



EUROPE

New organisational models of primary care to meet the future needs of the NHS

A brief overview of recent reports

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Preface

The Health Education England Primary Care Workforce Commission has set out to identify innovative models of primary care that will meet the future needs of the NHS. As part of this work, RAND Europe was commissioned to present a brief overview of models described in a selected group of reports from professional bodies and policy-focused organisations. This overview is thus a brief, ‘top level’ summary of some new models for primary care in England and in other countries. It is not a systematic review, and the models described within this overview may not be exhaustive, but it does illustrate what key models and issues are consistently described in the recent literature.

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Abstract

The NHS in England faces several future challenges for primary care, including an ageing population, increasing numbers of patients with multiple long-term conditions and a limited workforce. The Health Education England Primary Care Workforce Commission has set out to identify innovative models of primary care that will meet these future challenges. As part of this work, RAND Europe was commissioned to present a brief overview of reports from professional bodies and policy-focused organisations – from England and internationally – that describe new models for delivering primary care. These models include:

- Models that introduce new roles, or change existing roles, in general practice (e.g. introducing physician associates and pharmacists into general practice, extending roles for allied health professionals and primary care nurses);
- Models of collaboration among professionals and among the primary care, secondary care and social care sectors (e.g. ‘micro-teams’, GPs and specialists working together and/or specialists working in the community, extended roles for community pharmacists); and
- New organisational forms for general practice (e.g. primary care federations or networks, super-practices, regional multipractice organisations, community health organisations, polyclinics and multispecialty community providers).

In addition, we present some examples of communication/information technology used in primary care and discuss recruitment and retention challenges facing health professionals in general practice. Most reports included in this overview are descriptive, and they include recommendations regarding how new models of care could be implemented. From these reports, it was evident that there is no ‘one size fits all’ model for delivering primary care and that the way in which new models are implemented may be as important as the models themselves.

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Summary

The overall objective of this report is to present a brief overview of recent reports that describe innovative models of primary care that may meet the challenges of the NHS in the future. We identified three overlapping categories of models: models that introduce new, or change existing, roles in general practice; models of collaboration among professionals and among sectors (primary care, secondary care and social care); and new organisational forms for general practice. In addition, we present some examples of communication/information technology used in primary care and discuss challenges around recruitment and retention of health professionals in general practice.

1.1.1. Introducing or changing roles

The recent reports, in general, point to a widening of the skills mix in general practice with the introduction of new types of workers into the primary care workforce. The English reports describe the introduction of physician associates and pharmacists into general practice and the extended roles for allied health professionals and primary care nurses. The international literature highlights similar roles; one such example from the United States is of medical assistants addressing the majority of a doctor's emails and 'medical record tasks'.

1.1.2. Models of collaboration

The English reports emphasize the importance of specialists working together with primary care teams in both community and primary care settings. Further models of collaboration involve extended roles for pharmacists within their pharmacy premises or within the community (e.g. in general practices and in residential care homes). The reports frequently call for better integration between primary care and social care. The English reports also describe 'team-within-team' arrangements, such as buddying and job (or list) sharing, and the formation of multidisciplinary 'micro-teams'. Additional examples of collaboration from the international literature include 'medical homes' in the USA and online networks in the Netherlands (e.g. Parkinsonnet).

1.1.3. New organisational forms for general practice

In terms of new organisational forms for general practice, the English reports describe large practice federations, super-practices and regional multipractice organisations. Practice federations increase capacity and offer patients access to a wider range of clinical and community services. The term super-practices

refers to large-scale, single partnership structures that operate from multiple sites, but within that general definition it is conventionally used to refer only to practices within a single geographical area. Regional multipractice organisations are similar to super-partnerships, but they have sites across a larger area or may even include practices widely dispersed regionally or nationally. In addition, the reports describe community health organisations, polyclinics and multispecialty community providers, which relocate specialist services into the community and are associated with the development of much larger community-based premises. A move towards general practice operating on a larger scale is also a trend seen internationally.

1.1.4. Facilitators of the adoption of new models of primary care

Communication and information technology

There is a consensus within the English literature that improved IT may facilitate improved communication among healthcare providers and that technological developments should be embraced. Some examples in the international reports included video and email consultations. The sharing of patient records appears to be a particularly important facilitator of collaboration. The sharing of electronic patient records would allow all health professional involved in a patient's care to access that patient's records, that is hospital specialists, pharmacists, community health services and social care workers. However, there are importance issues around consent and patient confidentiality when records are shared more widely.

Workforce development and training

The English reports describe a need for more doctors training in general practice to meet current and future patient needs. The reports also make suggestions regarding how to overcome the anticipated shortage of general practitioners. The reports suggest that both the provision of opportunities to change roles and specialities throughout a health professional's career and a retainer scheme could help to overcome problems of retention in general practice. The reports also describe how postgraduate training will need to equip GPs with appropriate skills in a range of specialities. In the international examples, approaches to deal with health workforce shortages include the reliance on foreign health care workers and incentives, both financial and non-financial, to encourage doctors to work in underserved areas.

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Abbreviations

A&E	accident and emergency
AHP	allied health professional
BMA	British Medical Association
CCG	Clinical Commissioning Group
CfWI	Centre for Workforce Intelligence
FTE	full-time equivalent
GMC	General Medical Council
GP	general practitioner
HEE	Health Education England
HPC	Health Professions Council
HSCIC	Health and Social Care Information Centre
INR	international normalised ratio
IPA	independent practitioner association
IT	information technology
MA	medical assistant
MCP	multispecialty community provider
NHS	National Health Service
NMS	New Medicines Service
PA	physician associate
PAMVR	Physician Assistant Managed Voluntary Register
PINCER trial	A pharmacist-led information technology intervention for medication errors
PCT	primary care trust
PHAMEU	Primary Health Care Activity Monitor for Europe
QALY	quality-adjusted life year
RCGP	Royal College of General Practitioners

RCP	Royal College of Physicians
RCT	randomised control trial
WONCA	World Organization of Family Doctors

1. Introduction

The Health Education England (HEE) Primary Care Workforce Commission has set out to identify innovative models of primary care to meet the future needs of the National Health Service (NHS). The commission's work involves a call for written evidence, oral evidence sessions and site visits to see innovative examples of practice. This report complements the commission's work by providing an overview of reports on innovative models of primary care that the commission provided to RAND Europe. Additional references were selectively included where commission members identified specific issues as requiring further evidence. Examples from the international literature were also included where they were particularly relevant to the work of the commission.

In this introductory chapter, we provide a brief overview of the challenges facing primary care in England, discuss why new models of primary care are needed and outline the objectives of this literature overview.

1.1. Overview of the challenges facing primary care in England

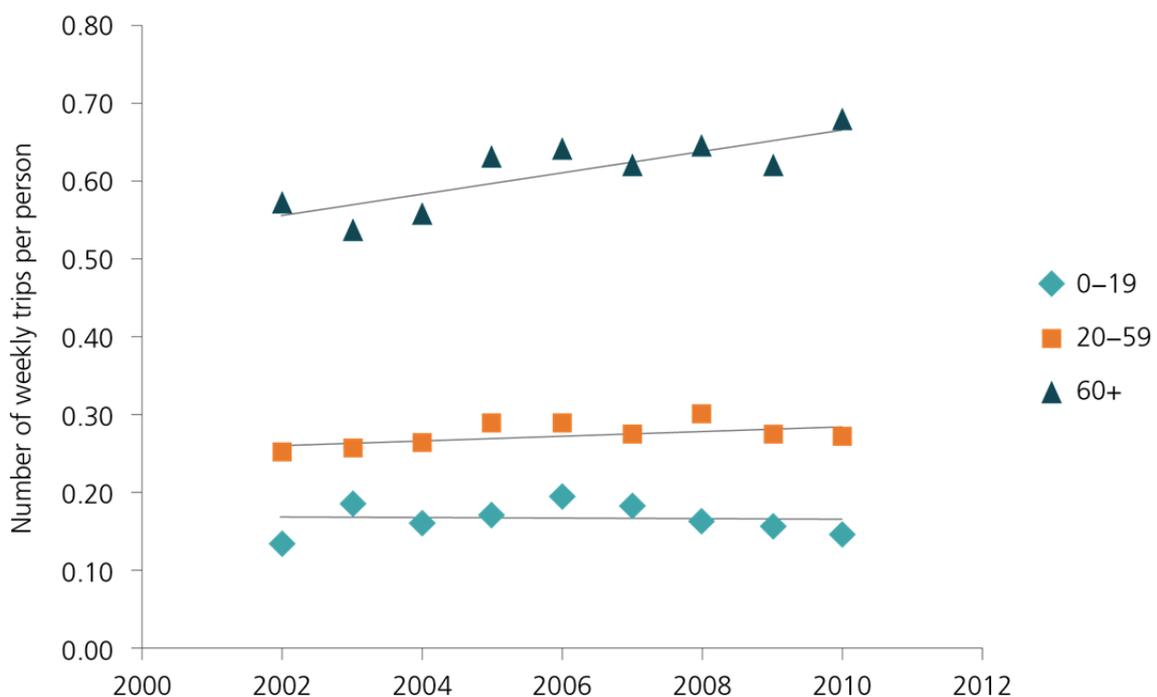
There is a consensus in the literature regarding the challenges that face the NHS in England. These challenges include an ageing population and increasing numbers of patients with multiple long-term conditions [1-13]. A combination of increasing demand coupled with increasing complexity, a progressive move of care from secondary to primary care and pressure to improve access has contributed to increased pressures on the existing workforce. This has been compounded by limited growth in the primary care workforce, poor recruitment to vocational training schemes in some areas, an increasing trend towards early retirement among general practitioners (GPs) and difficulties in replacing the existing workforce [3-6, 9-13]. In addition, patients have increasing expectations of healthcare services [2-4, 8-12]. Similar pressures face other parts of the primary care workforce (e.g. general practice nursing).

In addition, there is rising demand for medical care. GPs report steadily increasing consultation rates. Reliable year-on-year data on consultation patterns have not recently been collected (the Health and Social Care Information Centre[HSCIC] last collected data on consultation rates in general practice in 2009 [14]). However, in the seventh National GP Worklife Survey, which took place in 2013, GPs reported considerable/high pressure from: increasing workload (86.20%), paperwork (80.85%), having insufficient time to do the job justice (77.65%), increased demand from patients (74.81%) and changes imposed by their primary care organisation (69.91%) [15]. Among the GPs who responded to the survey, 82.4% reported that their overall workload had increased following the introduction of 'clinical commissioning groups' (CCGs). The survey also found that, between 2010 and 2012, reported levels of

stress increased for all 14 stressors,¹ which resulted in reported levels of stress reaching their highest level since the first National GP Worklife Survey in 1998. The greatest increases in job stressors were observed for: increasing workload, dealing with earlier discharges from hospital, unrealistically high expectations of the role by others, having insufficient time to do the job justice, and paperwork. In total, 73.4% of GPs reported that they do not have time to carry out all of their work, 84.1% reported that they have to work very fast and 95.0% reported that they have to work very intensively.

The changing pattern in demand can be seen longitudinally from the National Travel Survey, which collects data from more than 17,000 individuals annually. The recent rise in trips for medical purposes is seen principally among the elderly [16]. Although these data include trips to both GPs and hospitals, the majority of trips are likely to be to primary care providers.

Figure 1. Number of weekly trips for personal medical purposes in England, per person, by age



SOURCE: Data from National Travel Survey [16]

Against these challenges, the number of GPs per head of population appears to be declining. After a sustained period of growth, the GP Taskforce (2014) reports a decline from 2009 to 2012: from 62 GPs per 100,000 population to 59.5 GPs per 100,000 population [17]. Even during the period of significant GP growth that began in 2005, the increase in GPs was much less than the increase in specialists [3].

The main challenges can be summarised as:

¹ The 14 job stressors assessed were: increasing workload, paperwork, having insufficient time to do the job justice, increased demand from patients, changes imposed from the primary care organisation, dealing with problem patients, long working hours, dealing with earlier dischargers from hospital, unrealistically high expectation of role by others, worrying about patient complaints/litigation, adverse publicity by the media, insufficient resources within the practice, interruptions by emergency calls during surgery and finding a locum.

