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Remote services in general practice: who needs to be trained in what, when and how?

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Abstract

Background
Contemporary general practice includes many kinds of remote encounter.

Aim
To identify core competencies, training needs and learning methods for staff providing remote encounters.

Design and setting
Mixed-method study in UK general practice.

Methods
We collated data from longitudinal ethnographic case studies of 11 general practices; a multi-stakeholder workshop; interviews with policymakers, training providers and trainees; published research; and grey literature (e.g. training materials, surveys). Data were coded thematically and analysed using theories of individual and team learning.

Results
Learning to provide remote services occurred in the context of high workload, understaffing and complex workflows. Low confidence and perceived unmet training needs were common. Training priorities for novice clinicians included basic technological skills, triage, ethics (e.g. privacy, consent), and communication and clinical skills. Established clinicians’ training priorities include advanced communication skills (e.g. maintaining rapport and attentiveness), working within the limits of technologies, making complex judgements, coordinating multi-professional care in a distributed environment, and training others. Much existing training is didactic and technology-focused. Whilst basic knowledge was often gained using such methods, the ability and confidence to make complex judgements were usually acquired through experience, informal discussions and on-the-job
methods such as shadowing. Whole-team training was valued but rarely available. We offer an outline set of competencies based on our findings.

Conclusion

The knowledge needed to deliver high-quality remote encounters to diverse patient groups is complex, collective and organisationally-embedded. The vital role of non-didactic training eg: joint clinical sessions, case-based discussions and in-person, whole-team, on-the-job training needs to be recognised.

Keywords

General practice, remote triage, remote consultations, video consultations, e-consultations, training needs, competencies, capabilities, knowledge, skills

How this fits in

The introduction of remote triage and remote consultations has outpaced the training of staff to deliver these modalities.

We describe qualitative findings on training needs from a large study in UK general practice and a review of peer-reviewed and grey literature.

Many staff feel underprepared not just for using new digital technologies but also for conducting effective and safe encounters by telephone.

We propose a draft set of competencies for clinical and support staff at different levels.
Introduction

The NHS Long Term Plan, published in 2019, commits to digital-first primary care (in which general practices must offer and promote online and telephone consultations) by 2023-24.¹ There is also growing emphasis on supporting patients with care navigation (including navigating digital access and consultations).²

In 2019, the NHS established a Digital Academy with a view to training a national cohort of clinical informatics leads.³ The Topol Review, published in 2019, emphasised that healthcare organisations would need a strong workplace learning infrastructure; a reputation for training and support; proactive rather than reactive learning activities; and dedicated staff time for development and reflection on their learning outside clinical duties, though it made no comment on how these changes might be achieved or resourced in primary care.⁴ It recommended training in (among other things) the skills to undertake remote triage, assessment of a patient’s digital literacy and suitability for particular digital modalities, remote and online consultations, and teaching and motivating others to use novel technologies in their work.

There are numerous stakeholders in the digital training space, including national professional, statutory and regulatory bodies; educational providers within and outside universities; producers of digital competency frameworks and assessment tools; an annual cohort of ‘Topol Digital Fellows’; and provider organisations with long experience using remote modalities, including out-of-hours services such as NHS24, the Covid Clinical Advisory Service, charities and private providers. GP trainees’ remote clinical skills are summatively assessed through (among other things) a portfolio of workplace-based assessments and (from Autumn 2023) simulated video consultations, which count towards Membership of the Royal College of General Practitioners [MRCGP] and Certificate of Completion of Training [CCT]. Regional-and locality-based training is supported through a complex infrastructure including GP Vocational Training Scheme regional events, regional training hubs, Primary Care Networks, NHS England Integrated Care Boards, NHS Scotland Health Boards, NHS Wales Local Health Boards, local out-of-hours telephone training providers, practices, and peer educators, including fellow clinicians and ‘super-users’ of technologies.

