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Achieving higher performing primary care through patient registration: A review of twelve high-income countries[☆]

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ABSTRACT

Background: Patient registration with a primary care providers supports continuity in the patient-provider relationship. This paper develops a framework for analysing the characteristics of patient registration across countries; applies this framework to a selection of countries; and identifies challenges and ongoing reform efforts.

Methods: 12 jurisdictions (Denmark, France, Germany, Ireland, Israel, Italy, Netherlands, Norway, Ontario [Canada], Sweden, Switzerland, United Kingdom) were selected for analysis. Information was collected by national researchers who reviewed relevant literature and policy documents to report on the establishment and evolution of patient registration, the requirements and benefits for patients, providers and payers, and its connection to primary care reforms.

Results: Patient registration emerged as part of major macro-level health reforms linked to the introduction of universal health coverage. Recent reforms introduced registration with the aim of improving quality through better coordination and efficiency through reductions in unnecessary referrals. Patient registration is mandatory only in three countries. Several countries achieve high levels of registration by using strong incentives for patients and physicians (capitation payments).

Conclusion: Patient registration means different things in different countries and policy-makers and researchers need to take into consideration: the history and characteristics of the registration system; the use of incentives for patients and providers; and the potential for more explicit use of patient-provider agreements as a policy to achieve more timely, appropriate, continuous and integrated care.

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1. Introduction

The contribution of primary care to high performing health systems has long been recognized [1]. As a consequence, most high-

income countries have expended considerable time, effort and resources on reforming primary care in order to improve the quality of care, the continuity and coordination of care across health sectors, enhance access, address chronic care needs, and encourage more appropriate and less costly care through multi-professional teams when appropriate [2,3]. In particular, considerable emphasis is placed on the role of the primary care provider as the central coordinator of services across the health care continuum [4]. How-

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ever, this requires a stable long-term relationship between patients and their primary care providers.

Patient registration with a primary care provider (in the form of a clinic, group practice or individual general practitioner), variously known as enrollment, empanelment and rostering, has often been linked to larger health system reforms, particularly those with a focus on improving the continuity of care for all patients [5]. Patient registration is a policy instrument that can enable better continuity of care through primary care providers who provide and oversee care consistent with the clinically determined needs of patients and their individual preferences, values and context. Primary care providers are best placed to accumulate such knowledge about their registered patients over time, manage the changing health needs of enrolled patients in a timely and responsive way, and manage relationships with more specialized providers on behalf of their patients to better ensure coherence of care. These are the informational, managerial and relational dimensions of continuity. In exchange for the provider's promised services, the patient offers loyalty to the provider [6].

This conceptualization of the importance of continuity through primary care has been tested empirically, and most results indicate a strong and positive association between continuity of patient care through primary care providers and better patient outcomes as well as higher patient satisfaction [7,8]. Although it is often mentioned as one of the policy instruments available to governments and payers to encourage better continuity of care, the contribution of patient registration to primary care reform has not been the focus of academic research. To provide a starting point for future, more detailed research, this article examines the extent, timing and nature of patient registration as part of broader health system reforms in 12 countries in order to: (1) develop a comparative framework for analysing the characteristics of patient registration across countries; (2) apply this framework to a selection of high-income countries where patient registration has been introduced by governments or payers as part of larger health system reforms; and (3) identify challenges related to patient registration and ongoing reform efforts across countries.

1.1. Accountability and the triangular payer-provider-patient relationship

Patient registration creates an accountability relationship that many reform advocates claim is necessary to achieve a higher level of health system continuity and coordination. The concept of accountability in all policy arenas, including health care, involves three distinct but interrelated components [9]: the identification of responsibility in terms of who is being held accountable to whom and for what services; the provision of specified information from one party to the other party; and the existence of a sanction, defined as a penalty or reward to enforce or encourage compliance.

In principle, accountability can be established through different approaches: it can be expressed in very general terms through a law, policy statement or regulatory framework; or it can be determined in explicit agreements between funders and providers, or between patients and providers, as elucidated below. Fig. 1 illustrates the triangular relationship between patients, providers and payers and the stewardship role played by the government as regulator of patient registration.

It must always be kept in mind that in most national health service (NHS) and national health insurance (NHI) countries, the government is both payer and regulator of statutory (public) health services. In contrast, in social health insurance (SHI) or *étatist* (i.e. more state-directed) social health insurance (ESHI) countries, the payer is generally a sickness fund [10]. Nevertheless, governments act as health system stewards and regulators in both NHS/NHI and SHI/ESHI countries, and as such are generally instrumental in re-

quiring greater accountability as part of larger health system reforms [11,12]. As a consequence, governments in all health system types play a major role in setting the ground rules for the accountability relationships among payers, patients and providers.

Fig. 1 sets out the relationships between patients, providers and payers in the context of patient registration. Of course, governments in their role as regulators and, in NHS and NHI countries as payers, can shape the terms of the relationship between patients and providers (and sickness funds as payers in the case of SHI and ESHI systems). In many countries, payers play a key role in holding providers accountable by setting quality standards, defining prices, and specifying the rules of service provision through contracts [13]. However, the focus of this paper is on the relationship between the provider and patient that is triggered through patient registration, which itself depends on the form registration takes in different health systems.