- An ageing population and increasing numbers of patients with complex and multiple long-term conditions seen in primary care;
- A progressive move of care from secondary care to primary care;
- Pressure to improve access to general practice; and
- Limited growth in the primary care workforce, compounded by poor recruitment to vocational training schemes in some areas, early retirement among GPs and difficulties in replacing GPs.

1.2. Why new primary care models are needed

The challenges outlined above highlight the need to increase the primary care workforce, to explore new models of delivery of primary care and to improve the integration and coordination of primary, secondary and social care [2, 3, 8, 9, 12]. There is a consensus that the current configuration of primary care in some areas leaves the NHS ill equipped to address the challenges facing the NHS and that new models of primary care are needed. The current health and social care systems are fragmented. Health care services are broadly divided into hospitals, general practice, community services, mental health services, hospices and social care. New models of care could help to manage increased demand for health services and simultaneously improve the efficiency of the delivery of healthcare services [7, 18]. New models are also needed that provide a patient-centred system of care that is well coordinated across health care sectors (primary care, secondary care and tertiary care). In developing these new models, general practice will need to be increasingly involved in, and responsible for, the health of local populations, including those who are most in need of care but who do not currently receive it [19].

Innovative international models can give novel insight into how England can respond to the challenges facing the NHS. Around the globe, innovative models of primary care have developed in diverse settings, from very different starting points. Health care systems differ in access, coordination, availability and comprehensiveness of care, and they have to meet the needs of very different populations [20]. However, the over-arching challenges and external drivers of change are similar in many countries. For example, Australia developed its 2010 National Primary Care Strategy in response to the increasing prevalence of chronic disease, the ageing population, workforce pressures, inequalities in health outcomes and inequalities in access to health services [21]. Similar challenges are found in many countries around the world.

This overview of reports focuses mainly on primary care provided by family doctors and the teams in which they work. A family doctor is defined by the World Organization of Family Doctors (WONCA) as ‘a community based medical generalist who has been trained to deal with people across all life stages’, offering a service that is ‘comprehensive, accessible, focuses on a specific community, allows continuity over time, and is centred on the care of people not specific parts of their body or diseases’ [22]. In the UK, primary medical care is provided by GPs working in general practices with other staff, who would normally include nurses, receptionists and administrative staff.

Based on the reports reviewed, we have categorised new models of primary care into three partially overlapping groups:

- Models that introduce new roles, or change existing roles, in general practice;

- Models of collaboration among professionals and among sectors (primary care, secondary care and social care); and
- New organisational forms for general practice.

1.3. Objective and aims

The overall objective of this report is to present a brief overview of recent reports that describe innovative models of primary care that may meet the challenges of the NHS in the future. Specifically, we identify:

- a) New models of primary care in England that may address the challenges;
- b) Why new and apparently successful models of care are not more widely available;
- c) What needs to be done to facilitate the adoption of new models of primary care; and
- d) International innovative models of delivering primary care.

1.4. Structure of the report

After this introductory chapter, Chapter 3 briefly describes the studies included in this overview; Chapter 4 reports on models that introduce new, or change existing, roles in general practice; Chapter 5 reports on models of collaboration among professionals and among sectors (primary care, secondary care and social care); Chapter 6 reports on new organisational forms for general practice; Chapter 7 discusses facilitators of the adoption of new models of primary care (communication and IT and workforce development and training); and Chapter 8 is a brief discussion of the reports and their findings.

2. Included studies

This overview of recent reports relies primarily on reports identified by the Primary Care Workforce Commission. While the majority of reports focus on primary care in England, some report on primary care in other countries. This chapter briefly describes the included studies.

2.1. Literature on primary care in England

The English literature used in this overview largely consists of reports from the Nuffield Trust, the King's Fund, the Centre for Workforce Intelligence (CfWI), the Royal College of General Practitioners (RCGP), the Royal Pharmaceutical Society, the General Medical Council (GMC), Health Education England's GP Taskforce, the Independent Commission on Whole Person Care, the Independent Commission on the Future of Health and Social Care in England, the London Health Commission and the NHS Confederation. Some journal articles were included where the commission identified particular issues as requiring further evidence. This overview is not a systematic review, but rather an overview of selected recent reports.

The scope of the included studies varied. Some focused on roles within general practice [3, 9, 11, 15, 23, 24], nursing [1, 25] and pharmacy [13, 26, 27], while others focused on education and training for the healthcare workforce [4-6, 17]. Some reports assessed particular issues in primary care, including: patient-centred care [7, 10, 12], the continuity of care [24] and the quality of care [19, 23]. Others discussed new models of collaboration among health professionals [2, 8, 11-13]. Finally, others reviewed alternative organisational models for primary care [2, 8, 11, 13, 18, 28].

2.2. Literature on primary care: included international studies

The international literature includes reports from professional bodies and policy-focused organisations. These reports include European summary reports [20, 29-32] and country-specific reports from the Primary Health Care Activity Monitor for Europe (PHAMEU) project [33-62], which collected primary care data in 2009–2010, based on the European Primary Care Activity Monitor indicators, from the 27 EU member states (before the accession of Croatia), as well as Turkey, Switzerland, Norway and Iceland. We also included: previous grey-literature reviews and collections of international case studies of primary care models [63-66], as well as selected academic literature on developing models of primary care practice in the USA [67-70], Finland [71] and the Baltic states [72].

3. Models that introduce new roles or change existing roles in general practice

3.1. New or changed roles in England

New organisational models of primary care can involve introducing new types of health professionals into primary care, or altering the existing roles of health professionals working in primary care, to make better use of existing skills in primary care. The NHS Confederation (2014) report on workforce development, *Not More of the Same: Ensuring We Have the Right Workforce for Future Models of Care*, suggests that the development of alternative professional roles in primary care, such as physician associates or paramedics, would be welcomed as a means of providing increased capacity within primary care, which would in turn allow GPs more time to treat patients with the most complex conditions [8].

Although the reports included in this overview mention a number of new roles, few describe these new roles in detail. In the subsections that follow, we describe only those roles that were described in any detail in the reports, acknowledging that the roles described may not constitute an exhaustive list.

3.1.1. Allied health professionals

A number of different professions are included within the term allied health professional (AHP), including: podiatrists, radiographers, physiotherapists, occupational therapists, speech and language therapists, dieticians, orthoptists, paramedics, psychologists, art therapists, hearing aid dispensers, operating department practitioners, clinical scientists, biomedical scientists and prosthetists [73]. In the UK, the Health Professions Council (HPC) registers and regulates AHPs based on prescribed standards of training, professional skills, behaviour and health.

Extending the role of AHPs within primary care has been promoted as one part of a solution to the challenges facing the primary care workforce. However, little seems to be known about the impact of extending the roles of AHPs on patient health outcomes. McPherson et al. (2006) conducted a systematic review on the extended scope of practice of five groups of allied health professionals: paramedics, physiotherapists, occupational therapists, radiographers, and speech and language therapists [74]. The review found that a range of practice roles have been promoted for allied health professionals, but that evidence of the impact of those roles, particularly on patient health outcomes, is limited. The review also found little evidence on how best to introduce new roles for AHPs and how best to educate, support and mentor AHPs.

A systematic review by Duncan et al. (2012) on the barriers to and facilitators of routine outcome measurement by AHPs found that the importance of measuring outcomes is well recognised within the allied health professions, but that in practice the measurement of such outcomes is rare [75]. The review found that AHPs' level of knowledge of, and confidence in, using outcomes measures was a key factor affecting the use of such measures. Another key factor was the degree of organisational and peer support for the use of outcome measures in practice. Another review, by Comans et al. (2011), found that, where outcomes are measured, the majority report on economic and process outcomes, rather than patient outcomes [76]. That review concluded that, 'it is unclear from the studies evaluated whether new models of allied healthcare can be shown to be as safe and effective as traditional care for a given procedure.'

Some individual studies suggest that particular AHPs can provide comparable care to that of traditional care providers. As one example, published data suggest that self-referral to physiotherapy could be a cost-effective alternative to consultation with a GP [77, 78]. However, these studies do not fully address the overall impact of introducing physiotherapy into general practice on GP consultation patterns and hence on overall NHS costs, even taking into account the finding from these two studies that there was limited 'supply induced demand' resulting from additional, self-referral physiotherapy services being made available. However, a more recent study by Mallett et al. (2014) found that the introduction of a self-referral pathway for physiotherapy is both feasible and cost effective and that it results in the delivery of comparable care [79]. The cost minimization component of that study found a 32.3% reduction in episode-of-care cost with self-referral to physiotherapy and an estimated cost minimization of approximately £84,000 to £124,000 if self-referral to physiotherapy were implemented service-wide.

3.1.2. Physician associates or physician assistants

Physician associates (PAs), sometimes known as physician assistants,² are mid-level clinical practitioners who have a shorter training period than nurse practitioners and are typically science graduates taking an additional two years of training [3]. The CfWI (2014) report states that 'physician associates can potentially complement the work of GPs and the wider practice skill mix by seeing younger patients with fewer indicators of co-morbidity and fewer medically acute problems, and can be deployed to triage patients and/or see same-day appointments' [3].

According to the UK Association of Physician Associates, there are 250 PAs in the UK, 90% of whom trained in the UK [80]. PAs are trained to diagnose, treat and refer patients. While the PA role has existed for 50 years in the USA, it is relatively new in the UK [81]. The first physician associate courses in the UK produced their first graduates in 2009. Unlike in the USA, in the UK, PAs are not legally permitted to prescribe. In the UK, a PA's supervising doctor defines the PA's scope of practice such that the tasks performed by PAs vary depending on local needs. About 25% of PAs work in general practice, where they

² In the UK, the title physician associate is used more commonly than physician assistant, in order to distinguish the role from that of healthcare assistants, who work in hospital medical teams as unqualified staff undertaking specific tasks.

undertake face-to-face consultations, review tests results and manage chronic disease [80]. Most PAs in general practice work in London, the South-East, the Midlands and north-eastern Scotland.

Drennan et al. (2011) conducted a qualitative study on the role of PAs in 15 general practices that employ PAs in England [82]. At the time, all 15 practices employed PAs who had been trained in the USA. Practices' motivations for employing PAs included: increasing capacity in general practice to manage patient demand, broadening the skills mix in the practice team, and addressing financial considerations. However, practices also identified the following issues associated with employing PAs: the requirement for medical supervision of PAs, the lack of a regulatory framework for PAs, the lack of prescribing authority of PAs and some patients' unfamiliarity with the role of PAs. Drennan et al. (2011) conclude that 'general practice employers view PAs as a positive addition to a mixed skill team for meeting patient demand within a practice's finances' and that 'there is a need to develop stronger governance and regulatory frameworks for this emerging profession.'

A systematic review on the contribution of PAs to primary care found limited, mixed evidence on the contribution of PAs [83]. We note that of the 49 studies included in the review, 46 were from the USA. The review found that about half of the PAs in the USA work in primary care and that doctors are willing to support and employ PAs. In the USA, PAs' work primarily involves the management of acute patients, with PAs tending to see younger patients. Overall, the review found that care provided by PAs is acceptable to patients, but that the evidence on the cost-effectiveness of PAs is mixed. The review concluded that the continued increase in the employment of PAs in primary care in the USA suggests that employers of PAs in the USA judge the work of PAs to be of value.

More recent evidence from an observational study in England by Drennan et al. (2015), of 2086 patient records with same-day appointments in 12 general practices, suggests that PA consultations for same-day appointment patients result in similar outcomes and processes of care to those resulting from GPs undertaking similar consultations, but at a lower cost per consultation [81]. The study found no significant difference between PAs and GPs in the rates of re-consultation, the use of diagnostic tests, referrals and prescriptions, or patient satisfaction. Independent, blinded GPs judged 79.2% of PAs' records of the initial consultation to be appropriate, compared with 48.3% of GPs'. While the adjusted average PA consultation was 5.8 minutes longer than a GP consultation, the cost per PA consultation was £6.22 lower. Drennan et al. (2015) suggest that PAs could allow GPs more time to concentrate on more complex cases. The authors conclude that 'PAs have the potential to be an asset to the primary care workforce in healthcare systems looking to strengthen their primary healthcare provision in the face of shortages of doctors, increasing demands, and financial stringency.'

