in the context of individual interviews

- 
- 1. What is your current year of study?**
  - 2. What type of consultations did you do? Parallel supervisor led, parallel student led, sequential (students does it and then tutor follows)**
  - 3. How would you describe your overall experience in conducting remote consultations in primary care?**

*What types of patients did you consult with?*

*Which patients worked well or not so well?*

*What skills could you practice?*

*What skills were you not able to practice?*

*Compared to face to face, what was missing from the encounters – it may help you to think about a specific encounter to answer this (and for the next question)*

*Compared to face to face, what did you gain in learning from the encounters*

*Did you notice any difference in patient engagement compared to face-to-face consultations?*

*Do you feel you missed out on exposure to any patient groups or clinical skills because of remote consulting?*

*Were you able to see any patients face-to-face following a remote consultation? What did that highlight to you about the difference?*

**4. What are your feelings about remote consultations in terms of: their value for patients? effectiveness for your training?**

**5. What are your feelings about the involvement of your supervisor in your learning from these encounters?**

*How they prepared you for them?*

*How they fed back to you during them or after them?*

*How they supported you in gaining the learning from these consultations*

*How they supported you in gaining skills that these consultations did not offer you.*

*Was there anything very useful which they did which was innovative*

**6. Have you observed remote consultations?**

*If so, was this a useful learning exercise for you? Were you engaged by your supervisor during the observation? If so, how?*

**7. How did you feel about undertaking remote consultations for the first time?**

*Did you feel prepared? Did you specifically prepare for the remote consultations compared to face-to-face consultations?*

**8. Have you had any specific training to undertake remote consultations with patients in primary care?**

*If so, what was the training, and how has it affected your ability to undertake remote consultations?*

**9. What learning opportunities were offered to you by your supervisor before, during and after the remote consultation?**

*When did you feel most engaged with what was happening? When did you feel most distanced from what was happening?*

**10. Were there parts of the teaching experience that you thought worked well?**

*What action, if any, taken by your supervisor did you find most helpful?*

**11. Are there any components within remote consultations that you found particularly difficult?**

*Why did you find these difficult? How could this be overcome? What action, if any, taken by your supervisor did you find unhelpful or confusing? Did you encounter any ethical issues? Was there anything you were not sure about?*

**12. What are the advantages and disadvantages to undertaking remote consultations with patients in primary care, with respects to**

- a) the patient
- b) you as the student?

**13. Thinking about the patients you have seen remotely, have the remote consultations allowed you to pick up on any new skills?**

**14. How does it compare to face to face consultations you have experienced?**

*What are the advantages and disadvantages? Did you feel it met your learning needs? Did you feel well supported? Does teaching through remote consultations take more or less time, or does it compare to face to face encounters?*

**15. Were there any factors that impacted on your experience negatively or positively?**

*Your environment? Technology? Patient selection? Supervisor experience?*

**16. Can you think of anything that could have improved your learning experience with remote consultations?**

**17. How has your experience of remote consultations in primary care impacted on your experience of the speciality?**

*Do you feel like you have missed out or benefited? Has your portrayal of primary care changed as a result of your experience?*

**18. From your experience, how appropriate are remote consultations for their use in teaching medical students in primary care? Why?**

**19. Is there anything you wish you knew or were taught before undergoing remote consultations?**

## Semi-structured interview guide for Tutors

### **Information (prior to interview)**

*Hello, my name is Roaa Al-bedaery.*

*Thank you for agreeing to take part in today's interview, as part of a study looking at teaching through remote consultations in primary care. The interview should take no longer than 30 minutes. There are topics which I will ask about, but overall the interview follows no strict structure, and we can be guided by our discussions. Please avoid using any patient identifiable information when discussing your experiences.*

*Can I confirm you have read the participant information sheet sent to you before the interview? If you have any questions about the study and what the interview involves, please feel free to ask me at any time. Can I also confirm you have completed the consent form to participate in this interview? Just to remind you, the interview will be recorded and deleted once it has been transcribed. There will be no identifiable data on the final transcription, which will be stored in a secure folder. If you wish to see a transcript before it is anonymised this can be requested 1 week from the date of the interview.*

*Do you have any questions?*

*Thank you, are you ready to start the interview?*

\*follow-up questions in italic will be asked if they are appropriate in the context of individual interviews