1.2. Types of patient registration: conceptual framework

As the cube in Fig. 2 illustrates, there are a number of features that determine the exact form that patient registration will take in any health system. The first is whether registration is mandatory or voluntary for patients. A different version of this approach is where certain payers or providers within a given jurisdiction require that patients register in order to receive the services they fund or provide, an approach common in SHI or ESHI health systems where sickness fund payers have considerable latitude. In contrast, patient registration can be entirely voluntary for patients in a system, allowing them to decide whether to be enrolled or not.

The second set of features shown in Fig. 2 is whether registered or non-registered patients can choose where (clinic or group practice) or by whom (an individual GP either in solo practice or working in a clinic or group practice) they receive their primary care. The no-choice column is one in which the patient is assigned a primary care provider by the government or payer generally based on geographic location. The choice column represents a scenario where patients can freely choose their providers. The mere fact of patient choice of provider can empower patients, increase trust, and facilitate an ongoing, long-term relationship between the patient and provider [14].

Then there is the question of whether financial incentives accompany patient registration. If money follows the patient, as it does in most formulas for remuneration based on capitation, then there is also greater accountability between the payer and the provider as well as between patient and provider, with a gain in remuneration upon new patient registration and a corresponding loss of money associated with patient exit. There may be incentives for patient registration beyond capitation such as bonuses or pay-for-performance incentives for primary care professionals to provide more extensive services for patients with complex conditions, and for those patients to register in order to receive such services.

Although not captured in Fig. 2, it is important to note that the expectations for providers can vary from minimal to more significant in terms of timely access and quality of care. The source of the expectations also varies from the policy statements of governments or the requirements placed by payers on providers as part of their own contracts with providers. Expectations can also be set out (or repeated) in patient-provider registration contracts signed by both parties. The logic is that the more explicit the expectations placed on providers and patients along with the sanctions in the case of non-performance, the stronger the potential accountability between providers and patients.

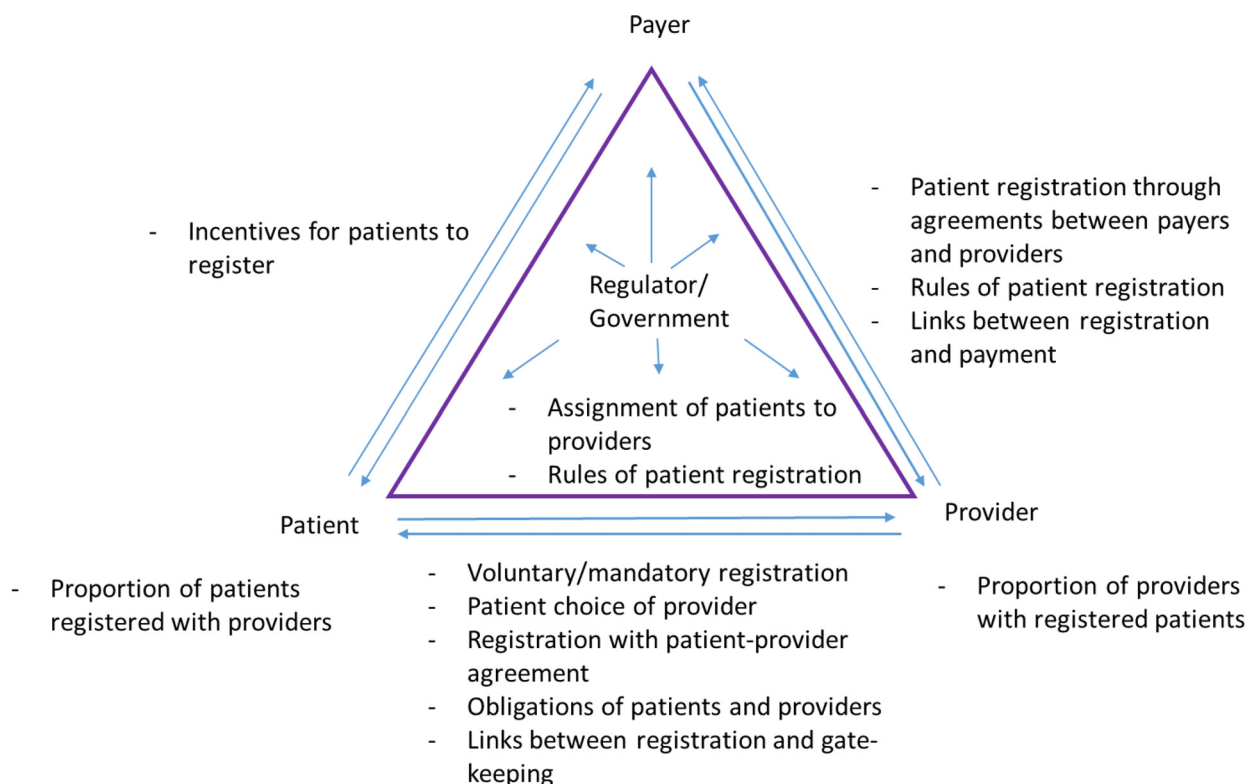


Fig. 1. Triangular relationships and accountabilities in patient registration.