An editorial by Parle and Ennis (2015) on PAs in primary care in the UK reaches a similar conclusion [80]. Parle and Ennis (2015) suggest that PAs have a lot to offer GPs and that the PA model could be one part of a permanent solution to the increasing work pressures in primary care. The authors note that, through collaboratively working as dependent practitioners, PAs can support GPs to manage complex caseloads and reduce burnout, without having to recruit clinicians to primary care from other, similarly pressured professions (e.g. nursing).

3.1.3. Primary care nurses

General practice nurses

In England, GPs delegate an increased number of tasks to general practice nurses, such that nurses now deal with more complex patients, lead clinics for health promotion and chronic disease management and undertake an increasing proportion of consultations [1, 3]. There is thus potential for general practice nurses to alleviate some of the workforce pressures facing general practitioners in clinical practice [1]. However, the studies included in this report suggest that the effectiveness and cost-effectiveness of general practice nurses is largely unknown because few studies on the effectiveness and cost-effectiveness of general practice nurses have been undertaken.

One of the problems in interpreting the nursing literature is the range of tasks that may be undertaken by nurses with different titles. For example, while general practice nurses do not have the same training as nurse practitioners, they often undertake roles that would be difficult to distinguish from those of a nurse practitioner, especially where they have been working closely with GPs. We therefore consider nursing roles more generally in the next section.

Primary care nurses (practice nurses, nurse practitioners, clinical nurse specialists and advanced practice nurses)

In a 2005 systematic review, Laurant et al. identified a limited number of studies that compare the outcomes of nurses and general practitioners performing two distinct roles: assuming responsibility for first contact care for patients wanting urgent consultations and ongoing management of patients with particular chronic conditions [25]. The review included all primary care nurses: general practice nurses, nurse practitioners, clinical nurse specialists and advanced practice nurses. The review found no appreciable differences between doctors and nurses in terms of patient health outcomes, processes of care, resource utilisation or costs. The impact on doctors' workload was unclear. One important finding from this review was that while nurses appeared to be able to provide safe and effective care, sometimes with improved patient experience, they were not necessarily a cheaper alternative to GPs. The reasons for this included the tendency for nurses to have longer consultations and to recall patients more frequently, which offset the lower salary costs of nurses.

A more recent systematic review and meta-analysis by Martinez-Gonzalez et al. (2014) found that nurse-led care is associated with higher patient satisfaction, lower overall mortality and fewer hospital admissions [84]. However, the study's results regarding quality of life and cost-effectiveness were inconclusive. The authors note that the results on quality of life of the studies included in their review were difficult to interpret because of the heterogeneity in the reporting of outcomes between studies (e.g. different scales, variable follow-up intervals, etc.). The study found little evidence on the cost-effectiveness of substituting nurses for physicians in primary care. The authors report that more recent studies tend to report more economic data, but that the data are difficult to compare across countries. Regarding the economic evidence, the authors thus conclude that, 'despite continued claims of substituting physicians by nurses

based on healthcare costs, the evidence can only suggest that substitution is cost neutral.’ In addition, the authors caution that, ‘before implementing new changes in the delivery of healthcare, further, larger and more methodically rigorous primary research should address the quality of the data on both health outcomes and costs.’

It therefore appears that nurses, without specifying type or level of skill, can provide an effective substitute for doctors in primary care and that increased numbers could therefore alleviate workload pressures in general practice. It is less clear that nurses, at their current levels of service provision, provide a cheaper alternative to employing GPs, especially nurses of higher grades, who command higher salaries.

3.1.4. Pharmacists working in general practices

Pharmacists may alleviate the general practice workload by seeing patients with minor illnesses in their pharmacy premises, a practice that we describe in more detail in Section 4.1.3. In the report *Now or Never: Shaping Pharmacy for the Future*, Smith et al. (2013) found that pharmacists are working more closely with patients and other health care professionals in a number of settings, namely, hospitals, outreach teams, patients’ homes, residential care homes, hospices and general practice (as well as in community pharmacies) [13]. In this section, we focus on pharmacists working in GP practices, either employed by the practice or contracted as part of a commissioned initiative (e.g. by a CCG).

The CfWT’s (2014) *In-Depth Review of the General Practitioner Workforce: Final Report* suggests that pharmacists are ‘well placed to address complexities emerging from multi-morbidity and long-term conditions’ [3]. The range of tasks undertaken by pharmacists in general practice includes: monitoring repeat prescriptions, conducting medication reviews, reviewing patients started on new medicines, providing support for patients in care homes and developing practice prescribing policies [13, 27]. According to Garfield et al. (2009), pharmacists working closely with GPs can improve the quality of prescribing, especially in areas where errors are particularly likely to occur, namely, repeat prescribing, medicine reviews and prescribing in care homes [79, 85]. Providing patients with advice from pharmacists may reduce waste and can potentially alleviate capacity issues in the NHS. However, it is not clear from the literature whether the main effect of pharmacists working in general practice would be to improve quality of care (e.g. by safer prescribing) or to relieve workload pressures on GPs.

The PINCER trial, a pharmacist-led information technology intervention for medication errors in Nottingham and Manchester, the results of which were published by Avery et al. (2012), found that a pharmacist-led intervention that consists of feedback, education outreach and dedicated support was effective at reducing a number of medication errors in general practices with computerized clinical records [86]. The trial compared the pharmacist-led information technology intervention with simple computer-generated feedback for at-risk patients. The results of the trial found that patients allocated to the information technology intervention were significantly less likely to experience the three clinically important errors assessed in the trial.³ Lastly, the trial found that the pharmacist-led intervention had a

³ The three clinically important errors assessed in the trial were: (a) non-selective non-steroidal anti-inflammatory drugs (NSAIDs) prescribed to patients with a history of peptic ulcer without co-prescription of a proton-pump inhibitor; (b) beta-blockers prescribed to patients with a history of asthma; and (c) long-term prescription of

95% probability of being cost-effective at a willingness-to-pay threshold of £75 per error avoided at six months.

However, an earlier trial, the HOMER trial, published by Holland et al. (2005), found that home-based medication review by pharmacists in Norfolk and Suffolk was associated with a significantly higher rate of hospital admissions and did not significantly improve quality of life or reduce mortality [87]. The HOMER trial compared usual care with two home visits by a pharmacist, within two and eight weeks of discharge, to: provide information to patients and their carers about their medication, remove out-of-date drugs, inform GPs about drug reactions or interactions and inform local pharmacists as to whether compliance assistance would be needed. Interestingly, a qualitative study on a sub-sample of these pharmacist consultations for medication review found that pharmacists found many opportunities to offer patients advice, information and instruction, but that the advice was rarely solicited by the patient and was given regardless of deliberate displays of competence and knowledge by patients [88]. The study found that patients often resisted or rejected the advice and that the giving of such advice created difficulties and awkwardness during consultations. The authors concluded that ‘the advice giving role of pharmacists during consultations with patients aged 80 or more has the potential to undermine and threaten the patients’ assumed competence, integrity, and self-governance. Caution is needed in assuming that common-sense interventions necessarily lead to health gain.’

In a review of progress made following the publication of the report *Now or Never: Shaping Pharmacy for the Future* found that the care-giving role of pharmacists had gained increased traction in urgent and emergency care, public health (e.g. delivering flu vaccination programmes) and general practice organisations and networks (e.g. taking up new roles within general practice) [27].

Some identified barriers to and facilitators of models that introduce new roles or change existing roles in general practice

The provided reports did not always address barriers to and facilitators for each of the above roles; however, we summarise here the general issues that were identified in the reports.

The CfWI (2014) report suggests that current barriers to the expansion of a workforce of practice nurses, healthcare assistants, physician associates and advanced nurse practitioners include a lack of: consistent curriculum and training standards, appropriate formal regulation and a career structure that allows progression [3]. The CfWI (2014) report also states that while PAs are recommended to register on the Physician Assistant Managed Voluntary Register (PAMVR), effective utilization of this workforce would be enabled by the potential for the authority to prescribe medicines, enhanced public awareness of this role, as well as an appropriate level of formal regulation.

Introducing new roles or changing existing roles could be inhibited by a lack of evidence on the effectiveness and cost-effectiveness of introduction new roles, or changing existing roles, within general

angiotensin-converting enzyme inhibitor or loop diuretics to patients over 75 years of age without assessment of urea and electrolytes in the previous 15 months.

practice. For example, Ball (2015) suggests that the effectiveness and cost-effectiveness to determine the optimal level and skills mix of nurses in general practice is needed. Ball (2015) acknowledges, however, that obtaining this type of evidence is likely to be difficult [1].

In terms of the implementation of broader roles for pharmacists working in general practice, Smith et al. (2013) state that this has been undermined by ‘the continuing divided leadership of the profession, and a tendency to look inwards; missing vital opportunities to be part of wider NHS plans and priorities’ [13].

Regarding general workforce redesign, Bohmer and Imison (2013) caution that the work needs to be redesigned *before* the workforce is redesigned and that well-intentioned reforms have often failed to generate the expected results because this has not been done [23]. According to Bohmer and Imison (2013), a successfully redesigned healthcare workforce requires skilled implementation of many complex steps, including careful planning of ‘each new role and its boundaries, clarifying roles and responsibilities beyond those implied by professional titles, understanding interactions among team members and the psychology of work, streamlining patient flow, eliminating unnecessary tasks, and decommissioning old roles.’ They emphasise that well-developed skills in operations and change management are necessary to support the implementation of new healthcare workforce models.

3.2. New roles: international examples

In most Western European countries, GPs provide care to the whole population, whereas in other countries, such as Spain and Bulgaria, specialists provide care for particular groups of the population (e.g. paediatricians provide care for children) [35, 59].

There are some European countries that are behind the UK in the development of primary care. For example, the involvement of nurses or other health professionals in the management of long-term conditions is uncommon in many countries. However, nurses are increasingly being introduced into primary care practices in some European countries, and specific training programmes have been developed for primary care nurses in Germany [65] and Spain [59]. France is an example of a country moving towards multidisciplinary team practices (known as Maisons de Santé); however, in 2009, these multidisciplinary teams represented only 1.2% of general practices [41]. We do not consider these developments further in this subsection, but, rather, focus on international developments that appear more relevant to the current state of development of primary care in England.

New roles introduced into primary care that could address current problems in primary care in England were found in reports from the United States, which focused on wider uses of medical assistants and nurses to support GPs in the USA.

Sinsky et al. (2013) visited 23 ‘high-functioning primary care practices’ in the United States and identified a number of innovations that may be relevant to England, most of which involved wider use of nurses and medical assistants (MAs) [68]. MAs are allied health professionals (generally licensed practical nurses, registered nurses or health coaches) with limited training, who carry out routine clinical and administrative tasks. These innovations include:

- Pre-visit planning to improve the effectiveness of routine chronic disease management (e.g. MAs placing a pre-visit phone call two days before the visit or nurses conducting a record review a week in advance of the visit);

- Assistance with emails and administrative tasks to allow physicians to focus on patient care (e.g. MAs or nurses providing desktop management, taking tasks off the providers' work list, calling patients back, reviewing messages, etc.);
- Employment of MAs who are culturally and linguistically concordant with patient populations to assist with communication with ethnic minorities;
- Regular 'huddles' and face-to-face team meetings to enhance shared learning and to provide mutual support;
- Remodelling the working space to place doctors in close proximity to the staff who can help them with tasks (e.g. nurses, administrative staff); and
- Employment of health coaches to take responsibility for the health education required for patients with chronic conditions and to take a proactive role in encouraging self-management.

