

Why is this Important for GP services now: View from a Clinical Commissioning Group Clinical Chair

In the context of a NHS under severe pressure and financial strain, there is a lot of competition for 'burning platforms'. However there is a powerful case to be made for the crisis in General Practice being right at the top of the worry list. Frequently described as the 'jewel in the crown' of the NHS, there is an established consensus that a high functioning primary care system is necessary for a high functioning, high quality, efficient health service.

What is often less clear however, are some of the solutions to the problems that we face collectively. Those problems include, but are not restricted to; resourcing; workforce; the model of care; and modernizing the service without losing its power. This digest goes some way to helping move the discussion from the articulation of problems, to the identification of real world solutions.

In this environment, there is understandably a pressure to 'do something.' This, combined with many opinions and some questionable political fashions, has the risk of jumping to answers that either aren't addressing the right questions, or have the potential to make things worse. Whilst we need to avoid the trap of waiting for perfect evidence, the first thing we should do is to look at what we have got and what we already know. The NHS should be ideally placed for taking the best evidence and applying it widely, but too often we tend to look only at what we already know from our experience, and try to develop solutions de novo.

There is a lot in these pages that is highly applicable, both to commissioners and providers, but also to individual healthcare professionals and GP practices. It is clear we need to understand a lot more about what the future holds, and in the current context it is even more vital that we base this on sound evidence, building closer links between academic work and real world clinical work, developing a genuinely shared agenda.

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GP primary care digest overview

The Digest summarises published evidence and insights from current NIHR research projectsⁱ that deliver some answers to key questions about how the GP services can meet the numerous challenges and demands for innovation in service delivery¹.

We present innovations that apply to all GP services (patients' surveys), through to those which have been used for some time but with variable uptake and impact (digital consultations, diagnostics). We present evidence for innovations in the workforce and organisation of GP services that are being undertaken by increasing numbers of practices to meet the increasing pressures on GP primary care services in the UK.

Surveys of patients' experience of GP services

The use of patient surveys to improve the quality of GP services is important both to inform the process of service development and innovation, and to assess the impact of such changes in practice.

[Follow this link](#) to see research that examines how nationally commissioned GP survey data is regarded by GPs and patients, how it is currently used by the NHS, and how patient experience data can be improved, including the use of Real Time Feedback.

Digital alternatives to face-to-face GP consultation

GP consultations provide triage, diagnosis and assessment, treatment and support for management of long term conditions, preventive and public health interventions, healthcare system navigation including referral and diversion through the system to community and hospital specialist healthcare providers. These consultations are typically of 10 minutes duration, face to face. There is now a diversity of alternative delivery models for consultations (e.g. telephone, texting, web based, video-conferencing).

[Follow this link](#) to see examples of research funded by NIHR into alternatives to GP face-to-face consultations.

Innovation tackling how best to deploy GPs and other members of the GP team

General Practice has been at the heart of service innovation, particularly since the pressures on services have come from rising list numbers and increasing morbidity and complexity of cases. But the workforce is insufficient to meet demand, creating vulnerability in supply, reducing patient access, and which may impact on patient safety², creating a crisis in GP primary care in the UK³.

Policy and demand are accelerating the focus on an ever more complex mix of out of hospital services, and the problems of supply and skill mix in the professionals in General Practice and community services. The number of GPs per head of population has declined since 2009 and there are major problems of recruitment and retention. General Practice and community nursing presents a similar problem with an ageing workforce. Between 2001 and 2011, the number of community nurses fell by 38 per cent. Only in pharmacy does there

ⁱ Projects are included from the Health Services and Delivery Research programme, with selected relevant studies from Health Technology Assessment programme, Programme for Applied Research Grants programme and Collaborations for Leadership in Applied Health Research and Care

appear to be a potentially adequate supply of newly trained graduates⁴⁻⁶.

The role of the GP as expert medical generalist who undertakes almost all aspects of diagnosis, care and case management is being changed by the contribution of enhanced roles for nurses, allied health professionals (AHPs), paramedical professionals, and enhanced roles for administrative staff in patient facing roles.

[Follow this link](#) to see research on the contribution of new types of clinician (physician assistants), telephone triage in NHS III services and by physiotherapists in GP services, and current research on strategies to retain GPs in the workforce.

Innovations in the organisation of GP services

NHS policy imperatives in recent years have focused on ever more services provided in and by GP primary care¹. [Follow this link](#) to see research on how General Practice can improve access to GP consultations, become more efficient and provide more services by combining into federations of practices, and to take on service functions such as ambulatory care from specialist services, and out-patient clinics in GP premises.

Diagnostic services in GP primary care

GPs have traditionally referred patients to hospital based diagnostic services under a secondary care specialist. But if GPs have direct access to diagnostic test services this may reduce the requirement for specialist opinion. Further, if GPs undertake more diagnostic tests in their premises, which may also be more convenient for patients, then services may be more efficient and less costly, and patients gain from safe and rapid investigation.

[Follow this link](#) to see research that considers the evidence for new technologies being deployed in GP services. The research also provides a framework for commissioners to assess the evidence from reviews of international research and how the existing and new technologies may be implemented, taking account of logistic, human resource requirements and the impact on clinical and patient communications.

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Understanding data on patient experience of GP services

Why this research was needed?

The use of patient surveys to improve the quality of GP services is important both to inform the process of service development and innovation, and to assess the impact of such changes in practice.

Patient surveys that use standard wording to be consistent across organisations and are designed to be generalisable are currently the principal method used in the UK NHS¹. In 2008 the General Practice Assessment Questionnaire (GPAQ) and Improving Practice Questionnaire (IPQ) were replaced by the national GP Patient Survey (GPPS) and since then the NHS has carried out a systematic programme to assess patients' experience of primary care, surveying 5.6 million patients annually, though some practices continued to use GPAQ for their own purposes. The results of GPPS describe all 8500 general practices in England in terms of the quality of care their patients' experience, and results for individual practices are published on the internet (<https://gp-patient.co.uk/>). At the individual doctor level, the General Medical Council's (GMC) revalidation programme requires doctors to collect patient feedback as supporting information². In addition, GP services are required by contract to have Patient Advisory Groups (PPGs), to provide feedback (<http://www.napp.org.uk/ppgintro.html>).