- 
- 1. What is your role?**
  - 2. What is the seniority of the students you teach?**
  - 3. How long have you been doing remote (video and telephone) consultations with patients?**
  - 4. What is your experience of training undergraduates or postgraduates with:**
    - i. patients in the room**
    - ii. remote consultations**
  - 5. Have you had any specific training to teach using remote consultations in primary care?**

*If so, what was the training? How did it change your teaching style?*



**6. Have you been involved in teaching F2/GP registrars using remote consultations?**

*If so, has this facilitated your experience with teaching undergraduates? In what way? For both video and telephone?*

**7. What are your personal feelings about remote consultations in terms of:**

- i. their value for patients?**
- ii. your effectiveness as a GP?**
- iii. managing uncertainty in clinical management?**
- iv. effectiveness for teaching and training others?**

**8. How do you use patient consultations to teach:**

- i. when the patient and learner are both in the practice room?**

*What would be your typical approach to teaching medical undergraduates in these contexts?*

**9. How do you use patient consultations to teach when the patient is remote (telephone or video)**

- ii. when there is sequential contact with the patient, student first and then the patient.*

- iii. When there is parallel contact with the patient with you, first then the student?*

**10. What learning outcomes are you able to teach:**

- i. when the patient and learner are both in the room?**
- ii. when the patient is remote?**

**11. Can you give examples of how you would engage learners when the patient is remote, but the learner is in the room?**

**12. Can you describe how your attention is focused when you have both the patient and learner in the room?**

*what are your priorities and hierarchies in terms of what you are trying to achieve? Does this change when the patient is remote, and the learner is present?*

**13. Do you plan the teaching session/attachment with a student any differently because of the increase in remote consultations?**

*If so, how? Do you provide any teaching on remote consultations? What does this involve?*

**14. What learning opportunities were offered before, during and after the remote consultation?**

*How would you review the learning from a session with a student? Is the patient during this or not present?*

**15. How does the fact you are doing remote consultations affect the time you have to teach?**

**16. What are the advantages for you as a teacher, of remote consultations for teaching? What are the disadvantages?**

**17. What are the advantages for you as a teacher, of consultations with the patient present for teaching? What are the disadvantages?**

**18. How does having the patient remotely present (or present) affect the engagement of the patients with the teaching process?**

**19. What do you think students gain when the patient is remotely situated?**

**20. What do you think students lose when the patient is remotely situated?**

**21. What do you think about the end competency for the students from a whole attachment, when most of the patients are remote, versus when most of the patients are present?**

**22. When most of the patients are remote, how does that impact on subsequent teaching when you have a real patient in the room?**

**23. How does the presenting complaint/problem affect the teaching gain for the student?**

*is this different for physically present versus remote consultations? Do you select patients for remote teaching sessions?*

**SUPPLEMENTARY TABLE 2**

Question/Statement	Response	Number of responses (n= 19)
<i>How long have you been doing telephone consultations with patients?</i>	<6 months	0
	6 months – 1 year	4
	1 – 5 years	4
	5 - 10 years	4
	>=10 years	7
<i>How long have you been doing video consultations with patient</i>	<6 months	3
	6 months – 1 year	13
	1 – 5 years	2
	5 - 10 years	1
	>=10 years	0
<i>Have you undertaken specific training to teach using remote consultations</i>	Yes	3
	No	16
<i>Have you had experience with a sequential style of supervision?</i>	Yes	12
	No	7
<i>Have you had experience with a parallel style of supervision?</i>	Yes	17
	No	2
<i>Have you had experience with an observational style of supervision?</i>	Yes	18
	No	1
<i>I am confident to teach and supervise students through telephone consultations</i>	Strongly agree	7
	Agree	7
	Neither Agree nor disagree	3
	Disagree	2
	Strongly disagree	0
<i>I am confident to teach and supervise students through video consultations</i>	Strongly agree	6
	Agree	5
	Neither Agree nor disagree	5
	Disagree	2
	Strongly disagree	1
<i>I am confident in selecting appropriate patients for students undertaking remote patient</i>	Strongly agree	4
	Agree	10
	Neither Agree nor disagree	3
	Disagree	2
	Strongly disagree	0
<i>I believe remote consultations are effective platforms to train medical students in primary care</i>	Strongly agree	0
	Agree	10
	Neither Agree nor disagree	3
	Disagree	5
	Strongly disagree	1
<i>What has been the impact of an increase in remote consultations on medical student's learning in primary care?</i>	Strongly positive	0
	Positive	3
	Neither positive nor negative	4
	Negative	11
	Strongly negative	1