Sinksy et al. (2013) recommend 'teamlets' of two to three clinical assistants (medical assistants or nurses) for each full-time-equivalent (FTE) doctor [68]. Another US study estimates that, for an effectively functioning patient-centred 'medical home' (the concept of the 'patient-centered medical home' in the USA is not dissimilar to a GP practice in the UK), there need to be 4.25 full-time-equivalent non-medical staff per FTE doctor (1.4 clerical assistants, 2.7 medical assistants or nurses, 0.4 care managers, 0.25 physician assistants or nurse practitioners, 0.2 pharmacists, 0.25 social workers and 0.25 mental health providers) [89]. However, additional funding would be required for similar roles to be adopted in England.

A cross-country study focusing on the expanded role of nurses in primary care in the United States, Canada, Australia, England, Germany and the Netherlands found that there is a trend towards increasing diversity in professional roles among the primary care work force, although there is also variation across countries [90]. This increasing diversity in professional roles is a move from a traditional, physician-based model to a model that includes nurse practitioners, registered nurses and other health professionals in primary care. Nurses are the primary professional group increasingly taking on new roles in primary care, but the employment of AHPs and MAs is also increasing. Within this model, moving away from traditional, doctor-based care has tended to involve 'task delegation' in specific areas and broader models of team-based care. Barriers to these new models include traditional role concepts and the lack of legal frameworks and reimbursement schemes. Freund et al. (2015) suggest that clear definitions of each team member's role may be the most important facilitation of broad cross-professional, team-based models of primary care.

A new model of primary care in Brazil introduced a team-based model that consists of at least one doctor, one nurse, one MA and four to six community health workers providing healthcare services at a community health centre, which was introduced as part of the family health programme in Brazil in 1994 [91]. The new Brazilian model, which is similar to approaches that have been undertaken to address the health needs of ethnic minority communities in England [92], was associated with sharp declines in the rates of avoidable hospitalisations for ambulatory care-sensitive conditions. This model is not dissimilar to approaches that have been taken to address the specific health needs of ethnic minority communities in England.

4. Models of collaboration among professionals and among sectors (primary care, secondary care and social care)

4.1. Models of collaboration in England

Other new models of primary care are those that promote collaboration among professionals and also among sectors (primary care, secondary care and social care). A number of specific models of collaboration have been described. These include:

- Micro-teams;
- GPs and specialists working together and/or specialists working in the community;
- Extended roles for community pharmacists; and
- Integrated health and social care systems.

4.1.1. *Micro-teams*

The Royal College of General Practitioners (2013) report on the future of general practice in the NHS, *The 2022 GP: A Vision for General Practice in the Future NHS*, suggests that one way for GPs to provide continuity of care to patients with complex and/or long-term needs is to develop small multidisciplinary units, or ‘micro-teams’. The micro-team could encompass a range of professional with different skills, including: general practitioners, nurses, healthcare assistants, social care workers and patient advocates. The micro-teams could also include other specialists. The objective of these micro-teams is to provide clinical reviews and support, which should enable greater shared decision-making between clinicians and patients and their carers while also improving continuity of care. To address the challenges posed by the increasing number of part-time workers in general practice, mechanisms to improve the continuity of care could include: buddying, job sharing, the formation of ‘teams within teams’, organised handover systems, the use of communication and record-keeping technology and the involvement of patients and carers in planning.

4.1.2. *GPs and specialists working together and/or specialists working in the community*

The NHS Confederation (2014) report *Not More of the Same* highlights an important role for specialists (e.g. community paediatricians, geriatricians and gynaecologists) working in community and primary care settings [8]. The report endorses Greenaway’s (2013) recommendations in the report *Shape of Training: Securing the Future of Excellent Patient Care*, which, so the NHS Confederation (2014) notes, ‘offer the

opportunity for specialists with relevant qualifications and appropriate credentials to work in community and primary care settings, thereby enhancing the care of patients closer to where they live.’

Specialists have worked in the community in a range of ways since the 1990s as a result of such strategies as GP fundholding in the 1990s and more recent initiatives, such as the Royal College of Physicians (RCP) (2012) strategy ‘care closer to home’ [93]. Research evidence to date has not supported the move of specialists into the community as a cost-effective model for the delivery health care services, despite its popularity among patients and policymakers [87]. Moving specialists into the community has not been found to be cost-effective because the efficiency loss that results from specialists moving clinics into community settings is often not counter-balanced by shared learning or by better coordinated care resulting just from the juxtaposition of services. Robertson et al. (2014) argue that specialists need to work in different ways if the anticipated gains from GPs and specialists working more closely together are to be realized [94]. Robertson et al. (2014) suggest that these different ways of working could include:

- Consultant-run email and telephone helplines that provide advice for GPs, nurses and other health professionals;
- Consultant participation in multidisciplinary team meetings, e.g. reviewing patients in nursing homes;
- Consultants with sessional time to support primary care staff to work in extended roles, e.g. by running joint clinics or attending primary care-led clinics, where their main function is to give advice and support primary care clinicians; and
- Consultant-led education sessions.

4.1.2.1. Care for certain population groups

There are a number of population groups with particular needs that require GPs and specialists to work closely together. Two examples briefly presented here are care for people in nursing homes and care at the end of life.

Care for patients in nursing homes

Patients in residential care homes present particularly complex problems that often result in unnecessary emergency admissions to hospital. At the same time, specialist geriatricians are rarely involved in the care of patients in care homes until a patient is admitted to hospital, and there does not seem to have been an attempt to commission healthcare services that meet the complex needs of this population [95]. For example, only 1% of consultant geriatrician time is contractually allocated to supporting care in care homes [93]. A recent study by Pitchforth et al. (in press) at RAND Europe on community consultants (mostly community geriatricians) found that consultants who work in these new roles face many uncertainties the (e.g. unclear aims, uncertain outcomes/performance measures, loss of professional identity) [96].

Care at the end of life

Palliative care for patients also requires collaboratively working within communities [97]. Mahmood-Yousuf et al. (2008) note that ‘high quality end-of-life care in the community is achieved with effective

multidisciplinary teamwork, interprofessional communication between GPs and district nurses, and early referral of patients to district nurses' [96].

As efforts to move end-of-life care out of hospitals and into the community continue, these collaborations will become increasingly important.

4.1.3. *Extended roles for community pharmacists*

In section 4.1.4, we described some of the roles of pharmacists working in general practice. Here we describe new ways of working for pharmacists within their pharmacy premises and in the community (e.g. residential care homes).

Community pharmacists are generalists in terms of their knowledge of medicines, and they work in pharmacies that have a mixed case load of patients for whom community pharmacists provide pharmaceutical care [95]. Wilson and Barber et al. (2013) describe pharmaceutical care as follows: 'pharmaceutical care is the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient's quality of life. It involves cooperation with the patient, and other professionals, in designing, implementing and monitoring a therapeutic plan that will produce therapeutic outcomes for the patient.' Wilson and Barber (2013) maintain that this approach to pharmaceutical care is a particularly effective way of managing long-term conditions, as well as other areas of care.

In the report *Now or Never: Shaping Pharmacy for the Future*, Smith et al. (2013) found that existing models of community pharmacies would need to change because of economic austerity in the NHS, the number of local pharmacies in the market, the increased use of technicians and automated technology for dispensing and the use of online and e-prescribing [13]. Smith et al. (2013) note that 'a broader role of pharmacists as caregivers will be central to securing the future of community pharmacy'.

Through having a wider geographic distribution and longer opening hours than general practices, so Smith et al. (2013) argue, community pharmacies could play an extended and important role in providing within- and out-of-hours primary and urgent care [13]. The implementation of integrated patient records and the engagement of pharmacists in local primary care federations and network would support such a role for community pharmacists. There are currently pilots of community pharmacists accessing the 'summary care record' (electronic patient record) of patients, though there would be significant issues regarding consent and access to records if patients' electronic medical records were to be widely available outside the GP practice.

For longer-term support for patients, the recently introduced the New Medicines Service (NMS) provides pharmacist consultations for patients who have recently started to use new long-term medications [26]. As of January 2014, more than 90% of pharmacies in England had delivered the NMS. Elliot et al. (2014) conducted a randomised control trial (RCT) to evaluate the NMS, which mainly supported patients through telephone consultations with community pharmacists. They found that the NMS significantly improved patient adherence, by about 10% compared with current practice, and that the new service saved money in the short term and was cheaper and more effective than normal care in the long term. Elliot et al. (2014) suggest that this service could be expanded into other areas of care, including mental health care. The economic evaluation of the NMS found that it is cost saving, because it generates a gain of 0.6 'quality-adjusted life years' (QALYs) per patient at an average cost of £190 less per patient. Overall, the economic evaluation found a 0.97 probability that the NMS is cost-effective at a willingness-to-pay

threshold of £20,000 per QALY. The authors conclude that ‘in the long term, our economic evaluation suggests that it is likely that the NMS will deliver better patient outcomes at overall reduced costs to the NHS, increasing health gain at cost per QALY well below most accepted thresholds for technology implementation.’ The authors also suggest that the NMS could be improved by better integrating the service into primary care by: improving engagement with GPs, allowing pharmacists to access GPs’ patient records, improving the training of pharmacists and expanding the range of medicines covered (e.g. medicines for mental health issues).

An earlier trial by Hassell et al. (2001) on the transfer of the management of self-limiting conditions from general practice to community pharmacies found that management of some self-limiting conditions in community pharmacies is feasible, satisfactory and acceptable to patients [98]. For the 12 self-limiting conditions assessed, the trial found that 37.8% of the general practice workload was transferred to the community pharmacy. However, the overall workload among general practitioners did not decrease as a result of this workload transfer because the number of general practice appointments during the trial was similar to the number at baseline and over the same period in the previous year.

Another earlier trial, by Bond et al. (2000), compared traditional systems for managing repeat prescriptions and a community pharmacist–managed system and found that community pharmacist–managed repeat prescriptions are logistically feasible, result in the identification of clinical problems and create cost savings [99].

In addition to recommending extended roles within the pharmacy, a number of organisations, including the National Care Forum, the Royal College of General Practitioners, the Royal College of Nursing and the Royal Pharmaceutical Society, recommend a closer working relationship between GPs and pharmacists in nursing homes [100]. Those organisations recommend that GPs and pharmacists in nursing homes work more closely together because elderly people are at an increased risk of experiencing medication errors. Such errors occur because elderly people in nursing homes are often prescribed multiple concurrent medications, largely due to the high prevalence of multimorbidities among the elderly. The Royal Pharmaceutical Society (2014) maintains that by giving pharmacists responsibility for medicines and their use in care homes, significant benefits for care home residents may be achieved from reduced medication errors [101].

4.1.4. Integrated health and social care systems

There is no shortage of reports calling for the better integration of health and social care. The NHS Confederation (2014) report on workforce development, *Not More of the Same: Ensuring That We Have the Right Workforce for Future Models of Care*, suggests that ‘partnership and financial arrangements between health and social care are becoming essential for successfully managing care around the needs of individuals’ [8]. The Barker et al. (2014) report titled *A New Settlement for Health and Social Care* also states that better integration of health and social care is required so that services are built around people’s needs [2]. Barker et al. (2014) argue that a much simpler, graduated pathway of support is needed (i.e. ranging from low support, when patients are able to live independently but may have some manageable care needs, to high-level end-of-life care support involving an intensive mix of personal care, clinical care and palliative care at home or in a hospice). Barker et al. (2014) present information on how this pathway

would work and suggest how it could be funded, but they also state that to achieve a better integrated patient care pathway, England needs to move to a single, ring-fenced budget for health and social care with a single local commissioner. Despite frequent calls for better integration between health and social care, examples of effective integration are relatively few in number.⁴

The RCGP (2014) report *An Inquiry into Patient Centred Care in the 21st Century* suggests that truly integrated models of health and social care require that primary care remain at the heart of healthcare provision [12]. The RCGP (2014) report notes that ‘general practice remains the central point for cradle to grave care and has responsibility for the registered list of patients.’ According to the RCGP (2014), organisational models that bring together such services as general practice, pharmacy, mental health, social care, physiotherapy, and specialist and hospital-based services will need to be developed. Possible models for general practice that could provide the basis for collaboration among these services are discussed further in the next section.