Services providing a good patient experience are also more likely to be safer and more efficient^{3, 4}. GP survey results, alongside other intelligence, are used by CCGs for assurance of quality. As GP services take on new forms, it is important to understand patients' experiences of these services.

Research was funded by NIHR to examine how nationally commissioned GP survey data is used currently and how its uses can be improved.

What we found from NIHR studies

Use of national surveys

In the UK, broadly there is a widespread scepticism amongst GPs about the credibility of the results of patient surveys^{5, 6}.

Concerns from GPs are that critical or grumpy patients selectively complete surveys and that the results will therefore give a negative and biased view of the GP's care. However, in a NIHR study by Roland et al (<http://www.cchr.iph.cam.ac.uk/research/improving-patient-experience-in-primary-care>) the results suggest that the opposite is the case⁷. They found that many patients are reluctant to criticise their doctors and have difficulty in feeding back negative experiences⁷. Taken alongside patients' reluctance to criticise doctors through surveys and staff challenges to the credibility of surveys, the study suggests that additional approaches such as patient narratives are therefore needed to better capture aspects of patient experience that can be used to improve specific aspects of the quality of care.

Commissioners and regulators use GP survey data. National survey data is often aggregated at practice level and so it is difficult to ascertain problems at GP level from these surveys. On the whole, practices find it easier to engage in quality improvement activities based on survey items that related to practice management (e.g. availability of appointments, or the ease of access services by the telephone) than to issues around communication between patients and clinical staff. Given the ceiling effects of surveys, there has been growing interest and recommendations following research in this topic, *that patients should be asked about what went wrong*, as well as what went right, in order to learn where improvements are most needed^{8, 9}.

The national surveys have been criticised for not providing timely feedback⁵. One solution is the use of Real-time feedback (RTF) to collect patient experience after consultation because this enables results to be assessed and acted on quickly¹. In the UK the feasibility and acceptability of RTF in ten general practices has been assessed. Only 2.5% of consulting patients left any RFT without prompting; however, if encouraged to use RTF by staff, as many as 60% of patients did so. But direct encouragement was provided in only 5% of over 1100 patient-staff interactions that were observed in reception areas. Of patients who used RTF, 86% found it easy to use and were positive about it as a feedback method. Costs per practice for the twelve-week period ranged from £1125 (unfacilitated and with team-level feedback) to £1887 (facilitated team with or without practitioner-level feedback). The main cost was the one off provision of touch screens¹.

Responsiveness

Accessing the views of certain groups about GP services is challenging, such as patients who do not speak English, people with learning disabilities, and homeless patients. If primary care service providers are not aware of their needs, it is possible that provision will not meet their needs, leading them being underserved and disadvantaged. In the Roland study they identified that low scores were often given by South Asian patients in GP patient surveys and might reflect care which is genuinely worse, and possibly much worse, than that experienced by their White British counterparts. The researchers recommended that low scores from South Asian patients should be investigated as possible indicators of poor care.

As GP practices are increasingly encouraged to be more responsive to patients' needs in order to address these inequalities in patient experience, a study by Tarrant¹⁰ that completed in 2014 aimed to develop a measure of responsiveness in primary care, and find out what responsiveness means to staff and patient

(<http://www.journalslibrary.nihr.ac.uk/hsdr/volume-2/issue-46#abstract.>)

The study found that primary care organisations tend to think of responsiveness in terms of being reactive: responding to individual patients as they access the service, and responding to patients' complaints or suggestions, or patient survey data. The majority of GPs saw responsiveness to be about how the practice meets the expressed needs of their patients, particularly around gaining access to the care they need.

GP services have taken on wider responsibilities for population health. The study identified three components of responsive service delivery; developing an awareness of the needs of the local population through proactive population-orientated strategies; adapting systems and services to better meet these needs through reactive population strategies; and ensuring that staff are willing and able to respond sensitively and flexibly when patients use the services by employing patient orientated strategies. Interviews with GP staff indicated that responsiveness was achieved through alignment between needs and service provision. Working to improve the design and flexibility of service was important, but sometimes responsiveness could involve managing the needs and expectations of patients.

The study team developed a questionnaire, which is available in three versions for a GP surgery, walk-in centre and pharmacy version. The questionnaires are available free for use with the written permission of the University of Leicester. Please contact Carolyn Tarrant: ccp3@le.ac.uk (www2.le.ac.uk/departments/health-sciences/research/soc-sci/research-projects-1/responsiveness-study). They have been designed as a self-completion paper questionnaire in standard and Easy Read formats, but can also be interviewer-administered (including via an interpreter) or completed online. Initial evidence suggests that the GP version is a reliable and valid measure of patient experience of responsiveness, and could be used as part of a process of identifying GP practices where

there is misalignment between the needs of specific patient groups and the provision of local primary care.

How can GP services be improved using this research?

National survey data can be useful to show variation in practices, which may indicate poor care, requiring further investigation.

National survey data is most often used to improve administrative rather than patient/clinician communication issues.

Real-time feedback, provided patient use is prompted, is a promising and low cost means of gaining timely feedback.

NHS Policy context

In seeking to achieve improvement in the quality of NHS services, gathering data is important both to inform the process of service development and innovation, and to assess the impact of such changes in practice. In the UK, patient experience data has routinely been collected via the NHS patient survey programme. Annual surveys of patient experience such as the national GP survey (1.3 million patients), and the national inpatient survey (64,000) have been conducted retrospectively by mail, with response rates commonly between 30 and 40 percent.