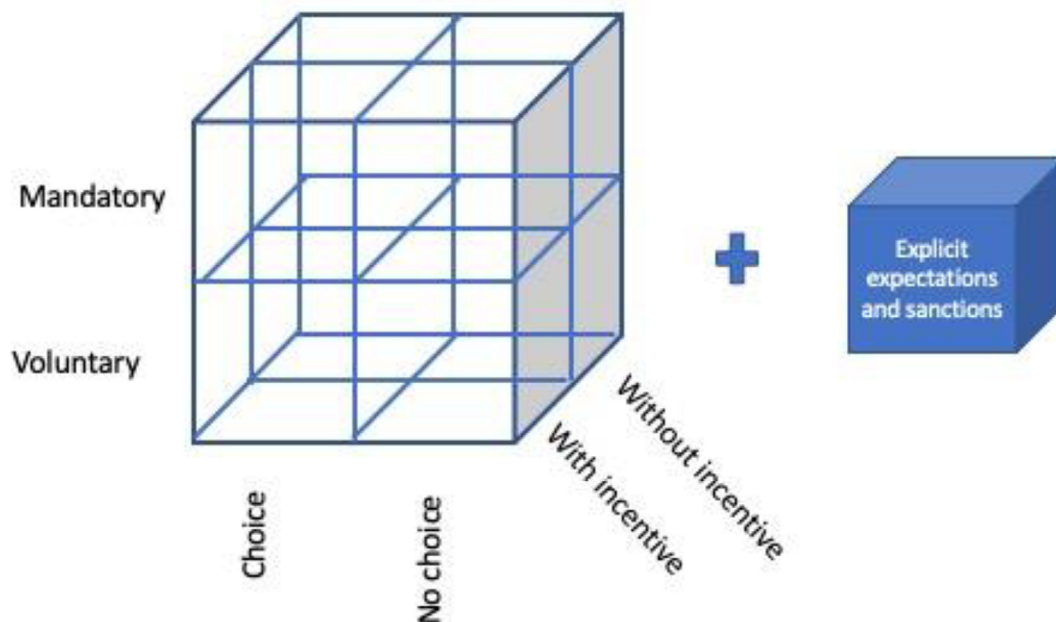


Fig. 2. Features of patient registration.

1.3. Health system classification and primary care features of the 12 case study countries

This study included 12 jurisdictions (Denmark, France, Germany, Ireland, Israel, Italy, Netherlands, Norway, Ontario [Canada], Sweden, Switzerland, United Kingdom), all of which have some form of patient registration (see Methods section below for the selection rationale). These countries cover a broad range of health system types (SHI/ESHI and NHS/NHI) with varying de-

grees of health system centralization and decentralization. Due to the highly decentralized nature of Canada's health system, the province of Ontario was selected for this study [15].

The health system and primary care features for each of the 12 countries are provided so that the results on patient registration can be better contextualized. Based on a recent classification of health systems [10], there are four health system types associated with the 12 countries surveyed here. As illustrated in Table 1,

Table 1
Primary care features in 12 countries with patient registration, most recent OECD data.

Jurisdictions	Health system type ¹	Main type of GP-led primary care ²	Current health spending (per capita, USD PPP) ³	Public or compulsory expenditure (% THE) ³	Number of GPs per 1000 ³	Ratio of primary care physicians to all physicians ³
Netherlands	ESHI	Private group	5765	82.7	0.73	23.9
United Kingdom	NHS	Private group+	4653	77.8	0.75	26.0
Israel	ESHI	Public clinics	2932	64.7	0.29	8.1
Sweden	NHS	Public clinics+	5782	85.2	0.64	14.9
Ireland	NHI	Private group+	5276	74.3	0.84	24.8
Denmark	NHS	Private group	5568	83.8	0.60	22.4
Italy	NHI	Private group+	3649	74.1	0.71	17.7
Switzerland	SHI	Private group	7732	64.5	0.71	18.7
Norway	NHS	Private group	6647	85.4	0.79	16.1
Canada (all)	NHI	Private group	5418	70.4	1.33	47.6
France	ESHI	Private group	5376	83.7	0.89	28.0
Germany	SHI	Solo	6646	85.0	0.71	16.5

Notes: Countries are sorted by year of introduction of primary care registration (see Table 2). + refers to private group or clinic practices involving health disciplines beyond GPs. It should be noted that there is a significant discrepancy between the OECD figures and Israel's Ministry of Health figures for the number of GPs per 1000 (0.6) and the ratio of primary care physicians to all physicians (13.1).

Sources: ¹ Based on Böhm et al. [10], OECD [16] and OECD [17]. ² the typology of primary care practices originally used in the OECD 2016 [16] survey except for more accurate country data used for Denmark and the Netherlands [20] and Switzerland [21] where the majority of practices have shifted very recently from solo to private group practices; and ³ OECD [20,17] for data on expenditures and GP supply.

the 12-country sample of selected jurisdictions included seven NHS and NHI systems and five SHI and ESHI systems.