Some identified barriers to and facilitators of models of collaboration among professionals and among sectors (primary care, secondary care and social care)

There is a general acknowledgement that the barriers between primary, secondary and health and social care need to be broken down. This includes both cultural and financial barriers [12].

The NHS Confederation (2014) report highlights that moves towards more multidisciplinary working will require the cultural and behavioural barriers across sectors and professions to be broken down [8]. The NHS Confederation suggests that the provision of opportunities for inter-professional learning will help to break down cultural barriers and to develop more integrated ways of working (so that GPs and other primary care professionals are aware of and value the skills of those working in the wider health and social care environment).

It is clear that changes in funding need to occur to facilitate the integration of care. The NHS Confederation (2014) acknowledges that ‘partnership and financial arrangements between health and social care are becoming essential for successfully managing care around the needs of individuals’ [8].

The CfWI (2014) report *In-Depth Review of the General Practitioner Workforce* suggests that improving existing models of primary care will require greater collaboration with other providers and professionals [3]. The RCGP (2014) report argues that there is a need for clear lines of responsibility and accountability, along with effective information sharing, to ensure that a multidisciplinary team works effectively [12].

Smith et al. (2013) suggest that pharmacy is seen by many healthcare professionals to be an insular profession that is not fully engaged with the field of health policy and health and social care [13]. The

⁴ e.g. the Torbay Care Trust, <http://www.torbaycaretrust.nhs.uk/aboutus/pages/thetorbaymodel-mrsmith.aspx>

public also have limited awareness of the services that are available from their pharmacists [13, 27]. Changes to this perception need to be made. In addition, Elliot et al. (2014) suggest that a triangular relationship between patient, GP and pharmacist is required to optimise medicines use [26]. They also suggest that referral by a GP to the pharmacy service (i.e. the New Medicines Service) could help pharmacists identify eligible patients and, at the same time, legitimise the role of pharmacists.

4.2. Models of collaboration: international examples

There is a fundamental difference between primary care in the UK and many other countries in terms of access to specialist care. In many countries, patients have free access to specialists without requiring a referral from their GP. The political importance of free choice is paramount in many countries, though that may be modified by national policies. For example, in France co-payments for specialist care are reduced if the patient is referred by a GP [41]. There have been initiatives in a number of countries to provide better-integrated care, either with social care or with specialist care. The Nordic countries are particularly well placed to try to integrate health and social care, as there is a long tradition of local authorities (or ‘municipalities’) having responsibility for health care. These models may be of particular interest in England amid attempts to improve the integration of health and social care (e.g. the recent example of the local authority in Manchester planning to take significant control over health and social care).

In 2007, Finland created new organisations to provide coordinated primary care, secondary care and social services. These include joint out-of-hours services and non-operative hospital care, joint outpatient clinics and the use of specialists in selected tasks in primary care. The purpose of these reforms was to enhance cooperation between primary and secondary care services [102]. There are also examples of extensive forms of cooperation in Sweden, including the relocation of specialist care out of hospitals, joint consultations between GPs and other specialists and enhanced training of GPs [31]. Team-based primary care facilities have also been established in Sweden, comprising four to six GPs, primary care nurses, physiotherapists, occupational therapists, psychologists and social welfare counsellors.

In parts of Spain, primary care is organised around multidisciplinary teams working in primary health care centres. The team consists primarily of physicians who are family and community medicine specialists, and of paediatricians, nurses, auxiliary nurses, social workers, dentists and administrative staff. The team works closely with midwives, gynaecologists, public health professionals, pharmacists, radiologists, physiotherapists and laboratories [103].

The patient-centred medical home model in the USA developed in the context of the US healthcare system where, historically, care coordination and integration is weak compared with European healthcare systems [65, 104]. Medical homes are organised along lines that adhere closely to the Starfield principles of primary care (care that is first contact, continuous, comprehensive and coordinated) [105]. The medical home brings together doctors, nurses and a range of other professionals, including pharmacists and sometimes social workers, to better address the wide range of patients’ health care needs. The medical home model encourages comprehensive team care that is delivered closer to patients’ homes. Faber et al.

(2013) note important similarities between the patient-centred medical home in the USA and some of the more advanced primary care systems in Europe [106].

In Ireland, the health service has developed multidisciplinary primary care teams and eventually intends to establish 530 such teams across the country. As well as GPs and their staff, these teams may include social workers, midwives and public health nurses. The objective of these primary care teams is to improve the horizontal integration of care. In 2010, implementation was still at an early stage, with 220 teams established [46].

Parkinsonnet (<http://parkinsonnet.info/>) is a novel model of providing better-integrated care that is driven by specialists. Based in the Netherlands, Parkinsonnet is an online network that includes more than 2,000 health professionals. The aim of Parkinsonnet is to improve the quality of care for patients with Parkinson's disease. The Parkinsonnet network provides: training of health professionals; a forum for communication among health professionals to facilitate the sharing of best practice; data on health outcomes; and a Web portal to allow patients to choose an accredited provider, set their own objectives and build their own networks of care. The Parkinsonnet network claims to improve health outcomes (50% reduction in hip fracture), improve patient satisfaction and reduce costs.

Expanding the role of community pharmacists in New Zealand has broadly been viewed as a success [107, 108]. One example of a single delimited medical task which has moved out of secondary care into primary care and now into community pharmacies is the monitoring of anticoagulation [107, 108]. Developments in technology, with the introduction of point-of-care testing and development in computer-aided decision tools, have enabled this new model (albeit one with a clearly defined scope) to develop. Some evaluations found this model to be working well and broadly being viewed positively.

5. New organisational forms for general practice

5.1. Organisational forms for general practice in England

A number of models have been suggested that extend the scope of services provided by primary care practices. These models achieve scale and scope in different ways, but their overall objective appears to be similar: to provide a wide range of services to achieve the delivery of patient-centred care and/or economies of scale. The various models are summarised below, and more detailed information can be found in the referenced reports.

5.1.1. Primary care federations

The concept of a primary care federation (sometimes called a primary care network) was first described by Lakhani et al. (2007) in the RCGP report *The Future Direction of General Practice: A Roadmap* [109]. Lakhani et al. (2007) describe how general practices could function as normal, separate units of healthcare provision, but also work within a federation of providers to deliver enhanced services. These federations were envisioned as practices that would be championed and led by primary care physicians and could be virtual and/or operate diagnostic and more specialist services from community hospitals (RCGP 2007). Since Lakhani et al.'s (2007) initial description of practice federations, several different examples of federated practices have developed in the UK [12].

According to the RCGP (2013), practice federations, or networked organisations, allow smaller teams and practices to retain their identity through the association of localism, personal care, accessibility and familiarity [11], but also to increase capacity and offer patients access to a wider range of clinical and community services. This wider range of services may include physiotherapy; mental health care; enhanced services; minor surgery and, for larger federations, a wide range of specialist services [10, 12]. In the report *Is General Practice in Crisis?* Dayan et al. (2014) argue that practice federations can 'allow the advantages of scale while keeping their neighbourhood presence' [9]. Practice federations may also share back office functions, organisational learning and the co-development of services [11, 12].

Imison et al. (2010) suggests that practice federations can [110]:

- Strengthen the capacity of practices to develop new services out of hospital;
- Tender for services offered by a future GP commissioning consortium;
- Make efficiency savings/economies of scale;
- Improve local service integration across practices and other providers;
- Enhance the capacity of practices to compete with external private sector companies;
- Strengthen clinical governance and improve the quality and safety of services; and

- Develop training and education capacity.

Working in federations can also allow improvements to out-of-hours care services and can help to ensure consistent quality standards across multiple practices [12]. The legal structures of practice federations may include community interest companies, companies limited by guarantee, limited liability partnerships and informal networks [18].

5.1.2. Super-practices

A super-practice is a large-scale single partnership structures that operates from multiple sites. The term conventionally refers to practices within a single geographical area [18]. The difference between super-practices and practice federations is that in super-practices the practices become linked as a single legal entity (i.e. they no longer exist as separate organisations under the umbrella of, for example, a federation). The central organisation of the super-practice therefore has greater control of the members/partners than that of a federation. As with other models for primary care delivery, this larger-scale organisation aims to provide a wider range of services with improved coordination of care. In the report *Securing the Future of General Practice: New Models of Primary Care*, Smith et al. (2013) suggest that ‘merged partnerships offer a wider range of career development opportunities for professional and other staff, including specialist clinical roles, senior management posts, and a clear career structure for doctors and nurses wishing to progress through different clinical, leadership and practice ownership roles. Furthermore, opportunities for peer review and clinical governance are enhanced’ [18]. The Smith et al. (2013) report examined various super-partnerships and found that all had structures in place for developing and monitoring adherence to local quality standards and for sharing this data with practitioners. Where needed, the partnerships were also able to provide support for practice improvement.

5.1.3. Regional multipractice organisations

Regional multipractice organisations are similar to super-partnerships, but they have sites across a larger area and may include practices widely dispersed regionally or nationally [18]. This model is commonly seen in the UK in chains of dental practices. Multipractice organisations have centralised management and back office functions, with a small number of partners and a larger number of employed clinicians (they are not led by GP partners operating within their local communities). The clinicians work in the dispersed practices, supported by a central leadership team which includes the executive partners and a management team. In the report *Securing the Future of General Practice: New Models of Primary Care*, Smith et al. (2013) suggest that one of the downsides of regional multipractice organisations is that they are limited in some of the changes they can make compared with primary care provider organisations that work in one geographic area. As with other models of care that increase the scale of general practice, this type of organisation has provided increased opportunities for career development, education and training.

5.1.4. Community health organisations

Community health organisations are characterized by their strong focus on links to local communities. Community health organisations differ from other organisational forms for general practice in that community health organisations focus on wider social and health needs and see their role as one of community development alongside, or even before, that of a health care provider. This model of provision

is particularly relevant in deprived or remote areas where the population has relatively poor access to health and social care services. Community health organisations bring services to underserved areas, often with marginalised groups; provide a health centre or network that can cater to the holistic needs of local people; and develop services that are organised to suit specific local challenges, such as poverty, homelessness and refugee status [18]. This type of organisation also has an ownership model that includes significant public and community involvement.

5.1.5. Polyclinics and multispecialty community providers

Polyclinics and multispecialty community providers (MCPs) are considered under the same heading because the latter can be considered a historical development of the former. A common feature of both is the relocation of specialist services into the community, which is associated with the development of much larger, community-based premises.

Polyclinics bring together GPs with other health professionals in community and secondary care [28]. The objective of polyclinics is to improve the quality of care, support better access to healthcare and deliver cost savings. However, the polyclinic models differs substantially both within England and internationally, and a range of titles are given to similar concepts: health centres, super-surgeries and community hospitals. Following NHS London's proposal to develop polyclinics to serve populations of 50,000 individuals, Imison et al. (2008) assessed the potential benefits and risks of the implementation of polyclinics in England. They found that the available evidence suggests that polyclinics present opportunities, but also pose risks to the quality of care, the accessibility of health services, and costs. In addition, the report describes contextual factors that may limit the transferability of apparently successful polyclinic models to the NHS in England.

In terms of opportunities for quality improvement, Imison et al. (2008) found that polyclinics could improve the integration of care, improve the quality of care for people with long-term conditions, help to target services towards local health needs, lead to improved health care facilities and lead to services provided in a more 'normalised' environment [28]. However, Imison et al. (2008) also identify a number of risks to quality improvement: co-location of healthcare providers will not automatically generate co-working or better integration of care; quality of care may decrease when services are moved out of the hospital setting (although evidence from a small number of specialties suggests that care moved out of hospitals is comparable); there is limited inspection and accreditation of out-of-hospital care; specialists may experience professional isolation (which threatens professional development and motivation); and careful planning is required to ensure continuity of care in primary care services. Imison et al. (2008) found that a key barrier to success in England has been the lack of an overall governance structure for polyclinics, clear lines of accountability and a single leader or management board.

