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Strengthening Integrated Care Through Population-Focused Primary Care Services: International Experiences Outside the United States

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Keywords

primary care, high- and middle-income countries, population health, health system reform, health service innovation

Abstract

Many high- and middle-income countries (HMICs) are experiencing a burden of comorbidity and chronic diseases. Together with increasing patient expectations, this burden is raising demand for population health-oriented innovation in health care. Using desk review and country case studies, we examine strategies applied in HMICs outside the United States to address these challenges, with a focus on and use of a new framework for analyzing primary care (PC). The article outlines how a population health approach has been supported by focusing assessment on and clustering services around social groups and multimorbidity, with support for community roles. It presents ways in which early first contact and continuity of PC, PC coordination of referral, multidisciplinary team approaches, investment in PC competencies, and specific payment and incentive models have all supported comprehensive approaches. These experiences locate PC as a site of innovation, where information technology and peer-to-peer learning networks support learning from practice.

HMICs: high- and middle-income countries

PC: primary care

INTRODUCTION: RETHINKING HEALTH CARE APPROACHES

Across a diverse range of countries globally, a rising burden of chronic disease and multimorbidity is increasing health care costs and workforce pressures. At the same time, opportunities and expectations for improved health have grown with increasing levels of social communication and new health technologies (20, 57, 109, 115). Within this context, a focus on hospital-based, disease-based, and siloed curative care models “undermine[s] the ability of health systems to provide universal, equitable, high-quality and financially sustainable care” (117, p. 1). In the United States, for example, despite higher levels of spending than in other high- and middle-income countries (HMICs) (17), constraints in access, continuity, comprehensiveness, and quality of and participation in primary care (PC) contribute to poorer health outcomes (1, 2, 14, 41, 85). People regularly bypass PC services in the United States, often leading to inappropriate use of more costly hospital and emergency services and poor communication between services (1, 2, 41, 85).

Many HMICs are facing common challenges of urbanization, unhealthy lifestyles, aging populations, and multimorbidity. Health systems face demands to produce gains in health at both individual and population levels and to improve client and provider satisfaction and quality of care, while reducing cost escalation and ensuring that clients are protected against impoverishment from health care spending (29, 33, 49, 94, 117). The World Health Organization (WHO) argues that meeting the global commitment to UN Sustainable Development Goal 3 (to ensure healthy lives and promote well-being for all at all ages) and Target 3.8 on universal health coverage (UHC) calls for an “integrated, people-centred” approach (117, p. 2) that integrates community participation and coordinates services in and beyond the health sector (117). PC plays an essential role in this initiative (59, 61, 64, 88).

There is no single definition of PC. What PC aims to do, how it is organized, what it includes, and what it seeks to achieve, differs across countries and has changed over time. The literature from various settings raises as commonly desired PC attributes that it

1. provides first contact, accessible health care, where most health issues should be resolved;
2. responds to sociocultural and economic norms and contexts;
3. addresses the population’s main physical, mental, and social health concerns;
4. puts people at the center of service delivery, within family and community orientations;
5. is based on sound knowledge of communities and patients, using population health and clinical evidence;
6. applies integrated, coordinated, comprehensive approaches to promotion, prevention, care, and rehabilitation;
7. includes different practice sizes and integrates with community services;
8. supports continuity of care, intersectoral collaboration, and coordination of referral, including to other services;
9. builds a sustained partnership between people and a multidisciplinary team of health workers, including community health workers (CHWs); and
10. involves effective organization and use and sharing of information for ongoing improvement (35, 44, 45, 51, 55, 59, 65, 69, 97, 119).

This paper examines how these features of PC services are organized in HMICs outside the United States to inform decision makers and practitioners within the United States and more generally in HMICs, particularly in terms of how HMICs have organized comprehensive, coordinated, and population health-oriented PC approaches to manage emerging challenges.