While the solo general practitioner (GP) practice used to be the dominant approach to primary care in the SHI/ESHI countries of France, Germany, Switzerland and the Netherlands, today, only in Germany is primary care still dominated by solo GP practices. Similarly, NHI systems (Canada, Italy) have tended to have a history of solo GP practices, in part the legacy of independent private GP contracting, but in recent years have witnessed the emergence of group practices including multi-professional primary care practices. Physician-led group practices and primary care clinics have long been associated with NHS systems with the exception of Denmark which, until recent decades, was dominated by the traditional solo GP practice. Table 1 can only classify the predominant type of primary care practice in these systems, so may be potentially misleading in some countries where alternative forms of primary care are important. In Sweden, for example, while public clinics serve roughly 62% of the population, private group practices now serve the other 38%, while in France, 60% of GPs work in group practices still predominantly staffed by physicians but the number of multi-disciplinary group practices is growing rapidly [18,19].

Although all the countries included in this paper are high-income health systems, the variance in the amount they spend on health care, and the percentage of this devoted to public or compulsory expenditure, does not seem to be associated with the type of primary care practice or the way in which patient registration is used as a tool in health reform. Of much greater salience is the number of GPs per capita as this likely puts a limit on the ability of GP-led primary care to coordinate secondary, tertiary and other health services on behalf of their patients. In health systems where there are fewer GPs per population combined with a low ratio of GPs to all physicians, patient registration will be limited as a tool in achieving better integration and coordination.

2. Methods

2.1. Materials and data collection

This study was initiated through the Health Systems and Policy Monitor (HSPM) network. Following a research proposal pitch on patient registration by the lead author at the 2019 annual HSPM meeting, a rapid review of Health System in Transition (HiT) reviews, Commonwealth Fund Country Profiles and the broader

English-language literature on the subject of patient registration was conducted by the first and last authors. The purpose of this review was to identify relevant countries and to develop a conceptual framework. Information on the characteristics of patient registration (including policies, regulations, and payment systems) is often fragmented in the available literature and reforms are rarely described. Therefore, a standardized questionnaire (see Appendix A) was developed to obtain comprehensive and detailed information on the past, current and (likely) future status of patient registration from national experts (co-authors of this paper).

In February 2020, the framework and questionnaire were sent to the country experts in the HSPM network who were familiar with patient registration in their own countries and agreed to participate in the study. After making a final selection of countries to ensure representation from a broad range of NHS/NHI and SHI/ESHI health system types with a history of patient registration, these researchers then completed the questionnaire based on a review of relevant policy documents as well as of the academic and grey literature on patient registration within their own countries and languages. This process was iterative in that after the first round of questionnaire answers, there were bilateral exchanges between the first and last authors and the individual country authors on specific questions of interpretation and research gaps. Some of the feedback prompted discussions among multiple authors and revision of findings based on a deeper understanding of patient registration in multiple environments. These iterations led to further discussions on key emerging themes which were then incorporated in a draft manuscript which prompted further rounds of discussion and refinement in subsequent drafts.

3. Results

3.1. Original introduction of patient registration and health system reform objectives

Table 2 summarizes the historical timeline and the health reform context for the introduction of patient registration in the 12 countries. In seven countries, the introduction of patient registration was attached to a major macro-level health system reform that laid or overhauled the foundations of universal health coverage (UHC). In other countries, patient registration was introduced as part of meso- or micro-level reforms, which aimed at improving health system integration and coordination of care. In every case,

Table 2
Historical introduction of patient registration: category, objectives and features.

Jurisdiction	Year	Size, Type and objectives of Reform involving patient registration	Associated with gatekeeping or payment reform
Netherlands	1941	Macro – introduction of SHI covering about 65% of population with patient registration limited to SHI enrollees. Since 2006, all citizens are registered at a GP practice (with only very few exceptions)	Yes
United Kingdom	1948	Macro – introduction of NHS, with patient registration introduced to enable capitation payment to GPs with objective that GPs became responsible for care and referrals of patients on their respective rosters	Yes
Israel	1949	Meso – introduction of gatekeeping with patient registration for one of four health plans with objective of improving both coordination of care and efficiency	Yes
Sweden	1968–72	Macro – A set of primary care reforms that included a transition from SHI to NHS and introduced primary care centers with responsibility for patients in their geographical catchment areas.	Yes
Ireland	1972	Macro – Medical Card scheme (welfare-based coverage). Objective of patient registration was to provide coverage for poorest 30% of population and have GPs act as gatekeepers for this population	Yes
Denmark	1973	Macro – moving from SHI to NHS-style system. Objective of patient registration was to harmonize services into system, facilitate change of payment to GPs, and ensure equitable access through GPs as gatekeepers.	Yes
Italy	1978	Macro – moving from SHI to NHS-style system. To ensure access, all patients were assigned to a primary care provider but patients had the right to switch to a different provider if the trust relationship between provider and patient is broken.	Yes
Switzerland	1990–96	Meso –introduced by sickness funds. Patient registration was tied to the establishment of integrated care organizations to improve coordination and efficiency.	Yes
Norway	2001	Meso – based on earlier positive trials, a contractual system based on enrollment and capitation payment, was implemented to try and improve patient access and physician supply.	Yes
Ontario (Canada)	2001	Meso – primary care reform with patient registration in order to increase provider accountability to patients, extend access beyond regular office hours, and provide a basis for remuneration based on capitation or salary.	Yes
France	2004	Micro – France introduced patient registration as part of a reform to improve coordination and accountability as well as the efficacy of GP gatekeeping	Yes
Germany	2004–07	Meso – 2004 SHI Modernization Act and subsequent 2007 Act to Strengthen Competition made it mandatory for all sickness funds to offer option of a family physician care model with patient registration to their enrollees	Yes