Imison et al. (2008) also identify opportunities and risks associated with polyclinics in terms of access to care [28]. The opportunities include improved access to diagnostics, specialist advice and treatment, as well as improved access to extended hours and out-of-hours care. The risks include a potential decrease in the physical accessibility of primary care if GPs move into polyclinics, potentially small or non-existent gains from greater accessibility of secondary care if polyclinics are not located close to transport hubs, and the need for careful planning of specialists' time to ensure that their time is used efficiently.

In terms of costs, Imison et al. (2008) note that, in theory, polyclinics may deliver cost-savings from the lower overhead costs associated with community-based services and from the implementation of more cost-effective models of chronic disease management [28]. However, the evidence suggests that, in practice, the risk is that moving healthcare services into the community can increase unit costs unless care pathways are redesigned and hospitals are able to reduce their unit costs. In addition, new community-based services may result in increased demand or lower referral thresholds, and for some services transitional funding may still be required. Imison et al. (2008) found that expectations that community-based services will cost less than hospital-based services are often unrealised and that new community-based services often fail to decrease demand for hospital-based services because these new services often supplement, rather than substitute for, hospital-based care.

The NHS *Five Year Forward View* (2014) describes MCPs as a larger group of practices that could provide the focal point for a wider range of care, using a broader range of professionals [111]. They could be formed by extending primary care through federations, networks or single organisations. The *Five Year Forward View* describes this new development as follows [111]:

- ‘As larger group practices they could in future begin employing consultants or take them on as partners, bringing in senior nurses, consultant physicians, geriatricians, paediatricians and psychiatrists to work alongside community nurses, therapists, pharmacists, psychologists, social workers, and other staff.’
- ‘These practices would shift the majority of outpatient consultations and ambulatory care out of hospital settings.’
- ‘They could take over the running of local community hospitals which could substantially expand their diagnostic services as well as other services such as dialysis and chemotherapy.’
- ‘GPs and specialists in the group could be credentialed in some cases to directly admit their patients into acute hospitals, with out-of-hours inpatient care being supervised by a new cadre of resident “hospitalists”.’

The effectiveness of these new models that increasingly place specialists in the community may depend on the tasks performed within the community. The experience of ‘specialist outreach clinics’ in the fundholding era of the 1990s was that, despite a rhetoric of interaction between GPs and specialists, there was little actual contact between specialists and GPs and there were limited opportunities for shared learning [112]. Whether clinicians operate in a different way in polyclinics or MCPs may determine whether greater benefits occur in terms of sharing skills, improving quality of care and providing more integrated care.

Since this new approach has yet to be implemented (though ‘vanguards’ have been identified), it is not possible to predict how effective or efficient MCPs will be. It is likely that potential efficiency losses due to specialists moving out of hospitals may prove to be an important factor in balancing convenience for patients with the cost-effectiveness of the delivery of healthcare services.

Some identified barriers to and facilitators of new organisational forms for general practice

In the report *An Inquiry into Patient Centred Care in the 21st Century*, the RCGP (2014) suggests that there is a lack of management and leadership among GPs, practice managers and other primary care professionals, which acts as a barrier to practices’ ability to move towards a federated practice model [12].

The RCGP (2014) states that practices need to be adequately rewarded and supported by the NHS to form federations or networks that would allow them to work at the scale necessary to: (a) deliver a wider range of healthcare services, (b) integrate with other services, (c) provide high-quality out-of-hours care and (d) work in partnerships with new service providers and the public [12]. In the report *Is General Practice in Crisis?* Dayan et al. (2014) echo the view of the RCGP and state that financial support for the development of larger organisations and federations should be provided [9].

In the report *Securing the Future of General Practice: New Models of Primary Care*, Smith et al. (2013) state that ‘while the ability to extend the scope and scale of primary care is important, no one organisational model of primary care provision should be advocated. Local context plays an important role in determining organisational form, and the precise mix of functions will likewise depend on the nature and priorities of the local population’ [18]. As an example, the London Health Commission (2014) reports that ‘London needs a £1 billion programme over the next five years to rebuild or refurbish every GP practice in the capital. There must be local leadership from Clinical Commissioning Groups (CCGs) and councils in planning and designing new facilities, and closer integration with the rest of the health and care system’ [113].

In the report *Under One Roof: Will Polyclinics Deliver Integrated Care?* Imison et al. (2008) state, ‘if specialist services are to be increasingly provided in non-hospital settings, systems of clinical governance and quality regulation will need to be adjusted to ensure that all health care meets certain minimum quality standards, irrespective of the setting in which it is delivered. The scope of regulatory activity should accordingly be defined by service type rather than by organisation’ [28].

5.2. Organisational forms for general practice: international examples

There is a very wide range of organisational models of primary care in different countries. For example, in Austria, most GPs work in solo practices, have little contact with other health professions and provide minimal joint care with specialists. However, other countries are moving in the same direction as England and increasing the scale and scope of primary care. We describe some of these developments in this section.

5.2.1. Single-handed practices to federations

In Italy, Spain and Portugal, individual GP practices have come together into much larger groupings. For example, in Italy, networks of GPs (‘forme associative’) have been formed to create an organisational structure for previously isolated GPs. This co-ordination allows patients on one GP’s list to be seen by other doctors in the network and allows extended opening hours. From the GPs’ perspective, the co-ordination also allows clinical collaboration. GPs can choose between belonging to three forms of organisation: an association (‘medicina in associazione’), a net (‘medicina in rete’), or a group (‘medicina di gruppo’). These three forms of organisation related to three different ways of working together where electronic patients records may be shared between doctors in the network or doctors may share clinics. Each of these organisational models requires a different level of collaboration among GPs, and

membership in each is associated with a progressively higher financial reward for GPs joining [114]. All three organisation types have to agree to coordinate office hours to stay open till 7 p.m., to share guidelines and to hold group discussions. ‘Nets’ and ‘groups’ have shared electronic records, and ‘groups’ share premises, equipment and nursing/administrative staff. Since 2005, there has been a further policy development in Italy to create ‘primary care complex units’ (Unità Complesse di Cure Primarie) based on the co-location of different professionals, including: GPs, paediatricians, out-of-hours physicians, nurses, specialists working in outpatient facilities, social workers and administrative personnel [47]. These facilities are open 12 hours a day, sometimes up to 24 hours a day, 7 days a week. These primary care complex units are claimed to have reduced hospitalisation by 6% in one Italian region.

Of greater relevance to the UK has been the formation of ‘independent practitioner associations’ in New Zealand. Independent practitioner associations are autonomous, privately owned, clinically led networks that are owned and governed by general practices [66]. While the nature of these networks does vary, they typically have roles in providing management services for general practice; maintaining quality standards; and coordinating the development of better models of integrated care with other disciplines, such as pharmacy, midwifery and physiotherapy. Joining a network requires primary care providers to provide consistent standards and collective accountability, which has enabled both purchasers and secondary care providers to have greater confidence in moving care into primary care. Networks have therefore enabled primary care to interact more effectively with both funders and secondary care providers. There has also been a large-scale move away from fee-for-service payments to individual doctors to payments to groups of primary care practitioners that contract with regional authorities to provide local community-based services in order to encourage primary care practices to take a stronger population focus. In the Nuffield Trust report *Primary Care for the 21st Century*, Thorlby et al. (2012) report that GPs are more likely to engage collectively in the provision of services in primary care than in the commissioning of care and suggest that CCGs in England have a lot to gain from stimulating new general practice provider networks [66]. Some of these are seen in the practice networks, federations and ‘super-practices’ described in our review of the literature on primary care in England.

5.2.2. Developing models of workplace primary care

There are limited models for developing links between primary care and the workplace. In some countries, the relationship is simply through health system funding that is linked to employment. For example, in Luxembourg, health insurance is obligatory for those who are working [50]. More often, employer-provided health services operate in parallel to other primary care providers. In the United States, workplace health programmes have expanded into chronic disease management. For example, Liu et al. (2013) found that a ‘health and wellness program’ in one large corporation improved health outcomes and reduced costs [115]. In Finland, there is a set of occupational health services run in parallel with primary care services that working patients can access [40]. In Malta, the role of company doctors is expanding and, in a country where medical certification is required from the first day of absence, the role of workplace-based doctors is developing into primary care for acutely ill employees [51].

In England, there is a growing realization among employers of the costs to productivity of poor health, including poor mental health. We have not, within the scope of this overview, identified whether there are particular models of workplace health services in other countries that could be transferred to England. While these services might seem outside the context of NHS care, the NHS as an employer experiences

significant losses of productivity due to poor health (sickness absence in the NHS is higher than the UK public sector average and considerably higher than the private sector average [116]) and there are considerable potential gains to be had from improving NHS employee health.

6. Facilitators of the adoption of new models of primary care

While there may be a number of facilitators of the adoption of new models of primary care, we present some information on two areas that are frequently referred to in the assessed reports: (a) communication and IT and (b) workforce development and training. This chapter presents an introduction to these topic areas based on information provided in the identified reports.

6.1. Communication and IT

There is a consensus within the English literature that IT may facilitate improved communication among healthcare providers [26, 117] and that new technological developments should be embraced [12]. These developments may also include, for example, personal technologies, such as smartphone apps for patients [13]. Some examples of IT use in primary care are described below: video consultations, email, and electronic records. While this section does not present a thorough review of the use of IT in health services, these examples provide an idea of some of the ways in which IT may facilitate the adoption of new models of primary care. Most of these examples derive from the international literature.

6.1.1. *Video consultations*

In Australia, a new model for integrating primary and secondary care through video consultations, between a GP and patient in one location and a medical specialist in a second location, are being developed. Dedicated funding has been made available for these consultations, which take place in remote or regional areas, residential care homes and involve providers of Aboriginal medical services anywhere in Australia [118]. This model may be relevant to more rural and remote areas in England and could potentially be relevant for avoiding inappropriate admissions to hospital from people in residential or nursing home care.

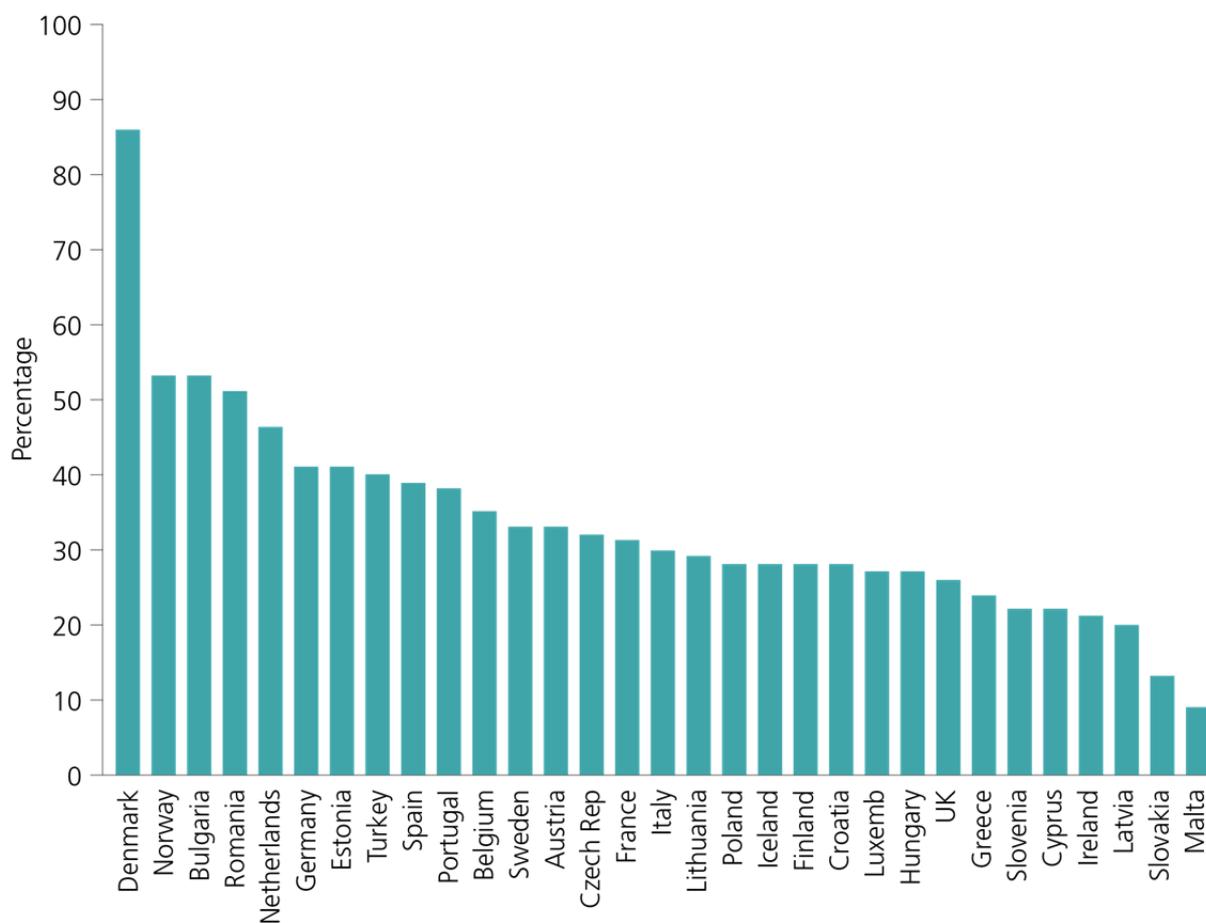
Israel is a technologically advanced country that has also made significant use of telemedicine in primary care. One example of this is from Clalit, a large primary care provider that provides a mobile phone app to new parents so that they can have video consultations with a primary care paediatrician. The mobile phone app comes with a small soft toy that acts as a webcam and interfaces with the app so that the paediatrician can see the child [119]. The organisation now carries out 12,000 digital consultations with children each month.