The second Francis Report¹¹ and Berwick review¹² have both highlighted the need for collecting data that is 'real-time', or as near as possible to real-time, as a means of enabling safe care. Most recently, the focus on patient experience has been captured in the NHS Outcomes Framework which, in Domain 4, focuses on ensuring that *'patients have a positive experience of care'*¹³

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Alternatives to face-to-face consultation with a GP

Why this research was needed?

The Five Year Forward view has identified that there is pressure of increased demand to move away from providing the traditional face-to-face consultation with a GP for all consultations¹. In response to these pressures, GP services are adopting digital alternatives to face-to-face consultation with a GP. New NIHR research addresses questions of how these alternatives can best be used to meet the needs of GPs, their teams, and patients.

As technology has become more widely available, some general practices have begun to adopt alternative methods of consulting such as telephone triage², but despite the pressure on GPs to offer more consultations by email or Internet video programmes such as Skype, most practices have been slow to adopt these alternatives³. This reflects a reluctance expressed by general practitioners about the impact of introducing additional consultation methods on demand and on their capacity, and concerns about achieving safe use^{4 5}. Research is described from which lessons can be learnt for wider implementation in primary care.

Cochrane reviews confirm that there is little high-quality research in this area and the existing evidence comes largely from the USA, Australia and other countries containing large rural areas with dispersed populations where tele-consultation or alternatives to face-to-face contact are more established^{6,7}. Over the last few years there has been an emerging body of evidence that shows forms of multi-channel patient contact, for example email, web chat, e-forms, social media and communication channels from telephone to internet to smart phone apps can deliver efficiency gains and improve quality in general practice. However, much of this comes from those who have developed commercial solutions for general practice and local evaluations often report very mixed results².

What we found from NIHR research

NIHR has funded studies exploring the cost and effectiveness of alternatives to face-to-face consultations, what impact they have on patient satisfaction, working practices in primary care, and use of other health services.

A completed study by Campbell et al conducted a randomised controlled trial (RCT) of GP-lead triage using components of the Stour Access System (GPT) or nurse-led computer-supported triage, (NT) using the Plain Healthcare Odyssey PatientAssess system, compared with usual care (UC) by a GP for patients seeking same-day consultations. 42 GP services participated in Devon, Bristol/Somerset, Warwickshire/Coventry and Norfolk/Suffolk. All patients contacting the practice on a first occasion with a request for a same-day consultation were included by the receptionist if they were both well enough and able to communicate without difficulty⁸. Introducing either GPT or NT resulted in an *increase* (33% and 48% respectively) in the number of primary care contacts (including within practice, Out Of Hours, Walk in and A&E services) in the 28 days following a patient's request for a same-day consultation when compared with the practices' usual processes for handling such requests.

Introduction of GPT was associated with an increase in overall GP workload compared with usual care, but the study identified a reduction in GP face-to-face contacts. NT was also associated with an overall increase in total primary care workload; however, it too was associated with a reduction in GP contacts. These

changes indicate a redistribution of GP workload from face-to-face to telephone consultations after introduction of GPT and a redistribution of workload from GPs to nurses after introduction of NT.

The study found that both nurse-led (computer-supported) and general practitioner-lead telephone triage were cost neutral to the NHS compared with usual primary care. Triage appeared safe, and no differences in patient health status were observed. Nurse telephone triage was associated with a mixed reception by patients. Patients reported that it was easier to get through to the practice on the phone in practices implementing GPT in comparison with UC, and that it was harder to get prompt care in NT by comparison with GPT and with usual care by a GP.

Because most of the contacts were in general practice, the study provides evidence about general practice workload. Past research has suggested that telephone triage or consultation by a GP or a nurse might be associated with a reduction in GP same-day consultations of about 40%^{9 10}. However, re-consultation rates within the few weeks after telephone consultation increased by a similar magnitude. Any reduction in GPs' workload from reduced numbers of face-to-face contacts was more than compensated for by a substantial increase in the number of telephone contacts undertaken in GP triage. By contrast, introduction of nurse triage seemed to result in an overall reduction in GP workload, but with no reduction in overall costs¹¹.

Introducing any technology into a human system can have far-reaching effects that are difficult to predict¹². New forms of consultation may shift workload to others while not reducing the burden on primary care overall, or possibly increasing burden on practices and alter patient's experience of care. The researchers recommend the whole-system implications should be assessed when introduction of such a system is considered⁸.

How can GP services be improved using this research?

If the priority is to reduce GP face-to-face workload, the introduction of either GP triage or nurse triage might be of practical relevance but does not reduce cost⁸.

Substitution of telephone consultations for face-to-face consultations does not reduce overall workload but changes the nature of that workload¹¹.

Current research:

A two-year study (13/59/08) by Salisbury et al, completing Jan 2017 aims to identify the use of alternatives to face-to-face consultations in GP practices in Bristol, South Gloucestershire, North Somerset, Oxfordshire, Lothian and Highland and Islands, a total of 434 practices (<http://www.nets.nihr.ac.uk/projects/hsdr/135908>). Findings from a GP practice survey in this project (response rate 319/421 practices 76%) shows that despite the majority of practices offering telephone consultations on a frequent basis (66%), fewer practices were implementing email consultations (6%). None were frequently using internet videos (for example, Skype™, FaceTime®), with 86% having no plans to introduce internet video consultations. Individual GPs report similar patterns of use. Given there is little actual experience by GPs, the attitudes towards these options seem to be speculative and reflects their concerns around their burgeoning workload. The next stage of the study is to look in depth at practices that either currently offer, are about to introduce, or have ceased to offer, an alternative method of consultation³.

The guidance and website resource for practices that is being developed aims to help to NHS managers and practice staff determine how alternative methods of consultation may work for their practice population and for the GPs in the practice. A review informing this study considers how has been to consider how alternatives to face-to-face consultation in primary care might be developed and understood, bearing in mind the needs of those who plan, implement and research these alternatives. They recommend a process of co-design with patients and clinicians is used to anticipate, and where possible overcome the attitudinal apparent barriers to implementation¹³.