METHODS

This article draws on evidence from desk reviews, country case studies, and an international meeting implemented in 2014. A conceptual framework shown in **Figure 1** was developed from

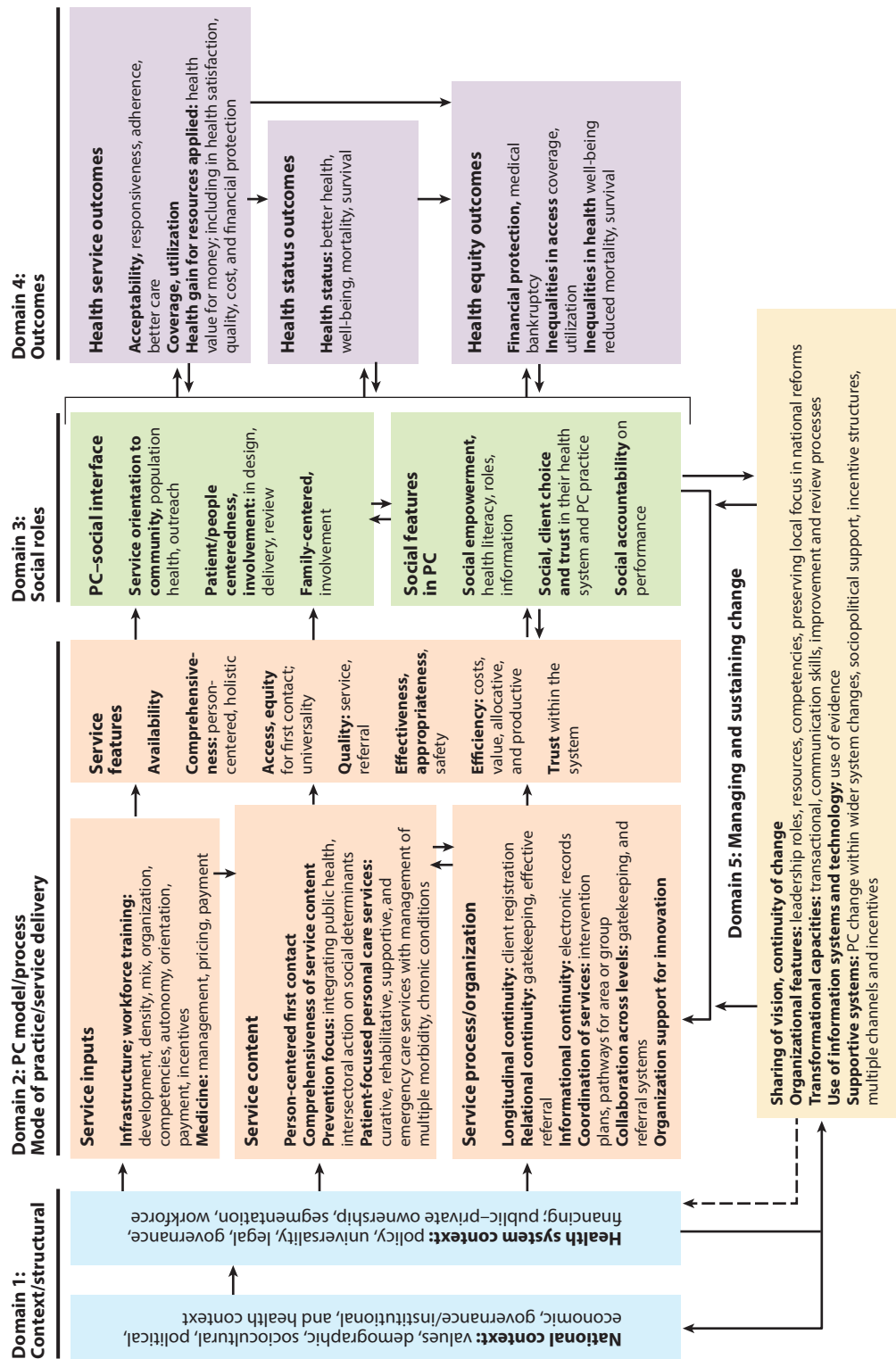


Figure 1

Conceptual framework for analysis of the role of primary care (PC) (57).

