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Training primary care staff in delivering the primary care consultation remotely: a systematic review

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Abstract

Background: Remote consultations are widely used in primary care and the levels of use have increased hugely since the onset of the Covid-19 pandemic. Despite this, primary care clinicians lack formal training in delivering these. There is a need to understand how training might best be delivered and what evidence there is to support this.

Aim: To summarise existing published literature about training primary care staff in conducting primary care consultation remotely, to outline which models of training may be effective and identify unanswered questions for future research.

Design and setting: Systematic review of studies in primary care.

Method: Databases were searched using a pre-defined search strategy. Title, abstract and full text screening was conducted to identify eligible studies for inclusion in the review. Quality of included studies was assessed, and findings were synthesised to answer the research questions.

Results: We included 11 studies. Seven examined training on remote consultations with trainee GPs or residents and four with qualified primary care clinicians. Training described led to overall positive change, including increased confidence and self-efficacy in delivering remote consultations. Furthermore, trainees reported increased use of remote consultations, increased efficiency and increased engagement from patients. Studies where training involved workshops or didactic learning alongside experiential learning resulted in more positive feelings and more confidence about how technology could aid consultations.

Conclusion: There is limited evidence on training primary care staff in conducting remote consultations. Available evidence indicates that training has a positive impact on clinician and staff ability to deliver remote consultation.

Keywords

Remote consultation, primary care, staff development, education medical graduate, internship & residency

How This Fits In

Remote consultations are widely used in primary care and the levels of use have increased substantially since the onset of the Covid-19 pandemic. This review synthesises the little evidence that currently exists on how to train primary care staff to conduct remote consultations, noting that what can be found varies in method and application. It does, however, show that training can have a positive impact on clinicians and staff, including improved confidence and efficiency. This review highlights that further evidence is needed on how to train primary care staff in delivering remote consultations.

Introduction

Telephone consultation is an established means of delivering consultations to patients in primary care settings (1, 2). Levels of use have increased dramatically since the onset of Covid-19 (3), making appropriate training in remote consulting vital to ensure adequate patient care is delivered. More recently, primary care has also utilised other remote consulting mediums (including video and online written consultation) (4-7).

Primary care staff are required to organise and deliver remote consultations and whilst written support has been developed, (8, 9) lack of formal training has been identified as a barrier to successful implementation and use of remote patient consultation (4, 10, 11).

Within postgraduate medical training, consultation skills education has focused on face-to-face consulting (12, 13). By contrast, medical schools are increasingly training students in using remote consultation (14). Primary care clinicians are expected to train medical students in delivering remote consultations (15) despite not necessarily being supported to develop these skills. There is likely a knowledge gap for the cohort of primary care clinicians currently training and practising. Some steps have been made to integrate remote consulting into more specialised training, including supervised clinics, training days and standardised guidance (16, 17) but work on this is limited, and more understanding of primary care clinician training is needed.

Local, national, and international guidance on remote consulting has emerged from the Covid-19 pandemic (18-20). Although this can assist primary care clinicians, it is not a substitute for official training and may not be evidence-based. As the demand for staff training in primary care increases, we conducted a thorough analysis of empirical research. The objective of this review was to provide an overview of effective training models for primary care staff in conducting remote consultations and to highlight areas that require further research.

Method

This systematic review was conducted following a pre-defined protocol (unpublished), and PRISMA guidelines were followed in reporting (21).

Inclusion and exclusion criteria

This study focused on primary care and involved any primary care staff as participants. Training related to conducting remote consultations, including telephone, text, video, or email communication with patients was examined.

Empirical studies of any design, including unpublished research was included. Review articles, conference abstracts, discussion and commentary articles, or letters were excluded.

Studies published in English from 2010 onwards due to low level of remote consultation use with patients in primary care before this date were included. Studies that were conducted in non-primary care settings or those that focused on student training were excluded.

Outcome measures

The review explored models of training and the content of curricula. Outcomes relating to training (type, provider, participants, completion rates), effects on healthcare professionals (impact on confidence, practice, satisfaction with training) and health service-related outcomes (impact on levels of remote consulting) were examined.

Information sources

The following electronic databases were searched in December 2021: MEDLINE (OVID), Cochrane Database, PubMed, Embase (OVID), Web of Science, and CINAHL. Additionally, Google was used to search for eligible published and unpublished studies in June 2022. Reference sections and citations of included studies were screened to identify further eligible studies.