Whilst there is much policy enthusiasm and activity around training for remote and digital NHS services, our ongoing qualitative work on remote by default primary care (described below) suggested unmet training needs and a translation gap between the worthy aims of the Topol Review and the reality of current provision. In this paper, we explore this difference empirically and suggest some draft competencies, which may help reduce the mismatch.
Aim

To identify the core competencies, training needs and learning methods for staff who provide or support remote encounters.

Design and setting

Mixed-methods study in UK general practice.

Methods

Ethical approval and governance

Ethical approval was obtained from East Midlands—Leicester South Research Ethics Committee and UK Health Research Authority (September 2021, 21/EM/0170 and subsequent amendments). The work was overseen by an independent advisory group with wide cross-sector representation including academics, policymakers, industry, clinicians, lay members and a lay chair.

Origin of this sub-study

The sub-study reported here emerged from the ongoing Remote by Default 2 (RBD2) study whose protocol and baseline findings have been published. RBD2 has three main work packages. First, a longitudinal multi-site case study from 2021 to 2023, using interviews, ethnography and some quantitative data, of how remote services are developing (or not) in 11 UK general practices across England, Scotland and Wales selected to represent a wide range of digital maturity from traditional (few digital services) to digital leaders (providing state-of-the-art digital services and supporting other practices). 8 of these are teaching or training practices. Second, co-design work with patients and staff to develop more patient-centred pathways for digital access. Third, national stakeholder engagement through elite interviews and multi-sector workshops.

Early interviews, ethnography and workshops identified unmet training needs among both clinical and support staff. Notwithstanding some pockets of good practice, there appeared to be a mismatch between training needs and training provision. Accordingly, we created a subset of data for targeted analysis, comprising people’s descriptions of training they had received (or would have liked to have received) alongside reflections of trainees and trainers (clinical and non-clinical) on training needs and preferred learning methods. We supplemented these data with additional material as described below (Table 1).
Extending the dataset

We extended the RBD2 dataset with a targeted literature search on training materials for clinicians and support staff and a service evaluation of clinical training. We also searched for papers on training for allied professionals and support staff.

To obtain training materials for clinicians (and comments from those who developed or used these), we emailed a purposive sample of content experts, including national clinical leads for video consulting programmes in England (identified through Health Education England) and in Wales and Scotland (identified through departments of health), Assistant Postgraduate Deans for General Practice in these jurisdictions, and leads for communication skills teaching in four UK medical schools (Cardiff, Leicester, Aberdeen and Oxford). Responders were asked to suggest others to contact. We also invited contributions via social media (Twitter and the Facebook groups GP Survival, GP Survival Wales, GP Survival Scotland and Resilient GP), and email networks (covering urgent care in UK and European out-of-hours GPs). We used a Google search to identify materials offered by professional bodies. Training materials for induction of support staff were obtained from practices in the RBD2 study.

Health Education England provided headline findings from a national survey of 791 primary care staff (491 clinical); we also consulted the 2022 General Medical Council survey of trainer and trainee doctors. Health Education England invited us to undertake a rapid evaluation of training provision for GP trainees. To that end, one of us (IH) interviewed 10 trainers and 10 trainees and attended 5 meetings of a policy group at Health Education England between November 2022 and May 2023. Interviews were audiotaped and contemporaneous notes made in meetings.

Theoretical framework

Our theoretical starting point was that learning to provide and support remote care requires people to develop complex forms of knowledge and apply that knowledge, both individually and as part of multi-professional teams, in unique, potentially stressful and unpredictable real-world situations. We drew on several theoretical perspectives: experiential learning, competence and capability, social learning theory, how leader-follower relationships shape learning, socio-materiality, and organisational-level theories of complex knowledge and routines (Box 1).

BOX 1
Data management and analysis

The wider RBD2 dataset, currently being collected over 24 months, is being entered and broadly coded on NVivo software. Extracts relevant to training were compiled into a Word document. These were read and re-read to gain familiarity, before constructing and iteratively refining a more specific coding framework covering aspects of teaching, learning and related concepts (such as ‘context for learning’ and ‘organisational and system knowledge’). We developed an analytic framework in Excel (preferred by the lead author [TG] because of its familiarity and manipulability), and charted extracts from our various data sources, further refining the framework as we added each successive source. The framework was reviewed and improved by other authors. These descriptive data were then theorised by applying the theoretical lenses described above.