6.1.2. *Email consultations*

Regarding email, while doctors see the potential for email to improve the provision of primary care, most would need to be paid for time spent responding to emails or would need to have special, earmarked

clinic hours to deal with emails [120]. Zhou et al. (2010) found that providing email access to doctors for patients with diabetes and hypertension at Kaiser Permanente, a non-profit health insurer in the USA, was associated with an improvement in intermediate health outcomes [121]. Doctors reported that the use of email increased their efficiency and improved the care that they provided. According to the European Commission, there is substantial variation in email consultation rates across Europe [122].

Figure 2. Percentage of GPs who report routine email interaction with patients about health-related issues, selected European countries



SOURCE: European Commission (2014) [122]. Percentage of 'Yes, routinely' responses by country to the question 'Do you interact with patients by email about health-related issues?'

For example, in the Netherlands, there is some reimbursement for time spent on email consultations, but there is no dedicated time for email consultations in most contracts between GPs and health insurers. Conditions on the use of email consultations require that (a) the email contact be with a registered patient as part of a of an ongoing patient–provider relationship and (b) it should not be a first visit for a new condition [123].

In Denmark, email consultations were introduced between 2002 and 2004. Some reimbursement is provided for email consultations, but only if the consultation does not result in a subsequent face-to-face appointment (Vedsted 2015, pers. comm.). In Denmark, GPs have list systems, and all Danish citizens

are registered. Email consultations are conducted via GP websites. The systems have secure access, and all communication is automatically stored in the electronic patient record, with a single technical supplier across the country. Emails often have very short word limits, of up to 150 words, and are designed for a single, non-urgent problem. Some practices use nurse triage for simple queries. In others, responses are shared among doctors.

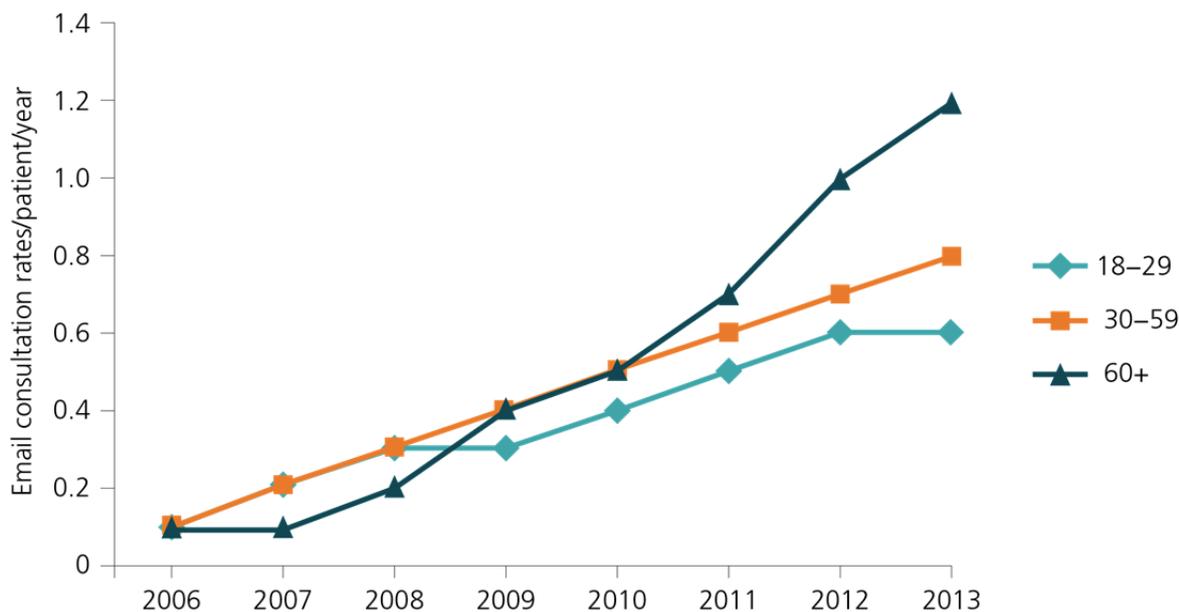
Topics covered in email consultations are most frequently practical questions, such as queries about home measure of coagulation monitoring for patients taking warfarin, blood sugar or blood pressure measurement and medication issues (Vedsted 2015, pers. comm.). GPs also use email communication for communicating test results, such as blood test results. GPs report that patients are good at using the system and its limitations (Vedsted 2015, pers. comm.).

Another recent development in Denmark is 'email consultation by proxy' (Vedsted 2015, pers. comm.). For example, nurses looking after patients in nursing homes can consult GPs via email with common queries, such as medication checking.

The reported advantage of email consultation is that it allows both patients and GPs greater flexibility over consultation. Doctors in Denmark also report that email consultation has been important for managing demand, particularly reducing demand for telephone consultations, despite recent increases in work moving from secondary care to primary care (Vedsted 2015, pers. comm.). The reported disadvantage of email consultation is that some patients are unable to access care via email consultations or do not use the system properly. However, doctors in Denmark report that these challenges can be accommodated and that appropriate solutions for individual patients can be found. Another important issue is patient safety, because patients could inappropriately use email consultations for serious symptoms.

The use of email consultations in Denmark has increased over time (Vedsted 2015, pers. comm.). The earlier adopters were primarily younger patients, but older people with chronic diseases have recently identified email as an important form of communication.

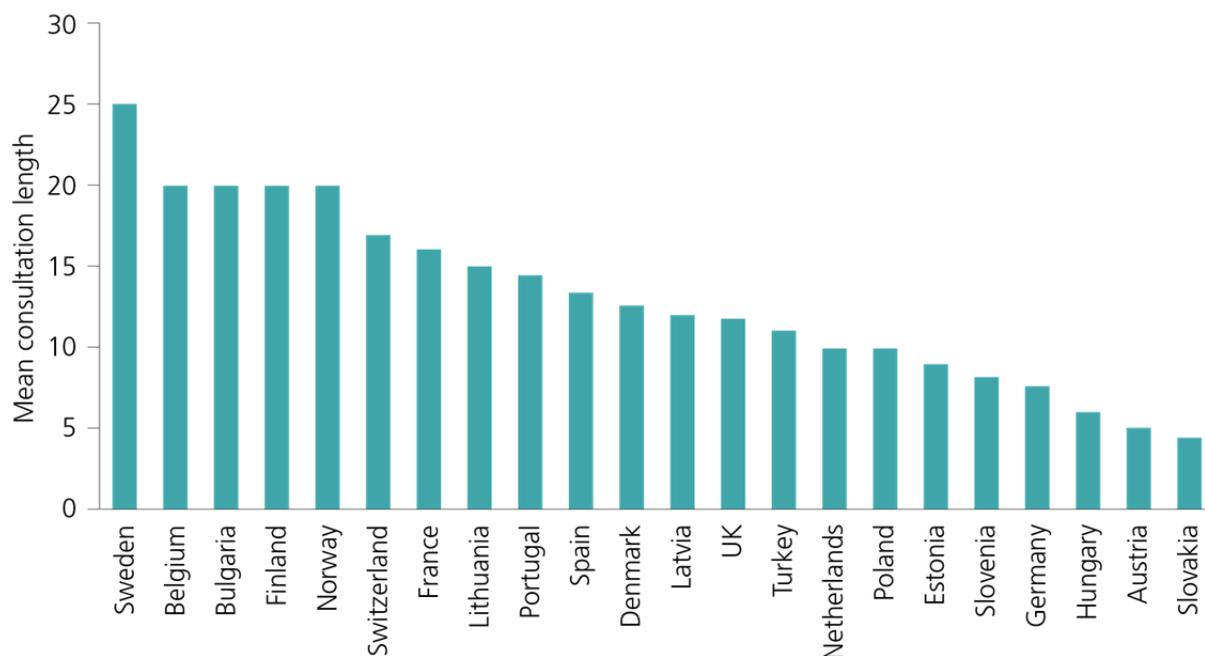
Figure 3. Email consultation rates across all age groups in Denmark



SOURCE: Danmarks Statistik (2015) [124]

While face-to-face consultation does not necessarily constitute a ‘model’, one of the striking differences among countries is in the length of GP consultations. Based mainly on reported consultation lengths in references, Figure 4 below shows mean consultation length in a number of developed countries.

Figure 4. Mean general practice consultation length, selected European countries



SOURCE: Primary Health Care Activity Monitor for Europe (PHAMEU) project [33-62]

These figures need to be treated with caution because they primarily represent reported, rather than measured, average consultation times. They are broadly consistent (apart from Spain) with figures reported from an international cross-sectional survey in 2002. That survey found the following average consultation lengths: 7.6 minutes in Germany, 7.8 minutes in Spain, 9.4 minutes in the United Kingdom, 10.2 minutes in the Netherlands, 15.0 minutes in Belgium and 15.6 minutes in Switzerland [125]. A survey of GPs in the United Kingdom in 2006/2007 found an average consultation length of 11.7 minutes in the UK [126]. However, some of the above-cited figures are now out of date, and they represent GPs working in very different working environments. Furthermore, they take no account of the different types of patients that GPs may see.

6.1.3. *Electronic health records*

Sharing electronic patient records appears to be a key facilitator of collaboration among health professionals. By shared electronic patient records we mean electronic records that are accessible to all health professionals that are involved in a patient's care, including hospital specialists, pharmacists, community health service workers and social care workers [9, 18].

Patient health records have evolved in the UK and the USA from a paper document, designed for communication among healthcare professionals, to electronic documents that both patients and healthcare professionals can access [127]. In terms of barriers to development of new models, data protection legislation is clearly central. In Europe, the European Data Protection Directive is the overarching regulatory framework governing this data; however, it leaves considerable freedom to EU countries on whether to apply, restrict or extend these regulations, and it is currently under review [128]. The ability to accommodate individual patient preferences for data storage, access and sharing may be a more important factor in expanding the role of electronic health records in primary care [129].

6.2. Workforce development and training in England

As noted in the introductory chapter, the medical workforce has an important role to play in meeting the challenges faced by the NHS. The problem of demand is compounded by the shortage in supply. This section briefly discusses the problems of recruitment and retention, and the need for broader specialities and professional development.