Search strategy

Search terms for the main search strategy included all terms relating to 'remote consultations,' 'training' and 'primary care'. Full search strategy can be found in Supplemental Box 1.

We searched the first 100 hits in Google for studies using a combination of terms. Search one: "General Practice" "Remote consultation" "Training". Search two: "Primary Care" "Remote consultation" and "Training".

Data management and screening

Search results were combined and duplicates eliminated using Endnote X9 and Covidence software. Eligibility of studies was assessed by screening titles and abstracts. Studies that met the inclusion criteria were further screened by full text by two researchers. In case of discrepancies, a third reviewer was consulted. Relevant data was collected using a data extraction template.

Outcomes

The outcomes of interest were type of training, provider of training, recipient of training, and all other relevant outcomes.

Quality assessment

We assessed quality of the included studies using the Mixed Methods Appraisal Tool (MMAT) 2018 (22), appropriate for studies using a range of methodologies. Each study was assessed using five assessment points and given an overall quality rating (for contextual purposes) based on the number of positive or negative scores received. Studies achieved an overall rating of high quality if four or five criteria were met, moderate quality if three criteria were met, and low quality if two or less criteria were met (23).

Data analysis

Included studies were analysed using narrative synthesis due to their heterogeneous nature, enabling those with different designs to be analysed systematically with similarities and differences being considered (24).

Details of included studies and analysed outcome data were grouped according to characteristics and, where possible, into themes. Findings are presented using text and tables with results of the quality assessment presented alongside to contextualise the synthesis.

Results

1,382 results were screened, resulting in inclusion of ten studies in the review. Screening process and numbers and reason for exclusions can be found in the PRISMA flowchart (Supplemental Figure 1).

Of the ten studies included in the review, one was published before 2019 (25), two in 2019 (26, 27), four in 2020 (28-31) and three in 2021 (32-34). One study was conducted in the Netherlands (34), three in the UK (26-28), and six in the United States (25, 29-33). The most common study design was

quantitative, including seven surveys and pre-and post-intervention designs (26, 27, 29, 31-34) and one randomised controlled trial (25). One study was qualitative (30) involving case studies and one was mixed methods involving questionnaires and interviews (28).

Seven studies examined training on remote consultations for trainee GPs or residents (25, 28-33), whilst three examined training of fully qualified primary care nurses (26, 27, 34). Participants were at varying stages in their careers and presented a heterogenous sample for analysis.

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Table 1: Characteristics of included studies

| Author and year | Country of Study | Setting and participants | Study design |
|-----------------|------------------|---|--|
| Beaney 2019 | England | General practice in Staffordshire. 24 general practice nurses from 19 practices | Quantitative design using survey. Pre-, immediate post- and 2 month post involvement survey on competence/confidence/knowledge. Reflection on individual action plans for implementing TECs [technology enhanced care], including video consulting. LCAV questionnaires. |
| Chambers 2019 | England | General practice in Staffordshire. 40 local general nurse practitioner | Quantitative design. Mix of feedback after workshops/learning conference of personal experiences. Individual practice reports from CCG with relevant TEC, including video consulting, to support outcomes Use of TEC 6 months after programme |
| Chaudhry 2020 | England | General practice in London. GP trainees in NCEL London at any stage in their specialist GP training at one of the NCEL vocational training schemes | Mixed Methods design. Mainly quantitative using questionnaire. Also used semi-structured interviews Reviewed experiences of GP trainees with remote consulting |
| Jenkins 2020 | USA | Family medicine residency programme. Residents in second year of training | Quantitative design using survey prior to undertaking curriculum, survey after undertaking curriculum Patient evaluation forms during consulting |
| Keyserling 2021 | USA | Internal medicine residents in continuity clinic. sixteen first year internal residents participated | Quantitative design using survey prior to training, 1 week and 3 months after completing course |

| | | | |
|---------------------|-------------|---|---|
| Kirkland 2021 | USA | 100 internal medicine residents per year (2016-19) at the Medical University of South Carolina | Quantitative design using pre-test assessment prior to didactic module, a post-test and self-assessment evaluation after completion of the training. |
| Lawrence 2020 | USA | Primary care internal medicine residents at the New York University Grossman School of Medicine | Qualitative study using case study |
| Paladine 2010 | USA | Family medicine residents from 16 residency programs | Randomised controlled trial. Pre and post- intervention questionnaires, with residency programmes randomised into intervention or control groups. |
| VanHouwelingen 2021 | Netherlands | Nurses (who were had already used telehealth) employed in primary care, homecare or hospital care in Netherlands. 37 nurses across three teams. | Quantitative design using pre-test, post-test method during a tailored nursing telehealth training program in homecare, primary care and a hospital setting |
| Wong 2020 | USA | 56 First and third year internal medicine residents in ambulatory block at a university based residency program in Stony Brook, New York | Quantitative design using survey before session 1, after session 1 and after session 2 |