patient registration was associated with the introduction or reinforcement of GP gatekeeping.

In other words, there were two distinct phases. The macro-level reforms occurred earlier with the introduction of UHC or coverage programs aimed at a sizeable percentage of the population. In the second phase, starting in the early 1990s, countries which had had no previous history of patient registration despite having implemented UHC, tied patient registration to more meso-level reforms (primary care reform) or micro-level reforms (cost containment) with goals that were associated with improving health system integration, coordination and efficiency through more effective primary care services.

3.1.1. First phase of patient registration, 1941–1978

When SHI was first introduced in the Netherlands during the Nazi occupation in 1941, the sickness fund (payer) agreements with GPs set out the obligations owed by primary care providers to their registered patients [22]. However, compulsory patient registration with a GP (who also acted as a gatekeeper for specialist referrals) was limited to those enrolled in the sickness funds (about 65% of the population at the time), and patients were free to register with their preferred GP within each sickness fund [23].

In the UK, patient registration to a GP practice was integral to the compromise reached with physicians that allowed the implementation of the NHS. GPs were to remain independent but fee-for-service was replaced with capitation payments in return for GPs taking responsibility for the care of an established roster of enrolled patients. This system of patient enrollment and choice of primary care provider remains in place. Although the primary care enrollment forms do not place explicit responsibilities on either patients or providers [24,25], there are a few primary care practices that have introduced more explicit agreements with their patients.

Since the foundation of the state of Israel in 1948, universal health coverage has always been guaranteed to all Israeli citizens. They are free to choose among four private non-profit sickness funds known as health plans. Patient registration was (and con-

tinues to be) limited to the Clalit Health Plan (HP), the largest of the four sickness funds. All members of the Clalit HP were automatically registered to the clinic in their district. Clalit HP's objective was to introduce GP gatekeeping to increase the importance of the first and main contact of the patient with the health system to ensure a better continuum of care and to prevent the overuse of secondary and tertiary medical services [26].

Patient registration also accompanied macro reforms involving a transition from SHI systems to NHS-style systems in the 1970s in Sweden, Denmark and Italy. In Sweden and Denmark, patients were registered in order to ensure that all citizens had a primary care provider, with a GP determining what types of specialist or hospital services would be needed by a particular registered patient [27,28]. In the case of Denmark, registration was officially voluntary but almost all Danes registered to avoid the co-payments that non-registrants were required to pay – an arrangement that remains in place. In Italy, although patients were automatically registered with a primary care provider as part of the new NHI system introduced in 1978, Italians had the right to switch to a different provider if they preferred [29].

Alone among countries surveyed here, Ireland never introduced free primary care for the entire population: instead, a limited program of targeted free care known as the Medical Card scheme for the poor and the aged was introduced in 1972. The program requires all Medical Card patients to enroll with a GP practice to enable capitation payment for GP services [30].

3.1.2. Second phase of patient registration, 1990s–present

In Switzerland, Norway, Canada (Ontario), France and Germany, the five jurisdictions that have only implemented patient registration since the early 1990s, this introduction was not associated with whole system change but rather more incremental meso-level and micro-level reforms aiming at better integration, coordination and cost control. However, these more recent reforms shared one common objective: they were aimed at making primary care more central to the coordination of patient care across the continuum of health services.

The introduction of patient registration in the 1990s in Switzerland was conceived and launched by SHI funds rather than by the state. The Swiss sickness funds focused on achieving better cost efficiency through the introduction of health management organizations (HMOs). By the mid-1990s, 25 HMOs had been established. In 1996, the Swiss federal government supported the change with a new law on health insurance that permitted capitation fees, one of the key aspects of HMO finance and management. In the context of these HMOs, SHI payers have agreements with providers, and providers have rostering agreements with patients individually determined by the HMO funders [31]. Given the plurality of the Swiss SHI system, there is no standard form patient-provider contract. Despite the fact that only 25% of Swiss patients have agreements with their providers, this reform appears to have had a positive impact on health system integration through GPs acting as both patient navigators and gatekeepers [32].

In 2001, the Norwegian government introduced patient registration as part of a primary care and patient rights reform initiative after some pilot testing (since 1992) of the concept in a trial rostering system with blended capitation in four Norwegian municipalities [33,34]. Although provider-patient expectations are set through policy and law by the central government, this approach was reinforced by patient-provider rostering agreements [35]. The explicit goal of the Norwegian reform was to improve health system access and coordination as well as promote greater accountability between GPs and their patients.