A set of outline competencies for providing remote primary care services covering different student and staff groups was developed through repeated iteration and discussion among the RBD2 research team (which included recently-completed GP trainees [EL, IH]), along with experienced GP trainers (AK, LM) and policy lead (LM). A draft set of findings, including these outline competencies, was written up in an interim document. This was shared with researchers in the wider RBD2 research team (who had close familiarity with one or more participating practices) and with selected key stakeholders (national teaching or training leads, clinical trainers, clinical trainees, and trainers of reception and support staff), as well as with three lay members of the RBD2 advisory group. The synthesis was refined in light of their feedback.

Results

Overview of dataset

The subset of data analysed for this paper is shown in the last column in Table 1; the middle column shows the wider datasets from which these data were selected. Our search for training materials combined with relevant stakeholder interviews for RBD2 identified a total of 29 individuals involved in training. They supplied us with a wide range of training materials targeting all career stages from undergraduate level to established GPs and practice teams across England, Scotland and Wales.

The current context for training

Our ongoing ethnographic research, which started in September 2021, revealed severe—and in many cases, unprecedented—pressures from high workload, and staff shortages (see quote A1 in
Supplementary box 1). Whilst interviewees acknowledged a need for training in remote service provision, in reality, the time, headspace, and resources for such training are very limited (quote A2). Abuse from a small minority of patients was identified as a significant contributor to stress, resulting in high support staff turnover and thus a heavy workload of inductions for new staff. Many training opportunities had been lost in the pandemic (quote A3). Stressed staff often lost both motivation for, and receptivity to, training (quote A4). These findings are supported by the Health Education England survey, which found that many administrators, practice managers, GPs, and nurses had little or no protected time for training,7 the General Medical Council survey of trainee and trainer doctors, which identified rising levels of stress and burnout and a proportion of trainees unable to use all their allocated training time,8 and a survey of allied professionals which identified numerous unmet training needs.19

Every individual remote encounter can be viewed as part of a complex process of ongoing care (e.g. a phone call must be booked, documented and followed up). The vast majority of remote encounters in this study occurred over the telephone. Staff needed to adjust their communication styles, rapport-building, information-giving and safety-netting practices to accommodate the remote modality. They also needed to work quickly using a variety of technologies (both old and new) to document findings and decisions, book [further] appointments and cross-refer to other members of the practice team. These workflows and interactions were often complex and were shaped and constrained by historical divisions of labour within the practice and by the material properties and limitations of available technologies, which varied from practice to practice (quote A5). A decision to offer a particular modality of appointment was often clinically, logistically and ethically complex: the person (or people) making it had to take into account capacity and staffing constraints (for example, only 5 available face-to-face appointments on the day), the clinical need (and associated uncertainties) of the patient on the call, the wider needs of other patients who were seeking (or who may require) care, practice policies for supporting patient choice, and the consulting preferences of the individual practitioner. The contextual and organisationally-situated nature of remote triage in particular means that generic, ‘standardised’ training may be useful for gaining competence in using new technologies (e.g. understanding the functionality) but of limited use in developing the capability to use these technologies adaptively, collaboratively and under pressure in the real world of general practice.
Perceived training needs

Desire for further training was almost universal. Clinicians identified four broad training needs: technical skills (how to use a remote technology), communication and clinical skills (how to use it effectively to support remote triage or consultation), implementation skills (e.g. how to embed remote encounters into practice work and mitigate digital inequalities), and pedagogical skills (how to train other staff or patients). Where a new digital technology was involved, training was perceived to be essential and greatly valued. Staff training was often part of the package when purchasing digital technologies.