A recent innovation in general practice involves all patients requesting a face-to-face consultation being asked to speak to a doctor (telephone triage), who is not part of their usual practice. Commercial providers report gains that the services can deal with two-thirds of requests for GP appointments on the phone, greatly reduced waiting times for appointments, improved continuity of care, improved patient experience and reduced A&E attendance and emergency admissions. The on-going study by Roland et al (13/59/40) is due to complete in September 2017. The team will work with commercial providers and use a mix of qualitative and quantitative approaches and a cost-consequences analysis to evaluate the impact of these schemes on practices enrolled with them

<https://www.journalslibrary.nihr.ac.uk/projects/135940/#/>

The study will address concerns highlighted in previous systematic reviews about equality of access to services for patients who do not speak English, those with hearing or speech impairments and those with learning disabilities¹⁴ and the safety of telephone consultations¹⁵.

The Prime Minister's GP Access Fund (Formally Challenge fund) has funded two waves of pilot sites that set out to identify innovative ways to improve access to General Practice and deliver GP services, with many including ways to increase the use of technology to provide alternatives to face-to-face consultations. The NIHR CLAHRC West are assessing the impact of how eConsult, a suite of online patient services developed to give patients access to advice and care via their own GP practice website and allowing patients to consult their GP from home is working for practice staff within the One Care Consortium across Bristol, North Somerset and South Gloucestershire:

<http://clahrc-west.nihr.ac.uk/research/projects/improving-access-primary-care-study/>

Policy Context and policy evaluation:

GP consultations provide triage, diagnosis and assessment, treatment and support for management of long term conditions, preventive and public health interventions, healthcare system navigation including referral and diversion through the system to community and hospital specialist healthcare providers. These are typically of 10 minutes duration, face to face. The Five Year Forward view has identified that this model has become outdated as a model for all consultations, as demand has changed¹⁶. The 10 High Impact Changes in primary care include alternatives to traditional consultations by telephone, text, and e consultation. These feature some of the innovations that have been taken forward the GP Access Fund pilot sites in England, which aim to improve access to general practice and stimulate innovative ways of providing primary care services. There are 57 pilots covering over 18 million population (a third of the country) in over 2,500 practices. A commissioned evaluation of the first 20 pilot sites (wave 1) focused on three key national programme objectives: to provide additional hours of GP appointment time; to improve patient and staff satisfaction with access to general practice and to increase

the range of contact modes^{17 18}. The report states there were 12 sites using telephone consultations or GP telephone triage, 6 used video consultations and 7 used e consultations. Of these, telephone consultations were most used. The authors also stated that there is growing evidence to suggest that investment in telephony infrastructure can be cost effective, however, more work needs to be done to understand the appropriate models that will realise most savings (i.e. a central call centre or individual practice telephone systems)^{17 18}. The impact across all sites, and therefore across a complex array of innovations indicates that capacity was increased and may have addressed unmet demand, some of which may have previously been diverted to ambulatory attendance at Emergency Departments. There was no discernible effect on Out Of Hours Services or emergency hospital admissions. While this evaluation of the Prime Minister's Challenge Fund included some interviews with patients, and use of the existing national GP survey data on satisfaction with access, little is known about the patient perspective; how the services are designed to meet the diverse needs of local populations, their expectations and experience of care. A second wave of sites, comprising 37 new sites, is subject to a further commissioned evaluation by NHS England¹⁹.

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Workforce and skill mix in GP services

Why this research was needed?

The number of GPs per head of population has declined since 2009 and there are major problems of recruitment and retention, as highlighted by several reports¹⁻⁴. Pressures on GPs include a rapid rise in the number of consultations, complexity of cases due to frailty and deprivation⁵. Unless urgent action is taken, the UK will face with a serious shortage of GPs within the next few years. There are many reasons, among them are that fewer medical students are opting for a career in general practice, the GP workforce is ageing, younger doctors are opting to work part-time, and many older doctors are opting to retire early⁶.

The General Practice Forward View describes plans for investments in workforce. These include investments in training and capacity of practice nurses and managers to support the expanded role of GP services as providers⁷. Implementing these role and skill-mix changes in teams will pose new challenges and opportunities to re-think the skills and capabilities of the expanded GP team⁸.

What we found from NIHR studies

NIHR has commissioned studies that address some of these issues.

NHS111

GPs are part of a network of out of hospital services, each requiring a range of clinical skills, only some of which may be best provided by medically qualified GPs. GPs are trained to provide to patients of all ages a service offer of initial triage, investigation, treatment, support for long term conditions, as well as a more recent focus on public health and prevention. To match clinical and health service navigational skills to demand, services are exploring alternative approaches.

Turnbull studied five NHS111 services between 2011-14. The study found that underpinning NHS111 with non-clinical workers offers significant opportunities for workforce reconfiguration, but this is not a simple substitution of labour (i.e. non-clinical staff replacing clinical staff). There is a significant organisational structure that is necessary to support and 'keep in place' both the computer decision support system (CDSS) itself and non-clinical workers using the CDSS.

The researchers recommend that well developed decision support systems and clarity of roles of GP clinicians and clinical assistants is needed to ensure the revised skill-mix achieves efficient and safe care. These clinicians may not welcome the constraints on clinician's practice in a highly protocol driven service. The study found relationships were more harmonious in sites that were co-located and/or that had a history of working together. In GP services where non clinical staff may be trained to provide assessment and initial advice or signposting, Turnbull's findings for NHS 111 services suggest that defining roles, protocols and shared access to clinical systems, and having opportunity for both on-line and face-to-face clinical advice, will be welcomed by practitioners and may enable new working practices to develop safely.

Physiotherapy Direct

Telephone triage and consultation systems have been introduced to assess and advise patients with a wide range of problems in GP services. This approach could be particularly appropriate for the assessment and treatment of musculoskeletal (MSK) problems, which

are one of the most common reasons for consulting a GP⁹. A system developed in Huntingdon in 2001 became the basis of the PhysioDirect service evaluated in four PCT areas.