**Table S2. Summary of key tutor questionnaire responses**

**SUPPLEMENTARY TABLE 3**

Question/Statement	Response	Number of responses (n=49)
<i>Have you observed any of the following types of remote consultations? Select all that apply.</i>	Phone	46
	Video	30
	Email	9
	Text messages	19
	None of the above	1
	Other	2
<i>Have you undertaken any of the following types of remote consultations? Select all that apply.</i>	Phone	35
	Video	10
	Email	1
	Text messages	1
	None of the above	11
	Other	1
<i>Have you undertaken any activities in preparation for remote consultations? Select all that apply.</i>	Lectures/tutorials	21
	Simulation	9
	Observation	25
	Your own reading	15
	None of the above	13
	Other	0
<i>Have you had experience with a sequential style of supervision with remote consultations?</i>	Yes	31
	No	18
<i>Have you had experience with a parallel style of supervision with remote consultations?</i>	Yes	30
	No	19
<i>Have you had experience with an observational style of supervision with remote consultations?</i>	Yes	45
	No	4
<i>Compared with consultations where the patient is physically present, I am confident that there is a variety of clinical cases for me to learn from with remote patients.</i>	Strongly Agree	12
	Agree	20
	Neither agree nor disagree	8
	Disagree	9
	Strongly disagree	0
<i>Compared with consultations where the patient is physically present, how does encountering patients remotely trigger reflection and learning compared with consultations where the patient is physically present?</i>	Triggers more reflection and learning	14
	Equally triggers reflection and learning	15
	Triggers more reflection and learning	20
<i>I believe remote consultations are effective teaching platforms to train medical students in primary care</i>	Strongly Agree	6
	Agree	23
	Neither agree nor disagree	8
	Disagree	8
	Strongly disagree	4
<i>Overall, I believe medical students are missing out on key learning opportunities in primary care by undertaking predominately remote consultations</i>	Strongly Agree	15
	Agree	24
	Neither agree nor disagree	5
	Disagree	4
	Strongly disagree	1
<i>Has the predominance of remote consultations in primary impact your desire to be a GP?</i>	Significantly increased desire	3
	Increased desire	3
	Neither increased nor decreased	28
	Decreased desire	11
	Significantly decreased desire	4

**Table S3. Summary of key student questionnaire responses**

## SUPPLEMENTARY APPENDIX C

To what extent have you gained knowledge and skills in the following, when the patient is physically present?