In Canada, most health system reforms are initiated at the sub-national level of government. Patient registration with primary care providers has been part of select reforms in a minority of jurisdictions, the most notable of which were the primary care reforms in Ontario between 2001 and 2007. As part of these reforms, providers in the new primary care practices were (and continue to be) required to roster patients based on a standard form agreement provided by the Ontario Ministry of Health and Long-Term Care [36]. The objective of the reforms and accompanying patient registration was to increase provider accountability to patients, extend access beyond regular office hours, and provide a basis for capitation-based remuneration based on the size and complexity of a patient roster [3].

In 2006, through a law developed in 2004, France introduced patient registration as part of a reform to improve coordination, accountability and the efficacy of GP gatekeeping [37]. Although registration is voluntary, financial incentives encourage patients to register with a preferred gatekeeper physician as registered patients have lower user charges. It is estimated that more than 90% of patients in France signed agreements with such a physician (who is most often a general practitioner). While this reform was not connected to changes in primary care delivery, it has had a small but increasing impact on GP remuneration through the progressive introduction of pay-for-performance (P4P) incentives as well as income based on the number of registered patients [38].

In Germany, patient registration was introduced through the 2004 SHI Modernization Act and associated models of integrated care. This Act and the subsequent 2007 Act to Strengthen Competition in SHI made it mandatory for all sickness funds to offer the option of a family physician care model with patient registration to their enrollees, although participation remained voluntary for both providers and patients. The purpose was to improve coordination of services across the continuum of care in order to increase both efficiency and quality. This is underpinned by individual patient-provider agreements, which define the responsibilities and rights of both patients and providers [39,40].

3.2. Current state of patient registration

Table 3 summarizes the current status of patient registration in the 12 countries studied. All jurisdictions have either enrollment forms or patient-provider agreements with explicit expectations placed on either patients or providers. In eight of these cases, the enrollment forms are prepared by governments while in four countries – all SHI/ESHI jurisdictions – the agreements are prepared by the payers. While patient registration agreements in those NHS/NHI jurisdictions examined here do not enumerate explicit expectations for providers or patients, and therefore do not create direct accountabilities between patients and providers, the laws, regulations and policies of the sponsoring governments, as the stewards of these respective health systems, often do set out rights and responsibilities.

In the case of Norway, for example, patients electronically register with their GPs (through a central system) who are, in turn, obliged by central government laws and regulations to provide off-hours care and help their patients navigate the rest of the health system [41]. Denmark also operates a digital system for registering and re-registering with GPs, while the terms and conditions for the GP are negotiated in general agreements between the association of GPs and the Danish regions. The GPs must also publish declarations with details about services, education and experience of staff and patient satisfaction scores to facilitate choice. In Ontario, while both patients and providers sign an enrollment agreement, this form does not set out the responsibilities of the provider. Instead, these responsibilities are set out through provincial government policy requirements and the provincial government's master agreement with physicians [36]. In contrast, the patient-provider agreements in SHI/ESHI countries have greater depth and detail than the enrollment forms in NHS/NHI countries in terms of what patients should expect from their physicians or GP practices, and what GPs can expect from patients in terms of relying on a particular GP practice for their first point of contact with the health care system [31].

Related to the different incentives and target groups, the proportion of the population covered by patient registration ranges from less than 10% in Germany and roughly 25% in Switzerland and 32% in Ireland, to 90% in France and more than 95% in Denmark, the Netherlands, Norway, and Sweden, and even 100% in the UK and Italy. Similarly, the proportion of primary care providers with patient registration agreements varies across countries: in Denmark, Italy, the Netherlands, Norway, and the UK all primary care providers provide care to registered patients. By contrast, only 31% of primary care providers in Germany, and 50–75% of providers in Switzerland and Ontario register their patients.

3.2.1. Why do patients register?

Patient registration is voluntary in all countries except Italy, Ireland (for Medical Card holders), and Israel (for members of the Clalit HP). However, there are strong incentives for patients to register. In the UK and Ireland, non-registered patients are unable to access primary care. In the Netherlands, registered patients get automatic access to their providers while non-registered patients may be refused appointments by GPs; in addition, non-registered patients face difficulties in accessing secondary care as a referral from a GP is required [42]. In Denmark, France, Norway, and Sweden, patients pay lower user charges if they register with a primary care provider. In Switzerland, patients pay lower insurance premiums for HMO contracts than for “standard” insurance contracts; and in Germany, some sickness funds offer bonuses (e.g. a small cash-back).

Table 3
Current state of patient registration.