Many novices and some more experienced staff disclosed that they knew how to use digital technologies but not confidently or at the required pace. New trainees who had not yet undertaken remote consultations prioritised the need to learn technical skills (e.g. using video technology), relevant regulations (e.g. information governance standards) and the basics of safe practice (e.g. avoiding never-events) (quote B1 in Supplementary Box 1). Whilst some were very aware of their own limitations, others felt they had quickly acquired skills and confidence to take on greater risk and responsibility after being “thrown in the deep end” in the early months of the pandemic—perhaps reflecting the Dunning-Kruger effect where naïve learners over-estimate their competence. Trainers were more circumspect and described the current cohort of trainees as having missed out on closely-supervised clinical experiences (both traditional and remote) during this period (quote B2), sometimes with safety-critical consequences, particularly in relation to telephone consultations (quote B3). They described slow pace and poor judgements by trainees sifting triage calls as contributing to inefficiency through double-handling and loss of continuity (quote B4).

Experienced trainees and established clinicians talked about their desire to achieve excellence (both communicatively and clinically) in the remote encounter (quote B5) and transfer the clinical skills and experience acquired in traditional consultations to the remote setting (quote B6). Interviewees with long experience of training clinicians in telephone consulting emphasised that basic listening and core history-taking skills were crucial for safety and quality (quote B7).

Support staff also wished to gain knowledge and skills in the technologies essential for their roles, efficient and safe assessment of patient suitability for remote modalities, and safeguarding. They recognised that triage sometimes involves making urgent and far-reaching clinical decisions for which they felt under-trained (quote B8). They considered communication skills (which they called “people skills” or “customer care”) essential for all patient-facing staff. Many support staff
also identified the need to train in how to use technology in the context of (often complex) practice workflows and interactions between different staff groups (a domain which few clinicians brought up) and how to negotiate with patients when their preferred modality was unavailable.

Published research\(^{21}\) and the Health Education England survey\(^ {7}\) confirm that the confidence and knowledge of students, trainees and established clinicians prior to training in remote and digital encounters is often low. Training budgets were tight and not always awarded even when in people’s contracts; they varied by locality among salaried GPs, allied professionals and support staff.

**Participants’ experiences of training**

Training provision varied considerably across our sample of 11 general practices. Some offered formal training linked to locality-wide digital capacity-building initiatives (quote C1 in Supplementary Box 1). Others had no dedicated time for training or offered limited training to some but not all staff (quote C2). Senior and digitally-confident staff tended to take up this training and then train others (quote C3); some training providers had developed this into a “digital champion” and “super-user” role (quote C4). Some clinicians had never been offered training in using the telephone for clinical assessment—a finding that was affirmed by the results of the Health Education England survey\(^ {7}\) and by an earlier UK-wide survey of GP trainees.\(^ {22}\)

Staff described various types of learning and training, most commonly mandatory inductions for new staff and self-study e-learning resources (often technology-focused and provided by the technology’s supplier). Certified e-learning courses were popular with national policymakers and regulators across the three nations but viewed as (at best) a superficial and partial solution to the training needs challenge (quote C5). Trainees felt they learnt a lot from shadowing experienced clinicians undertaking telephone consultations (quote C6) and by having one-to-one follow-up sessions after e-learning focused on a digital technology to explain how to use the technology within practice workflows. Indeed, staff undertaking new technology-mediated roles often perceived that training in using the technology *to do the job* had to happen on-the-job (quote C7). When a new technology was introduced, staff who knew how to use it informally trained and supported others, and such assistance transcended traditional hierarchies (e.g. we observed doctors asking receptionists how to use a new telephony system, and a clinical assistant training GP partners in a new online system).

These findings contrast with Health Education England’s survey, which found that “e-learning”, “face-to-face training” and “live webinars” were the most popular options selected from
Training providers’ views on effective training methods

Of 30 clinical trainers interviewed, none mentioned classroom teaching or self-directed e-learning except to raise concerns about their limitations (see quote C4 in Supplementary Box 1). In common with trainees and other clinical staff, trainers had positive views on the value of shadowing (quote D1), debriefs, case-based tutorials, on-the-job training through real-time “just ask” opportunities, and facilitated case discussions in groups (quote D2). Undergraduate teachers commented that shadowing in the remote environment was logistically more difficult than in-person shadowing, and sometimes met technical barriers (e.g. speaker phone not working).