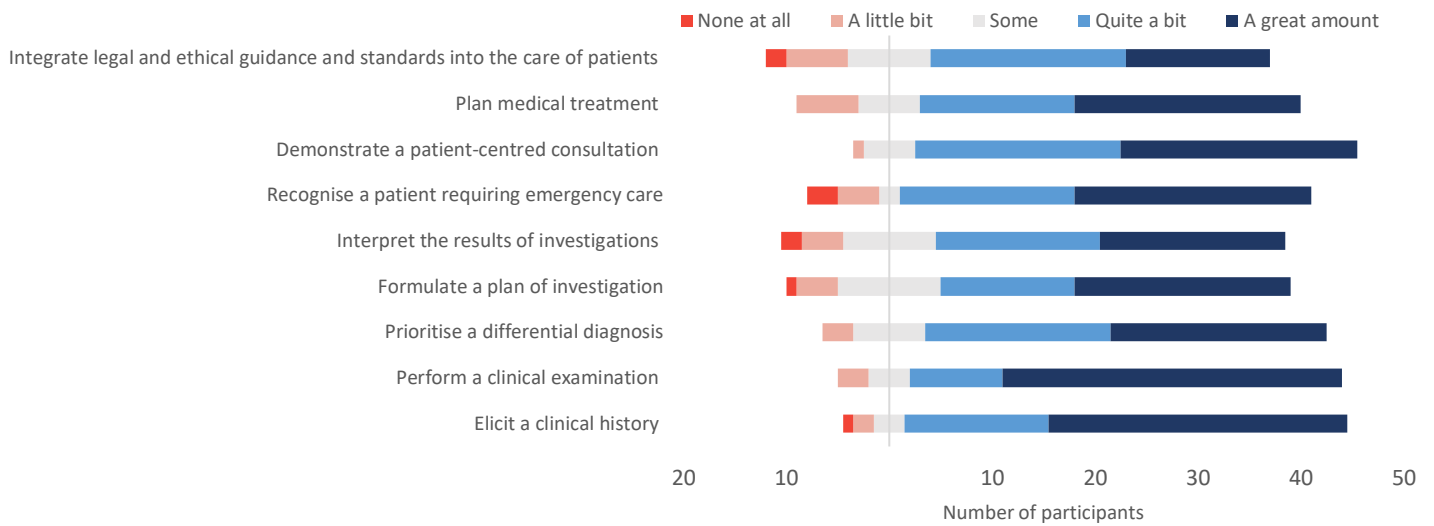


Figure S1. Findings from the student questionnaire displaying the extent to which they gained knowledge and skills in various domains when the patient is physically present

To what extent have you gained knowledge and skills in the following, when the patient is remote?

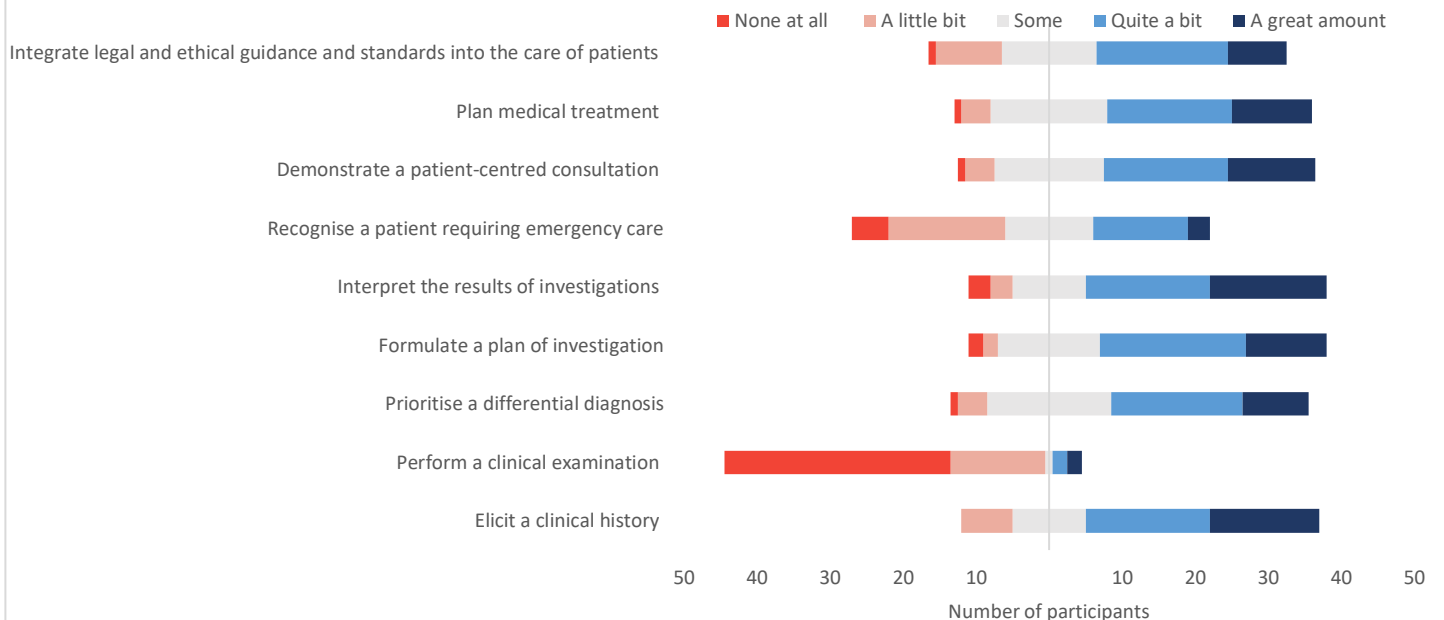


Figure S2. Findings from the student questionnaire displaying the extent to which they gained knowledge and skills in various domains when the patient is remote