Jurisdiction	Patient registration is:		Limits on when patients can change provider		Capitation as incentive (% income)	Type of patient registration	
	Mandatory	Voluntary	No	Yes		Enrollment	Agreement
Netherlands		X	X		42	X	
UK (England)		X	X		90	X	
Israel (Clalit HP)	X			X	6		X
Sweden		X	X		NA*	X	
Ireland	X		X		53		X
Denmark		X	X		30	X	
Italy	X		X		70	X	
Switzerland		X		X	~10-15		X
Norway		X		X	35	X	
Ontario (CA)		X	X		NA*	X	
France		X	X		6		X
Germany		X		X	NA		X

Notes: * The exact percent contribution of capitation to total GP income is unavailable for Sweden and Ontario. In Sweden, a capitation payment along with fees based on services is paid to public and private health centres rather than GPs who are then paid a salary by their respective centres. In Ontario, capitation payments to primary care practices is generous compared to traditional FFS practice.

3.2.2. Do patients have choice of provider?

In several countries, choice of primary care provider has increased over time, and all countries now allow patients to choose their preferred provider (clinic, group practice or individual GP) although choice may be restricted by shortage of primary care providers in some areas or limited to providers within a particular sickness fund network. In Sweden, since the 1990s, patients in some regions have been allowed to register also with private providers; and since 2010 it became mandatory for all regions to allow patients to register with any primary care provider, public clinic or private, within the geographic boundaries of the region [18,43]. This was further extended in 2015 with the introduction of a Patient Act that stipulated that patients should be able to choose providers freely within the whole country. Similarly, in the UK (England), while patient choice had earlier been restricted to GPs in their immediate areas, GPs are now allowed to accept patients from any area of the country: in practice, providers tend not to accept patient who reside far away [24].

In all 12 jurisdictions, patients now have free choice of provider. As shown in Table 3, the only constraints placed on the patient's choice of provider concerns the right of providers to refuse to register patients under certain conditions and the rules of exit from the primary care clinic/group practice or GP they originally chose. There are no limits of when registered patients can leave their primary care provider in eight countries. However, four countries do have rules of exit. In Germany, patients are restricted to changing providers once a year while in Israel, patients can switch providers within the Clalit H P once every three months. In Norway, patients are limited to two changes within any single year. None of these restrictions seem, on their face, overly restrictive, and may actually serve to improve patient-provider accountability. Potentially far more restrictive is the fact that GPs in all the countries examined also act as gatekeepers to more specialized medical care. If the provider disagrees with the patient on a referral, the patient can always change primary care provider keeping in mind the rules on switching mentioned above. In Norway, patients have the explicit right to a second opinion, in a scenario where they have a major concern about the decision or judgment of their primary care gatekeeper [44].

3.2.3. Why do providers register patients?

In most countries, the main incentive for primary care providers to register patients is that they receive capitation payments based on the number of patients. As shown in Table 3, the proportion of provider income determined by capitation payments varies con-

siderably across countries, from only 6% in France to about 90% in the UK and almost 100% in some Swedish regions. Other payment components include fee-for-service (FFS) payments, ranging from 20 to 50%, pay for performance (P4P) related adjustments, and other payment components, none of which necessarily incentivize a primary care practice or clinic having a patient roster.

4. Discussion

To the best of our knowledge, this is the first cross-country comparative analysis of patient registration. Our results show that patient registration initially emerged as part of major macro-level health system reforms linked to the introduction of universal health coverage in several countries. Subsequently, patient registration has been introduced as part of meso-level or micro-level reforms that aimed to achieve both improved quality through better coordination of care and improved efficiency through reductions in unnecessary referrals to specialist care. Often, these reforms were also associated with payment reforms introducing capitation payment for registered patients.

Another finding of our paper is that patient registration varies considerably with regard to some of its key dimensions (as illustrated in Fig. 2) across countries. For example, while patient registration is mandatory only in three countries, several other countries achieve high levels of patient registration by using strong incentives, i.e. registration is a prerequisite for free access to care or for reduced user charges. Physicians are usually encouraged to register patients by making their income – at least partially – dependent on capitation payments. The role of explicit patient-provider agreements to increase direct accountability of providers to patients seems to be limited given the sparse specification of expectations, responsibilities, and rights in existing agreements in SHI/ESHI health systems and their absence in the enrollment forms and agreements in NHS/NHI health systems.¹

To date, there has been no systematic evaluation of the outcomes of patient registration and we hope this article provides a starting point for such a comparative study. Our cross-country review revealed three country-based studies on outcomes but patient registration was only one part of the reform. For example, a Swiss study on the extent to which the objective of integrated care has been achieved through managed care arrangements, does

¹ However, it should be noted that in England, a small minority of group practices nonetheless require their patients to sign rostering agreements.

not assess patient registration in isolation of the other instruments used in managed care including associated payer-provider agreements [31].

The Research Council of Norway's preliminary study of the 2001 reform did find that more patients ended up registering than originally expected, and that only 5.5% of the contracts were terminated in the first year, perhaps indicating satisfaction with the primary care providers they had selected, or were assigned to in the cases of individuals opting not to indicate a preferred choice of provider [34]. A recent evaluation of the Norwegian RGP-scheme in 2019 concluded that the RGP-Scheme is suitable for the purpose to ensure access and continuity for the patients, but it needs to be updated to reflect the increasing workload of GPs, due to changing patterns of how and where healthcare is delivered and financed [44].