Providers of training for remote triage and consultations emphasised that specific, detailed and timely feedback on actual encounters and decisions was a particularly effective way of achieving learning and improving performance, affirming Deheane’s work on the role of feedback in learning. Quote D3 in Supplementary Box 1 is from a leading provider of out-of-hours services delivered mostly by telephone. This provider had introduced a ‘clinical coordinator’ role—an experienced GP who was available in real time to help clinicians with ‘knotty cases’ and who also scanned the records of completed calls to identify examples of practice that could be improved. All clinicians received feedback on their calls, with the vast majority being told that their decisions were appropriate. For the remainder, a non-judgmental, supportive approach was taken, with the senior colleague shadowing their calls and providing case-based, one-to-one training.

Support staff training was described by several interviewees as somewhat didactic, focused on specific digital technologies and occurring mainly at induction of new staff. Quote D4 in Supplementary Box 1 illustrates the important additional value that was achieved (in many but not all practices) from on-the-job training. These occurred both through formalised periods of shadowing and via informal methods such as internal emails with tips, resources and invitations to “always ask” a senior colleague who made herself accessible and created a non-judgemental culture.

Our ethnographic observations affirmed the important but often hidden role of informal interactions in the workplace in helping staff acquire confidence to use (and, especially, troubleshoot) technology. One GP from a digitally advanced practice commented that even though working from home was feasible technologically, this option was only used occasionally and...
ad hoc, because the benefits of peer support and supervision when on-site outweighed any convenience advantage of homeworking.

Towards a set of competencies and capabilities for remote encounters in general practice

Our analysis of undergraduate training materials revealed that the curriculum now includes basic principles of remote consulting under ‘communication skills’. Postgraduate training schemes (as well as more informal ‘tips and guidance’ prepared by peer educators and professional bodies) sought to prepare trainees for the RCA examination and CCT milestone (see introduction). Formal training courses for support staff emphasised technical competence, efficiency and safety of triage decisions.

Almost all the formal training resources and programmes we identified were aimed at individuals and focused on isolated individual encounters (the one-off triage decision or remote consultation). Most did not fully address—or even acknowledge—the challenges of achieving coordination of a care journey that would likely unfold over time and be distributed across a multi-professional team (see quotes E1 and E2 in Supplementary Box 1). Several interviewees emphasised the importance of a collective and shared understanding of these complex processes (quote E3) and staff who had been involved in whole-team training (often pre-COVID-19) greatly valued it (quote E4). One contributor commented that whole-practice team training was not merely about learning complex work routines but also about developing and negotiating the shared values and ethical principles that underpinned decisions about how complex patients were managed (quote E5) and how technologies were deployed in practice.

Supplementary Table 1 lists some outline competencies and capabilities for delivering remote services by different staff groups and different levels of seniority, based on our synthesis of the published literature, empirical findings and feedback from an online workshop of trainees and trainers. Training for support staff is briefly covered for completeness but will be discussed in more detail in a separate paper.
Discussion

Summary of key findings

This mixed-method study in UK general practice has shown that learning to provide remote encounters occurs in a context of high workload, understaffing and complex workflows, with many illness episodes unfolding over time and involving encounters with multiple staff members. Clinical and support staff admitted to low confidence in undertaking these encounters and felt they had unmet training needs. New clinical trainees identified several training priorities, including acquiring basic technological skills, becoming proficient in triage, mastering issues such as privacy, consent, and information governance, and developing their communication and clinical skills. Established clinicians’ training priorities include shifting from basic competence to being able to provide an advanced level of communication and support to the patient (e.g. building and maintaining rapport, attentiveness and trust), making complex clinical and operational judgements, ensuring that they understood and worked within the limits of technologies, coordinating multi-professional care in a distributed environment, implementing and embedding new technology-supported workflows, and training both patients and fellow staff members. Much current training is didactic and focused on particular digital technologies. People valued didactic training to acquire basic competence, but their capability and confidence to make complex judgements were usually acquired through experience, informal discussions and on-the-job methods such as shadowing. Whole-team training was valued but rarely available. These findings were synthesised into an outline set of competencies and capabilities for clinical staff and those in strategic roles.