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| | | | |
|--|--|---------------------------------------|--|
| | | (each session had 10-12 participants) | |
|--|--|---------------------------------------|--|

Quality assessment [Supplemental Materials 2]

Four studies were rated as high-quality (26, 32-34). Five were rated as moderate-quality (25, 28-31) and one was rated as low-quality (27). The most common domain not achieved by included studies was whether participants were representative of the target population (26, 29, 31-33), rated as 'cannot tell' within seven quantitative studies (See Supplemental Table 1).

Training style

The papers presented a range of training styles. Six studies (26, 27, 29, 31-33) collected data after implementing workshop or didactic learning followed by experiential learning, using either real or simulated patients. In contrast, two studies (25, 34) involved training with no practical elements attached, and those remaining (28, 30) collected data after either an assessment of a remote consultation (as a workplace-based assessment or observed structured clinical examination [OSCE]) or experiential learning without any prior teaching. Not all papers clearly stated whether their training, particularly with didactic elements, was online or in person and there were no consistent training methods between them (See Supplementary Table 2).

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Impact on healthcare professionals

All ten included studies report outcomes relating to healthcare professionals following training for remote consultations. Six studies reported increased confidence and self-efficacy when delivering consultations remotely (25, 26, 29, 32, 33, 35), including improved knowledge of technology use (25, 35). Participants reported positive responses about training on remote consulting across all studies, however of these, some highlighted further training was likely needed (29, 31).

There was a heterogeneous sample of trainees across and within papers but many focused on preparedness for independent practice and confidence in remote methods. Only one paper (28) explored UK GP trainees' experiences of training in remote consulting, solely telephone consulting, and highlighted the experiential nature of current training with assessment primarily through Workplace Based Assessments. Senior trainees reported more positive experiences with remote consulting, but all agreed that further training was needed.

The US studies employed a wide range of educational methods across diverse trainee groups and differing consultation modalities. Two papers did not state which year groups were examined (25, 30) and one compared OSCE outcomes between Post-Graduate Year 1 and 3 trainees after training, although no discernible differences were identified (31). There was a wide range of remote consulting modalities trained for, with one study focusing on email only (25) and the rest a mixture of synchronous and asynchronous consulting. Despite the heterogeneity across studies, many reported that training increased appreciation for remote consulting and trainees could utilise telehealth in their future independent practice (29-31, 33). Within one study, residents' rated competence in remote consulting increased from 2% (2/89) to 41% (24/58) after training (33). Many studies however reported a need for further training.

Three studies explored outcomes for a mixed sample of primary care nurses across varying consultation modalities (26, 27, 34). Two UK-based studies (26, 27) evaluated outcomes for nurses in Band 6 and Advanced Practitioner roles but did not differentiate between the groups, with one focusing on consulting with patients with respiratory conditions (27). Across all three studies, training focused on electronic written communication with patients, either through a web-based platform or app, with the addition of video consulting in the UK papers.

Training improved reported knowledge of remote consulting, with median knowledge rated immediately after training increasing from 2.9 to 3.7 out of five (34). Nurses reported that training in, and subsequent use of, remote consulting was beneficial for use with patients and improved care (26, 27).

Type of Training

The studies assessed a wide range of training and pedagogical methods, including didactic teaching, workshops, and online learning. However, there was inconsistent delivery and lack of clarity within the studies. Two studies referenced online learning, one lecture-based and the other as 'modules' with associated discussion forums (25, 33). Other studies described 'didactic small group sessions' but lacked details on their delivery (29, 32, 34). Additionally, the amount of teaching varied from one-off sessions to a three-year curriculum, and experiential learning ranged from simulated to real patients at different stages of training.