reviewing published literature and was used to organize a review of PC features and their health outcomes in HMICs (92). An analysis of the Organisation for Economic Co-operation and Development (OECD), the World Bank, and WHO data sets for 65 indicators of health spending and health outcomes for 2000 and 2010–2012 in 130 HMICs (58) found that while all had lower total health spending per capita than did the United States, nearly half had better survival outcomes than in the United States (58, 76, 116, 118). Twenty-nine HMICs had improved outcomes in four or more of seven indicators of financial protection, child and adult mortality, health care coverage, continuity and acceptability, and health worker density. Added to the findings from our desk review, four of these countries were purposively selected for deeper case-study work for their improved health and health care outcomes: England, the Netherlands, Chile, and Canada (Ontario and Quebec). They were selected to explore more deeply in diverse geographical settings, contexts, and health system arrangements how PC has contributed to improved health in the face of similar chronic disease and comorbidity challenges as in the United States. They also provided specific interesting features: that England (in the United Kingdom) has highly positive OECD health system performance scores; that the Netherlands has an insurance-based system; that Canada is geographically proximate; and that Chile uses integrated, equity-focused approaches. **Table 1** shows the features of these case-study countries relative to the United States (3, 23, 24, 40, 46, 63, 67, 73, 74, 75, 80, 85, 90, 91, 106, 113).

Figure 1 presents a framework for organizing evidence on how PC services achieve these attributes, including through their inputs, content, process, or organization and through their interaction with or involvement of individuals and communities. They do this within wider socioeconomic and health system contexts and are affected by the leadership, capacities, and information that support and sustain improvements (57).

Evidence on the features of PC in HMICs was summarized thematically from the separately reported desk review and the case studies (23, 46, 67, 80, 92). Outcomes explicitly reported as associated with these PC features were noted, particularly in relation to health, health care, user or provider satisfaction, quality improvement, cost, and financial protection. Given the limited published evaluations of PC reform and difficulty with making direct causal attributions in complex systems (37), we do not intend to infer direct causal attributions between the various PC features and the reported outcomes. However, the thematic analysis indicated several features of PC that were more consistently associated with reported improvements in these various dimensions of health or health care. These features are reported in this article to explore how HMICs have organized them to address the challenges and opportunities raised earlier. It presents common features, and detailed information on specific cases can be found in the literature and country case studies cited.

The findings of the desk reviews and case studies were peer reviewed by US and international policy actors, practitioners, and academics and further reviewed at an international meeting on the work involving these actors. Despite the limitations noted above, the breadth of papers, gray literature, and key informants together provided a reasonable body of evidence to support the major findings reported.

LEARNING FROM HMICs ON PROMISING FEATURES OF PRIMARY CARE

This section presents key features of how HMICs are organizing PC models and approaches that seek to address the social, morbidity, and health system challenges and opportunities noted in the introduction. It examines first how the service content and social interface are oriented toward holistic population health approaches and the service organization that supports these approaches. Where documented, it includes the evidence on the health and systems outcomes of these features.

Table 1 Selected health system features of the four case-study countries and the United States (3, 23, 24, 40, 46, 63, 67, 73, 74, 75, 80, 85, 90, 91, 106, 113)

Feature	Canada	Chile	The Netherlands	England	United States
People per km ² in 2012	4	24	498	265	35
Life expectancy at birth in 2012	81	80	81	82	79
GDP per capita in 2012 (current US\$)	52,409	15,245	45,961	38,649	51,755
Service funding	Provincially administered universal public insurance funded service	Public and private insurance	Statutory health insurance with universally mandated national insurance	National health service, funded from general taxation	Private health insurance; tax-funded public insurance (Medicaid, Medicare)
Primary care payment	Mostly FFS; some cap, P4P	Public: cap + P4P	Cap + FFS	Cap+ FFS + P4P	Mostly FFS; some cap; salary and P4P
Registration with PC	Not normally	Yes in public services	Yes	Yes	No
PC gatekeeping role	No, except some incentives	Yes	Yes	Yes	No, except in some insurance plans
Physician density per 10,000 ^a	24	3.5	30	28	25
Ratio of specialist to GP per 1,000 people in 2010	1.1:1	NA	3.0:1	2.5:1	7.3:1 (2011)
Ratio of specialist: GP pay 2008 ^b	1.5:1	NA	1.6–1.7:1 (2007)	1.3–0.7:1	1.6 (2003)
Patient satisfaction in 2012 ^c	38%	NA	51%	62%	29%

Abbreviations: Cap, capitation; FFS, fee for service; GP, general practitioner; NA, not available; P4P, payment for performance; PC, primary care.