Comparison with existing literature

We are aware of only one published systematic review of training for remote consulting. It identified 14 studies, all evaluations of short courses or single training sessions, almost all classroom-based, in undergraduate medical or health sciences students (one study also included residents). The authors found, broadly speaking, that students were more knowledgeable and confident after their training than before it. We found one paper on training needs of allied professionals and none in the academic literature on training needs of support staff for remote encounters.

To our knowledge, our study is the first to have produced outline competencies and capabilities for a multidisciplinary team of primary care staff. Several previous peer-reviewed papers have proposed competencies for remote care but all were secondary care based and
uniprofessional, covering internal medicine doctors, medical students in internal medicine, paediatricians, nurses, and physiotherapists. All these frameworks focused largely or exclusively on video consultations, which is rarely used in in-hours general practice.

Implications for policy

The Topol Review and NHS Digital Academy (see Introduction) have inspired a major effort to develop digital capacity and capability in UK healthcare. Our findings include some impressive examples of this capacity-building in action, with many practices growing in digital maturity and their staff gaining knowledge and confidence through formal and informal training. However, we also identified some issues that policymakers may wish to address.

First, whilst much current training is geared around new digital technologies, most remote triage and remote consultations occur by telephone and the only safety-critical incidents we heard about in our interviews were associated with telephone consultations. We suggest that more resource is put into ensuring that both clinical and support staff can—in the words of one of our interviewees who provides training in telephone encounters—“get the basics right” for telephone encounters.

Second, whilst didactic classroom training and self-study e-learning courses have an important place in developing competencies for the digital workforce, such acquire-and-transfer methods will take learners only so far. We suggest that existing courses are supplemented by training designed to develop capabilities to make unique, situated and ethically-laden judgements, and to participate in complex, materially supported and constrained collaborative routines distributed among organisational staff. Such socio-material knowledge is best developed through on-the-job training, team training and opportunities for informal learning through social interaction, case discussions and storytelling.

Third, and relatedly, our findings suggest that summative assessments such as RCA and CCT (see Introduction) are assessing only a fraction of the competencies and capabilities which a clinician needs to deliver remote and digital services. Indeed, many safety-critical judgements are made outside the clinical consultation since they relate to triage and internal cross-referral and involve collaboration between (for example) the trainee, a support staff member and the duty clinician.

Fourth, digital training policies focus disproportionately on individual members of the healthcare workforce. We suggest they are supplemented with initiatives which reflect the need for a more expansive, team-based element of training.
Finally, we strongly recommend that the learning from existing models of good practice is captured and disseminated. Our empirical findings from out-of-hours primary care (where training for telephone consultations was proactive, systematic and mainstreamed) were strikingly different from those from in-hours primary care (where clinicians and support staff with varying levels of training were sometimes struggling beyond their competence). Roles such as the ‘clinical co-ordinator’, a senior clinician who is co-located with staff taking telephone calls and oversees and supports them, should be explored. There is also scope for cross-national learning from examples of good practice that are currently country-specific.

Strengths and limitations of this study

The key strength of this study is that we used multiple methods and data sources reflexively and collaboratively to gain a rich picture of training needs and current provision in UK general practice. By applying theories of adult learning, professional capability, socio-technical learning and organisational knowledge, we were able to document the significant progress made in developing the digital workforce in primary care and identify areas where further progress is needed. The main limitation is that the empirical work was based only in England, Scotland and Wales, which limits generalisability of findings (though some training materials were from mainland Europe, USA or Canada). Another limitation is the very sparse data on electronic consultations, which we suggest should be prioritised for future research. We also flag that our research on training needs for support staff is ongoing.