PhysioDirect services invited patients to telephone a physiotherapist for initial assessment and advice, followed by face-to-face physiotherapy and advice on over the counter analgesia if necessary. Usual care involved patients joining a waiting list for face-to-face treatment¹⁰. The Physiotherapists required training to modify their consultation skills via telephone with a PC based protocol and algorithm recording system, and a period of consolidation to be confident in the safety of their practice.

Salisbury conducted a Randomised Controlled Trial (RCT) comparing PhysioDirect to usual primary care models of physiotherapy (patients being referred by a GP or practice nurse or self-referral)¹¹. PhysioDirect patients had fewer face-to-face appointments, fewer clinical incidents, shorter waiting times and lower rates of non-attendance. Clinical outcomes showed modest differences at 6 weeks but not by 6 months. The study concluded that providing physiotherapy via PhysioDirect is equally as clinically effective as usual waiting list-based face-to-face care with a physiotherapist. PhysioDirect patients were no more satisfied with access to physiotherapy than usual care patients, but had slightly lower satisfaction overall at six months, although they were more likely than usual care patients to prefer PhysioDirect in future. There were trade-offs between faster access and a less personal service, and some regarded it as a first step towards subsequent face-to-face consultation¹². In this study most patients were referred by their GP, and the study authors note that direct access is likely to become the norm, although it may create demand by patients with less urgent or clinically appropriate problems.

Physician Assistants

In countries such as England and other developed countries, alternatives to consultation provided entirely by medically qualified GPs, via a team approach including mid-level trained practitioners with primary care medical or nursing training is increasing. The physician assistant role has been established in several countries, notably, the USA since the 1960s, but only more recently in the UK.

NIHR funded studies have evaluated the role of physician assistants (PAs) in primary care. PAs are mid-level practitioners, trained in a medical model over 2 years at postgraduate level to work under a supervising doctor. Between 2010-14, Drennan's research team found 49 studies, mainly from the USA, which showed increased numbers of PAs in general practice settings but weak evidence for impact on processes and patient outcomes^{13, 14}. Their survey of GP practices employing PAs in 2008, and a survey two years later of 16 of the estimated 25 PAs employed in primary care found that PAs are employed in a broad range of patient-focused activities such as same day and urgent consultations, reviewing test results^{15 16}.

In their case studies of 12 practices employing 6 PAs, they found that physician assistants (PAs) were found to be acceptable to patients and colleagues, effective, clinically competent and efficient in complementing the work of GPs. After adjusting for case-mix, there was no difference in the rates of procedures, investigations or tests ordered or undertaken, prescriptions, referrals and advice on over-the-counter medicines, between PAs and GPs. Costs per consultation were £34.36 for GPs and £28.14 for PAs. Costs could not be apportioned to GPs for interruptions, supervision or training of PAs. But PAs tended to be consulted by more patients with less medical acuity or complex comorbidity. So overall the cost effectiveness is still to be established. In order to maximise the contribution of PAs in primary care settings, consideration needs to be given to the appropriate level of regulation and the potential for authority to prescribe medicines, as they do in other countries. Patient

satisfaction with both PAs and GPs is high, with no difference in responses in the two groups. Observation of 62 consultations and rating by experts blind to whether the clinician was a GP or PA showed they were of equivalent safety and competence with similar patients, but GPs also saw more complex patients¹⁷. Their potential contribution to GP urgent care was not explored in this study. They offer another labour pool to consider in health professional workforce and education planning at local, regional and national levels¹⁸.

Retaining GPs-study - underway

As it takes at least 10 years to train a GP, recruiting more GPs is not an immediate solution, and understanding how we can retain the existing workforce is essential. A study in progress (14/196/02) lead by Professor John Campbell and a team at Exeter University finishing in October 2017 aims to gain insight into the problems of GPs quitting direct patient care through retirement or taking a career break, and will help provide strategies and policies for the NHS in seeking to maintain the GP workforce

<https://www.journalslibrary.nihr.ac.uk/projects/1419602>

In addition to understanding the complex reasons for decisions about quitting face-to-face care, the study will develop policies and strategies that may address these issues. They will also develop computer models that will help identify which general practices may be at risk in terms of maintaining their GP workforce over the next five years. Thus, the policies and strategies to be developed through this research could potentially be targeted at the practices most likely to benefit from them.

What are the implications of this research?

GP clinicians can support non cliniciains to conduct triage in NHSIII services, and effectiveness may depend on having agreed protocols and ways of working with clear roles.

Services such PhysioDirect, particularly if they can be accessed directly rather than following referral from a GP, have the potential to increase choice, provider faster access and to reduce overall demand for primary care management of MSK problems.

Physican Assistants can substiute for GPs safely for a range of patient facing activities, but further evaluation is needed to determine if their practice leads to unintended additional health service use of secondary care, and if their role can extend to a wider range of types of consultation, such as management of patients with long term and complex co-morbidities. Lessons from current research into retention of GPs can be targetted at those Practices most likely to face a crisis in workforce retention, and local evaluation of the success of the strategies may be used to spread these methods more widely.

NHS Policy context of GP workforce and skill mix:

In the UK, GPs have been trained as expert medical generalists who undertake almost all aspects of diagnosis, care and case management. The vision of primary care described by the Roland Commission aims to provide challenging and fulfilling careers for health professionals while delivering a high standard of care¹. For this vision to be adopted by the NHS at speed and scale will require practices and GP federations to have a stronger population focus and an expanded workforce. In order to achieve this vision there needs to be sufficient staff with appropriate training to do the work that is needed in primary care⁷,, and individual staff members need to have the skills to evaluate what they are doing and be empowered to improve the systems in which they are working.