^a2011 or nearest year.

^bRanges reflect variation between salaried and self-employed GPs.

^cPatients who indicate the system works well and that minor changes are needed.

The next section then outlines the service inputs needed for these models and the information and other forms of support needed to introduce and sustain them. While separately outlined, many of these features are linked and mutually reinforcing.

A Focus on Communities and Population Health

Comprehensive, person-centered approaches and a population health focus have been applied in numerous HMICs in Europe and Latin America, as well as in Canada and Australia, to address the health needs of aging populations and rising levels of chronic conditions and multimorbidity (92, 96). In these approaches, people play an informed role in their personal care. However, with support from community services, they are also actively involved in prevention and health promotion, in engaging on public interests in decision making and policy development, and in service delivery and oversight (8, 15, 56).

Countries organizing comprehensive, person-centered care use evidence on population health to plan and monitor services (5, 30, 109). PC practices deliver not only personal care but also related

population health services, including disease surveillance, active screening, support of uptake, and counseling to address health risks (10, 92, 109). They are delivered through diverse approaches:

1. They focus assessment, planning, and resources on social groups with a higher risk of multi-morbidity rather than on specific diseases. New Zealand's Care Plus program, for example, pays on a capitation basis for higher-risk individuals to have more intensive, comprehensive assessments and follow-up (13, 66). Ontario's Health Links coordinates various service providers to implement care plans for the 5% of patients with the most complex conditions who account for two-thirds of health care costs (67). Social groups or settings, such as schools and workplaces, are a point of entry or link for PC-supported population health approaches in Germany, Ontario, Canada, the Netherlands, and the United Kingdom (UK) (92).
2. They cluster attention on co-occurring morbidities. Germany's management of chronic conditions and comorbidity since 2002 has, for example, applied health literacy and follow-up visits to detect and prevent disease progression, with exemptions from copayments to encourage enrollment. The program was reported to lower medicine and hospital costs, complications, and mortality over four years compared with routine care (100).
3. They cluster and link clients with a range of local services. The Netherlands' community health centers (CHCs) and care groups provide a mix of family practice, nursing, home, pharmaceutical, paramedical, psychological, mental health and social care services, and diagnostic facilities located in neighborhoods and supported by bundled payments, as described in a later section (46). Chile's biopsychosocial (BPS) approach in public PC services promotes holistic and integrated approaches to individual, family, and community health. The services use family health maps and participatory epidemiological maps and provide incentives for integrating social preferences and achieving participation goals (23, 104). Although it is relatively new, the approach is reported to be associated with an increase in home and preventive visits, enrollment of vulnerable groups, and a reduction in costly hospital admissions for hypertension and diabetes (23, 89, 105). The Chile Solidario PC services also provide an entry point for connecting families to a wider range of social protection programs (23).

Comprehensive approaches that integrate health promotion and prevention were reported in the Netherlands and Canada to reach marginalized and hard-to-service populations, enhancing equity (46, 67). They often include supporting community roles, raising levels of health literacy, involving people in decisions on services, and engaging community members to support these roles. A systematic review found client and community preferences to be integrated in treatment plans in personal care services in a number of HMICs (99). At the community level, participation has also been integrated across a number of dimensions of PC, including information exchange, needs assessment, planning, budgeting, service delivery, and oversight (4, 92). In Chile, for example, health diagnoses are a duty of municipalities, and the participatory process of health mapping with families and communities noted earlier is included to identify and interpret community health problems. The findings feed into annual communal health plans but have also fostered joint health promotion action by organized communities (23). Such inputs are reported to improve uptake and coverage of services, especially in more marginalized communities or in younger people, and to reduce the progression of chronic conditions (12, 56, 80). While attributing impact to social processes is complex, understanding the impact of such participatory approaches merits further evaluation.