Conclusion

This study has found that learning to provide remote general practice services is occurring in a fast-paced and often understaffed context. Where training exists, it is often didactic and technology-focused and whilst such formats are appreciated, they do not fully prepare people for the contexts and complexity within which important clinical and clinically-related decisions are being taken. The ability to make such decisions appears to be gained primarily through experience, informal discussions and on-the-job methods of learning. The distributed nature of remote and digital work mean that team training and system learning must be part of the overall training strategy. Training programmes and policies need to reflect these important pedagogical insights.
Disclosures

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Conflicts of interest: TG is an unpaid member of Independent SAGE and an unpaid adviser to the philanthropic fund Balvi.

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References


22. Maru D, Gopal DP, Gandhi H. Here is how we prepare the next generation of GPs for remote consulting. *BJGP Life* 2020;4th May


## TABLE 1: SUMMARY OF DATA SOURCES

<table>
<thead>
<tr>
<th>Source / type of data</th>
<th>Nature of full dataset</th>
<th>Subset of data analysed for this paper</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LONGITUDINAL CASE STUDIES OF GENERAL PRACTICES (RBD2 study)</strong></td>
<td>Field notes from ethnographic visits, staff and patient interviews in 11 UK general practices followed for 30 months. Documents such as websites and leaflets. Text data transcribed and coded on NVivo.</td>
<td>Interview data where staff indicated their learning or training needs. Field notes pertaining to staff members’ ability to arrange or deliver remote services. Total 44 pages of excerpts (representing 30 staff).</td>
</tr>
<tr>
<td><strong>NATIONAL STAKEHOLDER INTERVIEWS (RBD2 study)</strong></td>
<td>Semi-structured interviews with stakeholders from policy, industry, primary care strategy and patient advocacy groups. Audio-taped and selected sections transcribed.</td>
<td>Extracts of data from 6 interviews including 2 out of hours clinical leads, 1 GP trainer, 2 GP out-of-hours training programme directors, 1 software provider. Total 15 pages.</td>
</tr>
<tr>
<td><strong>MULTI-STAKEHOLDER WORKSHOP (RBD2 study)</strong></td>
<td>Online workshop (Jan 2023) with 51 participants including clinicians, support staff, local and national policymakers, trainers. Video/audio of plenary sessions and virtual breakout groups (relevant sections transcribed).</td>
<td>Interdisciplinary group discussions about perceived training needs and training experiences. Presentations by training providers (e.g. out-of-hours general practice). Policymakers’ perspectives and expectations. Total 3 hours of discussion; 8 pages of extracts.</td>
</tr>
<tr>
<td><strong>ADDITIONAL TRAINER/TRAINEE INTERVIEWS (service evaluation)</strong></td>
<td>Interviews and participant observation by University of Oxford MSc student in collaboration with Health Education England to evaluate current training provision for GP trainees. Transcribed and coded on NVivo.</td>
<td>Interviews with 10 trainees and 10 trainers; field notes from 5 trainers’ meetings. Total &gt;200 pages.</td>
</tr>
<tr>
<td><strong>TRAINING MATERIALS</strong></td>
<td>Formal training programmes for students, clinicians or support staff (curricula, handouts, tutor and student workbooks). Tips and guidance from national and local peer educators e.g. Infographics, slide decks, videos, and checklists.</td>
<td>Content and rationale of formal training, including target learners, learning outcomes, standards and criteria for assessment. Scope and content of informal tips and advice. Total 4 undergraduate and 12 postgraduate courses, 2 courses for support staff, 20 pages of informal materials.</td>
</tr>
<tr>
<td><strong>TRAINING PROVIDER COMMENTS</strong></td>
<td>Brief online interviews or email exchanges with people supplying training materials. Not audiotaped; brief contemporaneous field notes taken.</td>
<td>Notes and emails from 29 individuals (4 national clinical leads for out-of-hours care, 3 postgraduate/assistant deans, 3 GP training programme directors, 6 medical school communications leads, 2 academics doing PhDs in remote consultations, 1 out-of-hours clinical lead, 3 additional GPs and 3 representatives of professional bodies). Total 15 pages.</td>
</tr>
<tr>
<td><strong>RESEARCH LITERATURE</strong></td>
<td>One published systematic review plus one additional primary study (survey of allied professionals).</td>
<td>Nature of training interventions that have been evaluated in published studies. ‘Before’ data on baseline competencies; ‘after’ data on satisfaction and learning outcomes. Discussion sections (e.g. for theoretical models of learning).</td>
</tr>
<tr>
<td><strong>GREY LITERATURE</strong></td>
<td>Recommendations of professional bodies and policy groups; Health Education England survey of training needs for remote in 791 NHS primary care staff; General Medical Council survey of 18434 trainer and 48785 trainee doctors.</td>
<td>Relevant sections of professional codes of practice, standards of excellence and suggested curricula. Survey responses to closed questions about time available for training, priority topics for training, preferred modalities for training, experiences of wellbeing and burnout, plus free text comments. Total 40 pages of excerpts.</td>
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## BOX 1: THEORETICAL FRAMEWORKS INFORMING THIS STUDY