New models of primary care are changing this with integration across social care and

secondary healthcare, and aggregation into federations. GP federations are being supported in building business infrastructure, which will also impact on how the workforce is deployed, for example increasing the use of IT for shared clinical and management data, and paper free point of care systems; secondary care communications are expected to be all digital by 2020⁷.

The General Practice Forward View describes significant plans for investments in workforce⁷. These include investments in training and capacity of practice nurses and managers to support the expanded role of GP services as providers, enhanced roles for nurses, allied health professionals (AHPs), paramedical professionals, and enhanced roles for administrative staff in patient facing roles. It has been argued that a “*Greater use of skill mix will be key to releasing capacity, if we are to offer patients with complex or multiple long-term conditions longer GP consultations*”. There are also potential contributions for these professions in the network of locality primary care access Hubs and for clinical personnel in NHS111, employing nurses, pharmacists and dentists. In England, NHSE’s Sustainability and Transformation Plans aim to expand the GP workforce by the addition of 5,000 GPs by 2020¹⁹. There will also be 500 physician assistants; 3,000 mental health therapists, 1500 more clinical pharmacists, with 470 employed in 2016-17, and 1,000 physician associates.

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Innovations in the organisation of GP services

Why this research was needed?

NHS policy imperatives in recent years have focused on increasing the number of services provided in and by GP primary care. Organisational forms are changing rapidly in the NHS to accommodate new service functions such as ambulatory care from specialist services, and out-patient clinics in GP premises, and to collaborate in new organisational models to deliver more services. Research described addresses how GP services are responding to these imperatives.

Out-patients services and GP primary care:

For many conditions, high-quality care in the community can be provided and is popular with patients. Commissioners developing new models of care for the NHS have often predicated these strategies on assumptions that community-based care will be cheaper than conventional hospital-based care. However, possible reasons that healthcare in the community may be more expensive include supply-induced demand and addressing unmet need through new forms of care and through loss of efficiency gained from concentrating services in hospitals.

Recent research by Professor Martin Roland and colleagues found there is inconclusive evidence on the cost-effectiveness of the provision of more healthcare away from hospitals¹. They reviewed international research, and evaluated promising UK initiatives such those where a GP or specialist reviews referrals. They suggest that further shifts of healthcare into the community can be justified only if high value is given to patient convenience in relation to NHS costs or community care can be provided in a way that reduces overall health-care costs, rather than cost-shifting¹.

There was broad support on at least some outcomes such as patient satisfaction and quality of care (a) for GPs to follow up patients after specialist care, which has been found to be safe and effective and may save costs, and conduct of minor surgery similarly is an example where it can avoid demand on secondary care but safety depends on operator skill, (b) manage long term conditions such as diabetes, (c) use a range of diagnostic tests, although whether this saves cost is not clear, (d) direct access to specialist services, although in musculo-skeletal services (MSK) the evidence suggests a high risk of greater cost through stimulating demand, which might be mitigated by strict protocols, (e) providing consultant clinics out of hospitals is usually welcomed by patients but does not reduce cost or re-consultation as support services are less accessible off-site, (f) with similar findings for shared care between specialists and GPs¹.

Conversely, they found little evidence to support the role of GPs with a specialist interest (GPwSI), telecare, or video consultation with patients. They found limited evidence for the benefits of relocation of specialists or shared-care methods, as advocated in the NHS Five Year Forward View, and, in particular, cost-effectiveness evidence for these interventions was very limited. From just two studies, they concluded that programmes which involve obtaining a second opinion from a colleague prior to referral (in-house review) have the potential to reduce referrals, but also can have additional cost and be less effective over time as GPs become more skilled. They found a growing evidence base for behaviour change interventions for clinicians, for example the use of audit and feedback along with using protocols. Studies in which GPs were able to obtain specialist advice by telephone or e-mail suggest that there is a substantial opportunity to reduce the number of patients seen in outpatient clinics¹.

Access to same day GP consultations

There are trade-offs between rapid access and having the consultation with the GP of choice. A decade ago, Professor Salisbury and colleagues evaluated a system mandated by NHS policy to increase access to GP appointments by offering mainly same day only appointments with an available doctor of the practice, rather than allowing appointments at times convenient to the patient and with their doctor of choice²⁻⁷. They found practices operating Advanced Access were able to offer patients appointments slightly more quickly than control practices, with no evidence of any decrease in continuity of care or difference in the increase in practice workload. Apart from speed of access, other differences between the experience of patients and staff were minor. This study supports earlier research findings that being able to choose to see a particular doctor or to be seen at a convenient time are more important than speed of access for most patients. Also that different groups of patients, such as those who have chronic illness, compared to those who are usually healthy but have an acute illness, have different priorities.

Integrating GP services with community and specialist services

Many NHS patients, especially frail older people, have 'complex needs', that is, co-morbidities, and they may also have complex living circumstances. These patients require assessment and need treatment and care from more than one service at once (e.g. general practice, community nursing and therapies, social services). It is assumed from many policy initiatives that the better coordinated these services are, the more likely it is that patients will receive more appropriate care, avoiding further illness and hospital admissions and to continue living in their own homes. In the NHS there is experience of general practitioner-lead health centres, 'case management' where a community matron or similar co-ordinates patients' care, 'polyclinics', and networks of services including partnership with the third sector in palliative care, cancer care and to support people with long term conditions⁸. Professor Rod Sheaf and colleagues have completed research to find out how these approaches compared in terms of improving the co-ordination of patient care across the range of services. The research included analysis of patient records and interviews with patients in England, and similar research in Sweden with a focus on polyclinics⁸.

They found that combining general practice and community health services into one organisation, as proposed in vanguard 'Multispecialty Community Providers' (MCPs), is likely to co-ordinate care better than looser, more flexible networks and partnerships, which do little to address the current separation between general practice and other health services.

Studies underway:

How might Multi-Specialty Community Providers (MCPs) work in England?