These social roles are supported in some HMICs by a range of community personnel, including CHWs, health champions, and patient navigators, who integrate sociocultural features and community voice within health services (34). For example, in the United Kingdom, local community volunteers, termed practice health champions, facilitate community-level actions on health

and direct people to relevant services. They initiate support groups for young mothers or people with chronic conditions and facilitate health literacy and use of appointment guides and other practice tools, and improvements in service quality and uptake have been reported as a result of this approach (80, 81). A network of 148 local Healthwatches across England give voice to people's experiences of care and views in the commissioning, provision, and oversight of local health services and with state authorities (71).

Some HMICs organize these features at the system level, whereas in other HMICs, specific PC models bring some of these promising features together, such as the CHC models in the Netherlands and Canada. CHCs provide comprehensive population-focused services, organize multidisciplinary workforces with cultural and communication competencies, and use payment arrangements and service guidance to support community roles and coordination across various services (7, 46, 67).

Enhanced and Equitable Access to Primary Care

For PC systems to support these population health approaches, they need to effectively function as an entry point for access to and inclusion in the health system for the population in their area. PC systems need also to provide services for prevention, early detection, and management of chronic conditions, including to prevent escalating severity and to mitigate cost burdens and unnecessary hospitalization. This section highlights how HMICs have organized early first contact and continuity in PC for the diverse population groups they serve.

Early first contact and continuity of care have been supported through measures to ensure that PC services register their patients and populations served through enrollment, to make PC accessible around the clock, and through PC services coordinating referral to other services. These measures are further accompanied by public education and active support for people's uptake of services, particularly in disadvantaged communities (32, 35, 45, 48, 61, 65, 82).

Enrollment of all people who live in a catchment area with a PC practice is required in numerous HMICs (also termed registration/empanelment). Enrollment is identified as a key measure for first access, with flexibility to choose a PC practice and provision for portability. Enrollment is reported in two reviews of evidence to support early uptake of care, to improve health outcomes, and to enable population health approaches (19, 38). A policy review of nine HMICs found that enrollment enhanced continuity of care, relations between providers and communities, coordination of information, and links between PC and other services and facilitated capitation payments (43). In some HMICs, enrollment is the norm. In England, for example, more than 99% of people are enrolled with a general practitioner (GP). A local National Health Service (NHS) commissioning board coordinates registration and arranges for medical records from all levels of care to be kept by GPs to enable more active health management. Within six months of registering, people are offered a health check to plan follow-up care, and two-thirds of people have at least one PC consultation in a year. Enrollment generates a profile of the catchment population, which is used to plan services and enables the capitation payment that constitutes most GP income (70, 80). In other HMICs, enrollment is voluntary but incentivized (43). In Ontario, Canada, for example, it is encouraged in some PC models through a payment per person enrolled; additional payments are provided for select high-needs groups to discourage their exclusion (68).

Removing cost barriers at the point of care can facilitate early first contact and provide financial protection (52). Many HMICs remove copayments for PC services or set low, capped copayments, with exemptions for vulnerable groups (26, 95, 107). This practice does not appear to increase overuse of PC services and reduces the use of emergency services, particularly when PC coordinates

referrals to secondary care, and there is patient literacy and public trust for this role (106). In three case-study countries, overtreatment and unnecessary hospitalization were found to be reduced by the provision of clinical guidelines, by capitation payment, and by accessible measures for PC interaction with specialists, such as through telehealth (46, 67, 80). Mandatory prepayment for a defined benefit was found to enable free at point-of-care PC services, with 98–100% prepayment coverage in the four case-study countries (23, 46, 67, 80). In the Netherlands, contributions to different insurers are pooled into a fund, with allocations between insurers using a risk-adjusted mechanism. Insurers are obliged to accept applicants, and uninsured people are actively followed up or immediately enrolled at any point of contact with services (46). Pooling multipayers or having a single payer supported the funding of system-wide payment arrangements, incentives, meso-level training, and interoperable information technology (IT) systems that support and align PC with population health needs (46, 63, 67), as discussed further in the next section.