### EXPERIENTIAL LEARNING
Adults (like children) are generally highly motivated to learn; they learn things that are immediately useful to them; and they learn best in a self-directed, task-oriented and experience-based manner. The adult learner integrates new experiences into existing conceptual models, modifies these models in the light of experience, and tests the new models against external reality. This theory is helpful but not sufficient in guiding training, since (for example) feedback from others is an important component of the learning process and novice learners in particular may over-estimate their competence and fail to recognise key learning needs.

### COMPETENCE AND CAPABILITY
Competence is defined as “what individuals know or are able to do”; capability as “the extent to which individuals can adapt to change, generate new knowledge, and continue to improve their performance” (page 799). While competences are inherently conservative (e.g. knowledge of an existing evidence-based guideline), general (apply to multiple situations) and assessed retrospectively (e.g. by a trainee presenting a portfolio of evidence), capabilities relate to the creative production of new knowledge in particular situations—for example, generating multiple possible diagnoses and working through different management scenarios when assessing a complex case. Related to capability is entrustability, defined as occurring when clinicians can trust a trainee or colleague to perform a particular role unsupervised. Examples of Entrustable Professional Activities (EPAs) include seeing undifferentiated patients in person, doing telephone consultations and being duty doctor.

### SOCIAL LEARNING THEORY AND RELATIONAL ASPECTS OF LEARNING
Learning to use technology is a highly social activity, as people learn by observation (from watching others), collectively problem-solve, and share stories about troubleshooting. Indeed, multimedia storytelling in groups can be a powerful learning tool. In work-based learning, a positive relationship between the leader (trainer) and the follower (trainee) leads to higher expectations and better performance—the so-called Pygmalion effect.

### SOCIO-MATERIALITY
The material properties and affordances of technologies shape and constrain what humans are able to do in a given context. Technology is designed for an idealised system (‘work as imagined’), but staff in any organisation must learn or develop workarounds (articulation practices) to deliver ‘work as done’. Contemporary learning is often more about making wise decisions in particular contexts, constrained by materiality, than about acquiring abstract knowledge.

### ORGANISATION-LEVEL THEORIES OF COMPLEX KNOWLEDGE AND ROUTINES
Tsoukas’ notion of ‘complex [organisational] knowledge’ emphasises that knowledge in organisations is collective as well as individual and embodied in business-as-usual patterns of acting and interacting. An organisational routine is defined as a repetitive pattern of interdependent action involving multiple actors. As experienced organisational actors, we ‘know the ropes’—and we usually know more than we can tell. People new to the organisation need to learn those ropes (e.g. even if they know how to use a technology in general, they need to learn how it is used here). These distributed views of knowledge align with Gabbay and le May’s notion of mindlines: collectively generated and shared understandings which evolve through discussion and shared practices.