In MCPs, general practices will provide a wider range of services than now, including perhaps some outpatient services now provided at hospitals. As MCPs are new, Professor Rod Sheaf's team will find out what has already been established from similar models of integrating primary, community and some out-patient services in the UK and other countries (15/77/34). They will establish the policy aims of these models (for example, providing integrated care) and the evidence for the mechanisms (e.g. that integrated care reduces unnecessary hospital admissions) and build logic models of how the NHS may build in processes to achieve these aims based on established evidence of how these models already work elsewhere. The study is underway and will report in early 2018.

<https://www.journalslibrary.nihr.ac.uk/projects/157734/>

Federations: How are they working and improving services?

GPs have been developing new forms of organization known as federations for some years, and have been actively supported by CCGs to build their infrastructure to enable them to take on providing new forms of service. Federations are a supra-practice level of organisation. They vary in scope and organisational form, from loose alliances of a small number of local practices, to much larger publicly limited provider companies. Potential benefits of federations include efficiencies of scale and scope, strengthening capacity to deliver services outside hospital and improving integration between services. Federations present many challenges including balancing individual practice ways of working, autonomy and identity with the requirements of more centralised and standardised procedures which federations imply. Professor Ruth McDonald and colleagues in the East Midlands and Manchester are about to undertake a two-year study to characterise the types of federations emerging and the views of commissioners, GPs and patients on how federations are achieving their aims (14/196/04). The study will produce a national picture of federations, classified according to a typology that they will create from their research, and an understanding from three different types of federations of how federations are working. There may also be lessons that can be applied to implementing other new forms of organisation such as MCPs and Accountable Care organisations.

<https://www.journalslibrary.nihr.ac.uk/projects/1419604>

How can GP services be improved using this research?

Assumptions that *moving care into services provided or managed by GPs* have only a very limited evidence base. Services provided by or at the GP location are broadly welcomed by patients, but evidence of cost saving is scant. More promising models such as discharge to GP follow-up, and review of referrals supported by protocols, require systems that support members of the GP practice to take on the new roles, to prevent unintended consequences such as cost shifting and re-consultation.

New models of care, such as *MCPs* where GPs are part of new managerial entity, compared to looser forms of network or the current separation of primary and community and specialist care, are more likely to achieve the proposed benefits of integration for patients with complex needs.

New research will test whether *federations and MCPs* achieve their aims. NHS commissioners may gain insight from this research to provide support to federations in order to establish safe and effective systems to deliver a wider range of services, along with tracking the patient experience and overall costs of investment to the health economy.

Offering same day access to an available GP produces few advantages to other systems which offer less rapid access but more choice of time and GP, particularly for patients with less urgent and long term conditions.

NHS Policy context for new models of GP services

The reasons for the need for organisational reform in the NHS are outlined in the Five Year Forward View (FYFV). These reasons include: people living longer and the increasing prevalence of long term conditions which is putting enormous pressure on the NHS. According to the Nuffield Trust, government health departments in the UK have promoted policies that put general practice as the cornerstone of reforms⁹. Organisational forms are changing rapidly in the NHS. In January 2015, the NHS invited individual organisations and partnerships to apply to become 'vanguards' for the new care models programme¹⁰. There are 50 vanguard sites for new models of care, each vanguard will take a lead on the development of new care models which will act as the blueprints for the NHS moving

forward. Of these, the multispeciality community providers, integrated primary and acute care systems, enhanced health in care homes, and urgent and emergency care vanguards most directly involve primary care⁵.

Multispecialty community providers (or MCPs) are new models of care outlined in the NHS Five Year Forward View. GP group practices will expand, bringing in nurses and community health services, hospital specialists and others to provide integrated out-of-hospital care. These practices would shift the majority of non-urgent outpatient consultations and ambulatory care to out-of-hospital settings. Primary and acute care services (or PACS), are new care models which would provide GP and hospital services, together with mental health and community care, in single NHS organisations. They could evolve in different ways, for example, by hospital trusts opening their own GP surgeries. Both models aim to give better patient experience, better population health and more efficient use of resources.

Currently there are inequalities in access to primary healthcare provision within the UK. In some rural areas access to services may be limited by the lack of public transport. Lack of broadband service or mobile phone signal in some rural areas may limit alternatives to face to face consultation. Initiatives in the GP Forward View¹¹ are attempting to address recruitment of GPs in such areas. Service innovation, including case studies cited in the GP Forward view such as Modality Health in Birmingham, which uses several types of digital communication with patients, may address provision to these communities.

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Diagnostics in GP services

Why this research is was needed?

Diagnostic tests and their results are integral to clinical decision-making. In the UK NHS, GP practices have traditionally had limited direct access to many such tests. Instead, a common model is for GPs to refer patients for blood, tissue or imaging tests to the local hospital, or more recently, to commercially run diagnostic test centres. This may lead to waits for appointments and availability of test results, and involves travel for the patient. If GP practices could undertake more diagnostic tests themselves, this might enable faster and earlier diagnosis of common conditions and avoid unnecessary referrals and inconvenience for patients. It may reduce overall NHS costs, and lower costs for patients and possibly a reduction in numbers of missed appointments.

More tests are potentially usable in these settings because of improvements in technology (e.g. greater portability and lower equipment costs), economics (e.g. the potential to reduce NHS costs by reducing secondary care referrals) and social drivers (e.g. capability of workforce to use the technology and interpret results). Research was needed to find out what technologies are used in primary care in the UK and elsewhere, and how these technologies might be used in the UK.

What we found from NIHR studies

A horizon scanning programme of research funded by NIHR at Oxford University (Pluddemann and Mant, 2015) has produced lists of potentially cost effective technologies in GP services ^{1,2}:

1. point-of-care tests for blood D-Dimer and HbA1C levels and urine albumin-creatinine ratio;
2. no-contact infrared thermometers for children;
3. transcutaneous measurement of jaundice in newborn infants;
4. dermoscopes;
5. spirometers;
6. single channel ECGs to check for heart arrhythmias (such as atrial fibrillation);
7. chlamydia self-swabs;
8. devices to collect clean-catch urine specimens in the elderly.