Studies that implemented workshops or didactic learning alongside experiential learning reported more positivity and confidence in using remote consulting (26, 27, 29, 31-33). Those studies that

employed only one type of training (i.e. lecture-based or experiential) particularly highlighted knowledge gaps and a desire for further training (28, 30, 31). In one study, after receiving lecture-based training, an increased number of participants stated they were 'not sure' about their comfort levels in using email communication with patients (0% to 17.5%, $p=0.003$) (25).

Impact on Health Services

Four studies reported health service outcomes related to the use and impact of remote consultations. Of these, three reported increased use of remote consultations and technology to deliver healthcare post-training (26, 29, 34), with one study reporting 89% (17/19) of practices surveyed using 3 or more remote services (26).

Studies involving fully qualified staff reported that participants felt training on telehealth or remote consulting and subsequent integration into practice would increase efficiency. Nurse participants in two studies (26, 27) reported increased clinician productivity, improved communication with patients and fewer missed appointments after training. The number of remote consultations carried out by the nurse participants in one study (34) increased from 2 to 12.

Discussion

Summary

Training in use of remote consultations led to increased confidence and skill in using remote methods and was considered as a positive exercise amongst participants.

It appears from the included studies that more intensive training results in more learning, however, there are limited studies varying in sample and design. These findings are in keeping with educational literature where additional experiential experience enables the demonstration of higher-level learning and thinking (37, 38).

Whilst most studies focused on providing training to trainee clinicians, fully qualified staff also reported improvements in clinical and patient outcomes, although many still identified gaps. This suggests that there is relevance and importance in training both populations to deliver consultations remotely.

Eight of the studies were conducted pre-pandemic before primary care was forced to rapidly implement a wholly remote approach to consultation delivery. This increase in use has only reinforced the need for more evidence on training needs of primary care staff on remote consultations.

Strengths and limitations

This review is necessary to assist with providing remote consultations in general practice, and includes up-to-date evidence, including information gathered during the Covid-19 pandemic.

This review only included studies published in the English language. This may have led to missing relevant evidence published in other languages. It is also possible that searches may have failed to identify studies that are poorly indexed or traverse disciplines.

The included studies were inconsistent in their approach, methodology, participants, settings and aims, reflecting the novelty of this field but making summary and comparison of training difficult.

Some bias can occur when comparing the effects of training versus no training, as changes in behaviour may happen due to the awareness of being observed.

This review aimed to examine models of training and the content of curricula, but limited published evidence that included this detail was identified.

Comparison with existing literature

A recent Cochrane Review highlighted the need to train healthcare professionals in remote consulting. Whilst it was uncertain as to whether a training intervention would improve telephone consulting skills, it only included one study (13).

Studies show that clinicians' confidence levels can vary when conducting remote consultations, but with proper training, their confidence can improve, as seen in this review (3). There has been hesitancy to integrate training into practice due to a lack of perceived benefits, especially before the Covid-19 pandemic (11). However, this review has identified studies that demonstrate the positive outcomes of training in, and integration of, remote methods, such as increased work efficiency or better patient engagement.

These views are not limited to primary care; recent articles have recommended integrating remote consulting into dermatology and neurology training, and suggest options including supervised clinics, training days and standardised guidance (16, 17). Further evidence is needed to identify the best educational methods for this training, integrating the body of work with medical undergraduates in primary and secondary care settings (35, 36). Whilst postgraduate training needs may differ, these studies highlight the potential methods for, and benefits of, training in remote consulting.

Implications for Research and/or Practice

Out of the studies conducted, only one examined the possibility of training non-clinical primary care staff members with most of the studies focused on training GP trainees and nurses. It is crucial to further explore the training needs and effects of training for remote consultations among primary care staff members.

The recent surge in research indicates a rising demand for evidence on how primary care can effectively provide remote consultations. Staff members require training in this area, with the level of training needed varying depending on the staff's experience. Training methods such as workshops and hands-on learning have been shown to positively impact the confidence and perceived skill of recipients and should be included as significant components in this type of training.

Conclusion

Studies on training for remote consultation for primary care staff are few. Therefore, we are a long way from the necessary evidence-based curriculum and learning outcomes for training, suitable for different types and grades of staff. Given the urgency and the current state of general practice, this educational programme requires proactive funding.

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Ethical approval

This research did not require ethical approval

Competing interests

The authors declare no competing interests

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