6.2.1. *Recruitment*

In the report *Securing the Future GP Workforce: Delivering the Mandate on GP Expansion*, the GP Taskforce (2014) reports that, over the past 20 years, only 20–30% of UK medical graduates have indicated general practice as their unreserved first career choice, with most graduates preferring hospital-based specialties [17]. While the Department of Health aims to increase GP training numbers in England, the GP Taskforce (2014) notes that from 2010 to 2014 recruitment was below the target of 3,250 per annum, at 2,700. The uneven geographical distribution of GPs in the UK is also a concern; the areas with the most deprivation have fewer GPs per head than the UK average. Modelling by the CfWI (2014) has shown that the current number of GP trainees is inadequate and likely to lead to a demand–supply imbalance [3]. If the UK government's priority continues to be the transfer of the care of an ageing

population into primary care and the community, then more doctors training in General Practice are needed to meet current and future patient needs. The GP Taskforce (2014) highlights that HEE's mandate demands that it progress towards having half of post-graduate training posts dedicated to general practice [17].

6.2.2. Retention

Not only are there issues in recruitment, but there are also challenges in retaining trained GPs. The GP Taskforce (2014) reports that significant numbers of individuals, including women in their 30s, are leaving the GP workforce before retirement age [17]. Issues with retention are particularly evident in areas that have worse health outcomes. GPs currently report having too much work, having high levels of stress and feeling at risk of 'burning out'. A survey by the RCGP in 2013, published in the report *The 2022 GP: A Vision for General Practice in the Future NHS*, revealed that 85% of GPs feel that the current situation is unsustainable [11]. Similarly, in the report *Shape of Training: Securing the Future of Excellent Patient Care*, Greenaway et al. (2013) suggest that in order for medicine to be a 'sustainable career', there need to be 'opportunities for doctors to change roles and specialties throughout their careers' and 'the local workforce and patient needs should drive opportunities to train in new specialties or to credential in specific areas' [5]. A recent joint statement by the RCGP, the British Medical Association (BMA), NHS England and HEE expressed a commitment to exploring portfolio careers in order to extend options towards the end of careers, with the aim of retaining experienced doctors in the workforce. This joint statement revives an earlier proposal for portfolio careers for GPs in the 2003 GP contract that was not widely implemented [12]. The proposed expansion of the GP retainer scheme may also help doctors to return to the workforce after career breaks, as such schemes appear effective in retaining GPs in the workforce [130].

6.2.3. Broader specialties and professional development

With the needs of patients changing quickly (due to the increasing prevalence of multiple comorbidities and chronic illnesses), there is an added pressure to ensure that GPs are equipped with appropriate skills in a range of specialties. In order to enable GPs to provide high-quality care, Greenaway (2013) argues that postgraduate training needs to 'prepare medical graduates to deliver safe and effective general care in broad specialties' [5]. GPs have reported specific areas where they require further support and guidance in their practice. For example, in the report *The State of Medical Education and Practice in the UK*, the GMC (2014) reports that doctors and other health professionals have concerns regarding end-of-life care and frequently request further guidance about 'the ethical considerations and logistical difficulties around managing care outside of hospitals' [4]. The GMC (2014) also reports that 'ethical concerns have been raised about the commissioning of services where doctors balance commissioning and care provider roles' and that doctors need further support in balancing these conflicts of interest. We note that there has been widespread support for a longer period of vocational training for general practice, including an increase from the current three years to four years recommended in the Greenaway (2013) report [5].

Some identified barriers to and facilitators of education and training

According to the GP Taskforce (2014), the image of general practice needs to be instilled as a positive career choice for a larger number of doctors. The GP Taskforce (2014) suggests that this could be accomplished through a professionally led marketing strategy involving various levels of the education system, from secondary schools to medical schools and foundation programmes, in order to illustrate that a career in general practice is a progressive career choice [17].

The GP Taskforce (2014) highlights that there needs to be a reduction in the number of hospital specialty entry training opportunities if the number of general practice trainees is to be increased. The taskforce recommends collaboration between HEE and NHS England to address the imbalances of GP trainees and trained GPs versus needs across the country [17]. Strategies to incentivize trainees and trained GPs to 'under-doctored' areas could also be introduced.

The GP Taskforce (2014) also suggests that the issue of training capacity limits for GPs could be addressed more broadly through federated models of training for the broader primary care workforce. Such models could draw multiple primary care providers together for multi-professional placements, whereby block training approval is given for the system [17].

There is potential to alter the training structures in order for doctors to develop into more broadly trained specialists. In the *Shape of Training* report, Greenaway makes a number of suggestions as to how existing training structures could be improved:

- After completing the two-year Foundation Programme, doctors should enter broad-based specialty training, with four years' training for general practice (increased from the current three);
- While undertaking general practice training, doctors would also be able to undertake education leadership or management work; and
- Doctors should be able to transfer their competencies across to another area of practice if they wish to change specialties [5].

In the report *Investing in people: For Health and Healthcare*, HEE (2013) emphasises the need to improve their data. HEE states, 'we will need to work closer with Trusts to understand vacancy rates and how staff move between employers, with HEIs [health education institutions] and Trusts to better understand and reduce attrition rates, with professional regulators to understand what happens to students when they graduate, and with the primary care, independent and voluntary sectors, where our data is particularly poor' [6]. The GP Taskforce (2014) stressed the need for further research to better understand why GPs leave practice early [17]. Such research needs to explore employment conditions and to examine barriers to returning to practice.

6.3. Workforce development and training: international examples

A number of countries face problems not only in recruiting doctors to primary care, but also in having an ageing primary care workforce. For example, in Austria, 45% of GPs are over 55 years of age and only 20% are under 45 [33], and in Denmark, over 80% of GPs are over 45 years of age [38]. In Cyprus, the

Czech Republic, Italy, Norway, Spain and Sweden, around half of the general practice workforce is over 55 years old [131]. Many countries in Europe also report difficulties in recruiting young doctors to enter general practice as a career. Barriers to recruitment include the perceived low status of general practice and (in some countries) the low pay of general practice compared with that of other specialties. In Germany, fewer than 10% of medical students say that they want to enter general practice [132]. In France, general practice was the second least popular specialty for medical students in 2012, exceeded only by occupational medicine [132]. Different countries approach challenges in recruiting doctors into general practice in different ways. For example, France regulates the number of students permitted to enter specialty training programmes in each medical school (the *numerus clausus*). In Germany, there is essentially no regulation of entry of doctors to different branches of medicine [132].

One approach that countries adopt to address health workforce shortages is to rely on immigration of health care workers. Internationally, this is the model that has been adopted in Brazil. In Brazil, up to 80% of the recruits to the 'More Doctors' programme are from Cuba [133]. In Europe, two types of health care worker flows can be identified: one within the European Union (EU), from newer to older member states (e.g., from the Czech Republic to Germany or from Romania to France and Italy), and a second from outside the EU (e.g. from India and Pakistan to the United Kingdom and from western Africa or the Maghreb to France). Important issues that are associated with the migration of foreign doctors are the formal recognition of foreign education and challenges that may arise from communicating across different languages or cultures [131].

7. Discussion

Much of the literature considered in this overview identifies potential solutions to the challenges faced by the NHS. They include four broad areas of innovation: models that introduce new, or change existing roles in general practice; models of collaboration among professionals and among sectors (primary care, secondary care and social care) and new organisational forms for general practice. Many of the reports included in this review contain similar recommendations. Some of the included reports focus on particular aspects of primary care (e.g. enabling continuity of care or introducing new forms of communication), while others tackle a wider picture. The models identified require change at different levels: within general practice (e.g. employing more practice nurses), among professionals within primary care (horizontal integration), among professionals in primary and secondary care (vertical integration) and also among different parts of the healthcare system (i.e. health and social care).

Our search for innovative models of primary care in other countries identified few innovative models. This is perhaps not surprising, as many countries look to the UK for solutions to the challenges they face in primary care in their own countries. The UK has led the way in many areas, from the use of nurses in general practice (facilitated by the 1965 GP contract) to the development of vocational training for general practice (which started in 1959 and became mandatory in 1976). In countries facing similar health care delivery challenges to the UK, similar policies and models for the delivery of care have emerged.

Most reports included and considered here are descriptive and include recommendations regarding how new models of care could be implemented. The studies did not, however, consistently tackle issues or problems likely to be encountered with their implementation. Few reports supported their recommendations with evidence on the effectiveness of different models of care. This is partly because evidence is patchy for many of the new models being discussed or because they rely on experience where similar initiatives have been introduced in very different contexts. Few reports explored the relative merits of different approaches in any detail. For example, in the report *Under One Roof: Will Polyclinics Deliver Integrated Care?* Imison et al. (2008) explore broader issues in the use of polyclinics, such as whether or not the quality of care provided by hospital specialists would be maintained if care were shifted into the community, as well as the potential impacts on access to care and cost [28], but that report stands out as an exception.

The lack of clear evidence on effectiveness, and the fact that we did not identify a clear, single model in this overview, makes it clear that there is no 'one size fits all' model for delivering primary care and that the way in which changes are implemented may be as important as the model of change itself. Given the

need to balance the benefits of organizational scale with the preservation of the local nature of general practice, Smith et al. (2013) identify that no one organizational model would meet the needs of all localities and that local context plays an important part in determining what will best meet the needs of the local population [18].

This overview is a brief, ‘top-level’ summary of new models of care reported in the recent literature, concentrating on reports from professional bodies and policy-focused organisations. As such, our report may not have captured all of the important issues and nuances. Furthermore, because relevant reports were provided to RAND Europe by Health Education England, this overview does not claim to be a systematic review of the evidence. Overall, however, given that the reports are quite consistent in their overall recommendations, we believe that the main messages and current paradigms have been captured in the overview.

Specific areas where evidence is lacking, and where the commission may consider future work, are around detail of the potential roles of health professionals in general practice, such as nurse practitioners or physician associates. A further aspect of care which we have not considered in detail in this overview is the time that GPs spend with each patient. We present data that suggests that mean consultation times in the UK are well below the European average, possibly because there are greater demands on GPs in the UK than in other countries. Although figures from other countries may be difficult to interpret in the UK context, the issue of what constitutes a reasonable length of consultation in general practice in England at the present time is an important topic for further discussion.

Although cross-national comparisons do present opportunities for learning, it is difficult to translate experience from one country directly to another because of the differing political, cultural and economic situations; the different expectations of primary care; and the different levels of staffing and support for primary care. Some aspects of the comparisons noted in this overview may, however, benefit from more detailed analysis.

The NHS *Five Year Forward View* highlights that ‘England is too diverse for a “one size fits all” care model to apply everywhere, but nor is the answer simply to let “a thousand flowers bloom”’ [111]. Across diverse models that are developed locally to address specific local needs or that are implemented with top-down approaches to address national agenda, several cross-cutting principles of good practice have been identified which could inform development and implementation of different models (see box below).

Design principles, adapted from Smith et al. (2013) [18]

- Entry to the system: patients should be able to speak to a senior health professional as early as possible and both within and out of hours.
- Specialists and generalists: there is a range of ways in which specialists and generalists could work more effectively together. Patients should have the minimum number of separate visits and consultations that are necessary, with access to specialist advice in appropriate locations.
- Continuity and access: patients should be offered continuity of relationship where this is important, and access at the right time when it is required.

- Anticipatory and multidisciplinary care: care should be proactive and population-based where possible, especially in relation to long-term conditions.
- Multimorbidity: care for frail people with multimorbidity should be tailored to the individual needs of patients, in particular for people in residential care or nursing homes.
- Patient self-management: where possible, patients should be supported to identify their own goals and manage their own condition(s) and care, drawing on health professional support as needed.
- Making the most of the multidisciplinary team: primary care should be delivered by a multidisciplinary team in which full use is made of all the team members' skills.
- Patient records: there should be a single electronic patient record that is accessible by relevant organisations and that can be read and, perhaps in future be added to, by the patient.
- Quality and information: primary care organisations should use, and make publicly available in real time, information about the quality and outcomes of care.
- Organisation and management: Primary care should have professional and expert management, leadership and organisational support.

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