There are also new diagnostic technologies which are unlikely to be cost-effective in NHS primary-care in the foreseeable future: the electronic nose; the electronic stethoscope; hand-held nerve conduction devices to detect carpal tunnel syndrome; and point-of-care blood tests to check for thyroid disease, high cholesterol and hepatitis C (which are all better done at the hospital laboratory). Self-testing by people taking warfarin is effective for selected patients but may not be cost-effective for the NHS.

Individual reports are available from:

<https://www.oxford.dec.nihr.ac.uk/reports-and-resources/horizon-scanning-reports>

An evidence synthesis is recently completed and focussed on the logistics of diagnostic modalities in primary care (excluding self-testing); diagnostic ultrasound services; and diagnostic pathways for the assessment of breathlessness ³.

The team produced a new framework for assessing the potential for service implementation, which may be of practical use for commissioners of primary care services:

STEPUP Evidence Map

Human Resources	
SKILLS: Skill mix Extended roles Inappropriate Test Ordering Accuracy Errors Delay in Diagnosis Quality Assurance	TRAINING: Training Needs Training in using equipment Training in interpretation Training Costs Duration
Logistics	
EQUIPMENT: Equipment for modality Equipment for analysis Consumable costs Maintenance	PREMISES: Cost of Premises Space for Equipment Space for Consumables Space for Staff Space for Patients/Waiting Areas etcetera Health & Safety Risk Assessment
Communications and Relationships	
USER PERSPECTIVE: Waiting Times Acceptability Repeat Procedures.	PRIMARY-SECONDARY INTERFACE: Referrals Changes to Diagnosis Pathways Changes to Management Pathways Health Service Utilisation Relationships between staff Specialist Support Attitudes of Secondary Providers General Management

This framework was developed and used to examine 13 primary care diagnostic topics (audiology; cardiac services; diabetic services; endoscopy; genetic testing; laboratory tests; magnetic resonance imaging; point of care testing; radiology/X-ray; respiratory tests; and ultrasound). The key results are:

The detailed summary of evidence is available in the report (tables 8-25).

<https://www.journalslibrary.nihr.ac.uk/hsdr/hsdr04350#/abstract>

An example of a technology that has been widely available for some time is a simple test to diagnose and monitor lung conditions. Spirometry equipment has frequently figured in GP practices, alongside other requisite equipment such as ECGs. It is similarly benefiting from the move to miniaturisation as well as from demand for end-user friendly devices. However, there are moderate barriers to effective use because the need to train staff to interpret and act correctly upon spirometry readings, and the more detailed review of the place of this technology in the pathway of care for breathlessness gives only cautious support for the likely benefits to services and patients.

Topic area	Human resources		Logistics		Communications and relationships		
	Skills	Training	Equipment	Premises	User perspective		Primary–secondary interface
					Clinician	Patient	
Audiology	○	○	○	○	⊕	⊕	○
Pneumatic otoscopy	○	⊕	⊕	∅	○	∅	∅
Tympanometry	⊕	⊕	⊕	∅	○	⊕	○
Cardiac services	○	⊕	⊕	∅	⊕	⊕	⊕
BNP	⊕	⊕	⊕	∅	⊕	⊕	○
ECG	⊕	⊕	⊕	∅	⊕	⊕	⊕
Echocardiography	○	○	⊕	⊕	⊕	⊕	○
Diabetic services	⊕	⊕	⊕	∅	⊕	⊕	⊕
Endoscopy	⊗	○	⊗	⊗	∅	⊗	○
Genetic testing	⊗	○	⊕	∅	○	⊕	○
Magnetic resonance imaging	○	○	⊗	⊗	∅	∅	○
POC testing	○	○	⊕	∅	○	⊕	○
C-reactive protein	⊕	⊕	⊕	∅	⊕	⊕	○
Radiology/X-ray	○	⊕	○	○	⊕	⊕	○
Respiratory tests	⊕	⊕	⊕	∅	⊕	⊕	○
Pulse oximetry	⊕	⊕	⊕	∅	⊕	⊕	○
Spirometry	○	⊕	⊕	⊕	⊕	○	⊕
Ultrasound	○	⊕	⊕	⊕	⊕	⊕	⊕

∅, insufficient evidence; ⊗, high degree of implementation difficulty; ○, moderate degree of implementation difficulty; ⊕, low degree of implementation difficulty; BNP, B-type natriuretic peptide; ECG, electrocardiogram.

<https://www.journalslibrary.nihr.ac.uk/hsdr/hsdr04350#/abstract>

In the review of service pathways and diagnostic technologies for diagnosing breathlessness, seven papers which include rigorous designs such as RCTs, found evidence that additional services in the community including mobile clinics and community clinics can be a useful means of differentiating between patients who have no significant respiratory problems or cardiac disease and may be managed in community services, and those who may need referral to a specialist. Around a third to a quarter of patients may have no abnormalities detected on assessment- so it is important to find out if there is a lower threshold for investigation in primary care, or if this means primary care assessment has avoided unnecessary referral to secondary care. Similarly, the provision of open access diagnostic services in secondary care may reduce the referral of patients with no abnormality to specialists and/or may reduce the numbers of patients misdiagnosed. The findings regarding spirometry use in GP surgeries suggest a limited impact on diagnostic decision-making, and there is conflicting evidence regarding whether referrals may increase or decrease as a result of spirometry use in primary care. This may be linked to the reported limited quality and accuracy of much spirometry carried out in the community.

How can GP services be improved using this research?

The example of spirometry serves to show that assessing the utility, costs and benefits of a diagnostic service, the “fit” with workforce capability, patient acceptability, and with the pathway of care in order to fully assess the overall benefit to the NHS.

The STEPUP framework, and evidence from the underpinning reviews can be used by commissioners in considering the implementation issues of these technologies.

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