Making services available at times that suit the population can further enable access, when the resources are organized to support it. Various arrangements have been used to facilitate around-the-clock access, including nurse-staffed telephone or email advisory services; home visits by roaming mobile GP units; and PC cooperatives sharing resources across providers (26, 67, 79), with information links between after-hours and PC services to support continuity, as in England (80, 88). In the Netherlands, after-hours care is a legal entitlement and obligation of PC, funded by insurers. Since 2000, PC cooperatives involving 40–250 individual providers share resources, covering 100,000–500,000 people. Each professional in the PC cooperative is on duty for about four hours weekly (27, 46). PC cooperatives are independent of hospital emergency departments but may share an integrated front office for triage. A 2009 study reported that the introduction of these cooperatives was associated with a 53% reduction in emergency care contacts, a 25% increase in PC contacts, a 12% reduction in ambulance calls, 34% fewer hospital admissions, and an 89% reduction in self-referral to hospital emergency departments (31).

PC coordination of referral to secondary care and other services is argued to support the continuity of care needed to manage chronic conditions (65, 97, 112). Although this approach is negatively viewed by some as limiting choice (6, 65), PC roles in referral continuity are relatively widely accepted in many HMICs (46, 80, 88). GPs coordinate referral in the United Kingdom, the Netherlands, and Chile, and GP referral is a *de facto* practice in Canada (23, 46, 67, 80). In England, for example, PC services prepare patients for hospital admission, provide advice, and coordinate discharge and support in the community. Wait times are monitored and people can see their GP face-to-face or by phone within 48 hours. Health champions and patient groups support uptake. This PC gatekeeping role has received public support owing to trust in GP expertise and options to get a second opinion or to make direct use of emergency services free of charge. In 2011, 80% of patients saw a specialist within 4 weeks of referral (88). In other HMICs where PC referral is not mandatory, penalties or copayments apply for bypassing PC services (Germany, France, Denmark) (21, 26, 36). In Ontario, specialists are reimbursed at a lower rate if patients have not been referred by a GP (77). Uptake of PC as an entry point in disadvantaged communities is supported by providing information in culturally relevant languages and formats, by involving community-level intermediaries, and by encouraging outreach by integrated health and social care teams (25, 58, 98, 114). We did not find specific evaluations that directly linked PC coordination with choice and wait times. However, in the case-study countries and other HMIC reviews, those countries that required PC referral had shorter wait times to see a specialist than did countries where PC referral was not required (32, 45, 65, 98, 106). While the results are not directly linked to the coordination of referrals, the United Kingdom, with its strong PC gatekeeping role, also had a high OECD ranking on timeliness and coordination of care and reports 87% user satisfaction (17, 42).

ORGANIZING COMPREHENSIVE COORDINATED MODELS OF PC

The content and organization of PC and its social interface described in the previous section have raised demands on managers to mobilize the inputs to support them, with evidence from HMICs on how payment systems and workforce competencies have been oriented to introduce and sustain them.

Ensuring the Competencies for New Approaches

In many HMICs, comprehensive PC approaches are delivered by a mix of clinical, health, and allied professionals in multidisciplinary teams coordinating with public health and other services and operating also in community settings. This was the case in all four case-study countries (23, 46, 67, 80). HMICs have restructured tasks, redistributed work burdens, and brought new skill mixes to PC (24, 39, 67) to deliver more holistic and integrated care and manage multimorbidity. The evidence shows that this is associated with improved access in remote areas, fewer emergency department visits, improved quality, coordinated management of chronic care, and improved inclusion of disadvantaged groups (64, 67).

Various measures have been applied to address the long working hours, low recognition, and lower pay in PC relative to other specialties, as well as PC's complexity and emotional demand (53, 112). In Ontario, for example, increased remuneration in new PC models and investment in practice environments attracted a rising share of young graduates to choose family medicine as their specialization between 2003 and 2011 (67, 103). In England, GP education and training, funded by the NHS, has been well regarded and the average net pay of a GP in 2012 was slightly more than that of a specialist (84, 88) (see also **Table 1**). The majority (90%) of health care contacts in the NHS take place in PC and expert generalist physicians are trained to manage and coordinate care plans, referrals, individual and community care needs, and information for public health and individual care. After 10 years of formal training, qualified GPs continue to learn in groups with support from senior practitioners. This depth of training and expertise has raised the status of the field and led to a generally high level of trust in PC and has enabled a shift in care from hospitals to PC (17, 42, 80).

Organizing the Payment Models to Support Comprehensive Approaches

Reducing the share of fee-for-service (FFS), within mixed-payment systems, toward increased capitation and blended payments has enabled more comprehensive approaches (79, 92). As exemplified in the case-study countries (see **Table 1**), provider payments in HMICs generally include a mix of capitation and FFS. Pay-for-performance (P4P) incentives are used, with provisions for exceptions and regular review, to encourage quality/equity enhancements and to incentivize provision at the PC level selected services that would normally be referred to secondary-level care (in the Netherlands, United Kingdom) or to incentivize the provision of specific services such as for mental health (in New Zealand) (30, 47, 80).

Bundled payments have been used to enable more comprehensive and coordinated care. In the Netherlands, they were introduced in 2007 to encourage comprehensive PC, reduce fragmentation of services for chronic conditions, limit PC referrals to secondary care, and facilitate online consultations and more flexible opening hours. A single fee paid by the insurer to a contracting entity (the care group) covers the care needs of people with specific chronic conditions, such as diabetes, for a fixed period. The care group, composed of multiple health care providers, delivers or subcontracts care from various services (PC, specialists, laboratories). Eligible people are assigned to a care group on the basis of their condition and receive all services free under the basic

benefit. Although the initiative was introduced as a voluntary scheme supported by incentives and IT capabilities, by 2010, 78% of GPs were members of a care group (87, 102). The approach was associated with improved care coordination and quality, a 25% reduction in hospital admissions, and reduced hospital costs (18, 46, 54).

Making changes in payment arrangements demands strategic management. In Ontario, Canada, a voluntary shift from FFS to blended payments reduced the FFS share of physician income from 90% to 40% between 2004/2005 and 2010. Although many physicians supported this change because it enabled them to provide more balanced and coordinated care, the powerful professional lobby also needed to be persuaded of the benefits of capitation for it to succeed. A range of models and payment options thus allowed for voluntary and incremental change, with monitoring of outcomes. These options largely blended FFS with capitation, adding targeted financial incentives and/or bonuses for selected services or additional funds to pay other staff and administrators (67). Models that reduced the FFS share were incentivized through support for enhanced career paths, improved incomes, IT, and practice environments, making PC more attractive for young professionals and narrowing the gap between their income and that of specialists (28, 67, 103). Such new blended payment arrangements in Ontario, Canada, improved patient enrollment and satisfaction, support for multidisciplinary teams, after-hours access, and delivery of health promotion and prevention services (67).

These workforce and purchasing arrangements have been reinforced by measures for quality improvements through professional guidance; through insurer, peer, media, and patient review and financial incentives (23, 46, 80); and by efforts to use new technology to strengthen PC or to widen the health benefit. Hence, PC personnel have, for example, used telemedicine to seek specialist advice, reducing referrals to specialists (46, 90). Various measures have been used to assess and widen health benefit and value-for-money from technology innovation, including technology assessment, price negotiations through central procurement, telemedicine, and provision of incentives, copayments, and support of online literacy for health workers and communities (60, 95). The UK National Institute for Health and Care Excellence (NICE), for example, applies evidence-based appraisal to set audit standards and practice guidelines. While implementation of such appraisal is not without challenges, evaluations found that NICE guidelines have contributed to transparent decision making on technology, driven by evidence on value-for-money rather than cost, involving the public, supporting the standardization and improvement of practice in many areas of care, and contributing to equity in access to new technologies (93, 95, 111).

Supporting Information and Learning from Practice for Innovation

Advancing these PC features, resources, and capacities demands strategic management and social and political support (50). In all four case-study countries, entitlement to health care as a right and social values supporting universal access to care on the basis of need were observed to provide enabling contexts for these approaches, underpinning support for the necessary role of the state or of the social bargain between public and private actors in health care (23, 46, 67, 80). At the same time, measures to strengthen PC have also been subject to wider political and economic change and contestation, including from market reforms and care expectations from higher-income groups or drivers of new technologies (46, 80, 101). Within this changing environment, in the case-study countries, local PC approaches were commonly being used to test “what works” and to demonstrate and generate evidence and support for new models, such as for bundled payments in the Netherlands or purchasing models in Ontario, as reported above. Local practice was also used to sustain comprehensive approaches during less-enabling policy periods, as reported in Chile in 2010–2013 (23). This situation points to PC as a site of innovation, with high demands on information, communication, and learning.

Although the above sections indicate the mix of law, guidance, institutional arrangements, resources, incentives, training, and communication used to support innovation, they all raise a demand for information. Interoperable information systems with automated data capture have played a role in generating such evidence and reporting (23, 46, 72, 80). In the four case-study countries, each government supported, provided incentives for, or was involved in the rollout of interoperable IT systems. Continuity of information has enabled patients in HMICs to be recognized across the range of providers they use (in the United Kingdom, the Netherlands, Spain, and Australia) (46, 72, 80).

Social media and the Internet have also enabled outreach to individuals, families, and communities to encourage uptake through online consultations, appointment booking, and other service interactions and to promote health literacy and public information on services (46, 86). Web platforms have enabled dialogue between PC providers and specialists (90) and have provided a platform for peer-to-peer learning across PC practitioners, building communities of PC practice and connecting them to wider support from networks, authorities (in the United Kingdom and the Netherlands), and professional associations (9, 46, 90, 98, 107).

In Chile, family health centers, municipalities, and universities formed teams to build and exchange knowledge on PC and to share good practice (23, 78, 110; <http://buenaspracticaps.cl>). The teams use an open-access technology platform (Colaboración Pública Salud) for this exchange. It provides a digital space for PC actors to share experiences and knowledge about a challenge, to identify solutions, and to review their implementation. This platform is backed by wider-reaching online forums on common shared issues to build a community of practice, with a library of tools, to facilitate learning from local-level practice that links academic knowledge to practitioner knowledge and experience and that informs policy change and implementation on PC in Chile (23). Innovation Marathons (*Innovatones*) have been held nationally since late 2013, which bring several forums together (23, 110; <http://buenaspracticaps.cl>).

CONCLUSIONS

Many of the PC features described in this article are driven by a shift in focus away from a frontline system that is mainly reactive to individual disease events toward one that is proactive, empowered, and competent in promoting health for all population groups. They reflect measures to know catchment populations and support their early uptake of services; to deliver both comprehensive population health and personal care; to coordinate with related and referral services; to build supporting competencies, teams, and payment and information systems; and to promote the use of new technologies for personal and population health. They represent practice in HMICs to strengthen people-centered, accessible, comprehensive, coordinated, and population health-oriented approaches. Despite limited documented system-level evaluation of these individual measures and acknowledged difficulties in directly attributing outcomes to specific measures, evidence of positive performance and health outcomes is favorable across HMICs. Even still, there is also a clear need for more system-wide evaluation, for implementation research, and for evidence sharing.

Although we have focused on PC practice outside the United States, the HMIC practices described here have relevance to reforms within the United States, despite the context and system differences highlighted in **Table 1**. Some measures raised could inform the CHC, community-centered health home, and the Accountable Health Community approaches being applied in the United States (11, 62, 83, 108). Others are already under way in selected US states, such as inter-professional and team practices or cooperation across PC practices to support around-the-clock access (16, 22). The strong views in the United States regarding provider choice, measures for

enrollment, PC coordination of referral services, and bundled payments may necessitate more voluntary approaches, accompanied by incentives to encourage practice and monitoring of outcomes to demonstrate returns.

For HMICs in general, the PC features and patient- and population-centered models described in this article demonstrate diverse ways that countries are building on what has worked in the past, to innovate at the system level, to address emergent health challenges, and to tap into new opportunities. Beyond the specific measures indicated, the strategies outlined here locate PC as a key site of innovation within the health system. HMICs have managed such innovation by addressing concerns of those directly involved in PC, such as in the reforms made to the payment system in Ontario, and by building public trust, such as with GP coordination of referral in the United Kingdom. The experience reported in HMICs suggests the importance of learning from practice, and the measures used for this, and of strengthening the voice, agency, and networking of the diverse practitioners and catchment communities directly involved in PC, as described in Chile. Such communities of practice, linked within and across countries, provide a means to build capacities and support innovation. They also provide a means for bottom-up learning so that the response to emergent challenges draws also from the experiences of communities, workers, and managers who are on the front lines of health systems.

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