In Germany, several studies have assessed the impact of the patient registration/gatekeeping model compared with usual care in several regions [45,46,47,48,49]. Most of these studies show positive results, partially indicating better health outcomes [46,49] and/or lower costs [45,48]. One study found no effect on total direct costs of care as cost reductions (drug prescriptions and home care prescriptions) were overcompensated by cost increases in other areas (GP and specialist consultations, and hospitalisations) [47]. One study on France found that visits to specialists fell after the patient registration-gatekeeping reform was enacted, a major cost saving given the extent to which specialist visits had been growing before the reform [50]. Thus, there is some evidence that these reforms, tied as they are to patient registration and gatekeeping, are positive in terms of patient continuity of care, quality and outcomes but not necessarily cost efficiency. At the same time, there is evidence – mostly based on studies from the United States that gatekeeping is associated with lower utilization of health services and lower expenditures [51].

Independent of this relatively weak evidence base on the benefits of patient registration, it is clear that patient registration is deeply engrained in the fabric of many health systems, in particular in those countries where its introduction accompanied universal health coverage reforms. As a result, patient registration has rarely been challenged by stakeholders in most countries except Switzerland, where it was introduced relatively recently and where free access to any physician, including specialists, without interference by the government, is an important cultural value. However, even in Switzerland, criticism was mostly focused on the gatekeeping aspects that accompanied the introduction of patient registration. In other countries, patient registration is supported, or at the very minimum tolerated, because of the value placed by patients on the long-term relationship with a GP and the benefits they receive in terms of continuity of care. More generally, there could be some conflict between what patients view as a positive development (a closer trust relationship with their primary care providers and less difficulties in accessing other health services) and the negative features in terms of time and convenience when prevented or discouraged from contacting specialists directly [52].

Our results have important implications for researchers and policy makers. First, policy-makers and researchers need to take into account the country specific characteristics of patient registration systems and the historical context of introduction when analysing patient registration or aiming to draw lessons from other countries' experiences. This is because patient registration is a core feature of many high-income health systems and it is difficult to separate from other health system characteristics, such as gatekeeping and the country-specific combination of capitation and FFS payment for GP practices [38]. Moreover, at least in these 12 cases, patient registration was never introduced in isolation of other reforms.

Second, policy-makers aiming to expand patient registration should consider providing stronger incentives to patients and providers in order to encourage registration. Countries achieving high levels of patient registration have made registration a precondition for reduced user charges for primary care or free access to secondary care, while paying providers – at least partially – based on capitation payments.

A third, and admittedly more speculative policy implication is that the effect of patient registration on accountability could probably be greater if the theoretical potential of patient-provider agreements was more fully exploited. In theory, patient registration can strengthen the accountability of providers to payers by assigning responsibility to providers for a defined patient population, and the accountability of providers to patients by establishing a long-term relationship, in particular if this is explicitly set out in a written agreement. However, the signing of an enrollment form with a particular primary care provider currently adds little in terms of Tuohy's [9] three components of accountability as current agreements do not set out the type, quality and timeliness of services that patients should expect from providers, nor do they specify the information that patients can expect to receive from the provider on a regular basis much less the sanctions or consequences in the case of non-performance. While such requirements can be established by governments through law and policy and by payers in SHI/ESHI countries through payer-provider agreements, creating a direct accountability relationship between patients and providers would reinforce and extend this accountability. In other words, patient-provider agreements could be used to enhance accountability between patients and providers to ensure that primary care practices are the key instrument for providing more integrated, timely, continuous and coordinated care in a health system.

Finally, there is relatively limited evidence available on the effects of patient registration and more high quality research is needed to study its effects. In particular, given the lack of evidence on the isolated effect of patient registration, future (quasi-)experimental research should attempt to study the effect of patient registration without gatekeeping. It is at least conceivable that positive effects of patient registration, i.e. greater continuity and better coordination of care, could be achieved without requiring patients to always seek care first from the primary care provider, where they are registered. As gatekeeping is associated with lower patient satisfaction [52], patient registration without gatekeeping might contribute to greater responsiveness of providers. Ideally, such research would also attempt to use better specified patient-provider contracts, potentially combined with financial disincentives for providers if patients do seek care from other providers.

A strength of this study is its comparative coverage of the historical, quantitative and qualitative aspects of patient registration in the context of the corresponding healthcare systems. At the same time, a major limitation is that it was confined to jurisdictions with a history of patient registration. Any future studies should be based on a sample of jurisdictions which include those health systems in which decision makers have explicitly rejected patient registration as an instrument to be used in health system and policy reform. Another limitation is that our study relied on national experts to collect information on patient registration systems in different countries. Individual experiences, research interests, and perceptions of these experts may have influenced the description of national patient registration systems. However, we attempted to assure accuracy by collecting information through a standard questionnaire and by validating and cross-checking the information provided by national researchers who reviewed a wide range of documents in order to respond to the questionnaire. A further limitation of this study is that

while it reveals a very close correlation between gatekeeping and patient registration, the meaning of this correlation was beyond the scope of this study, and requires a separate, focused study.

5. Conclusion

Patient registration is an understudied feature of health systems in many countries. This cross-country review revealed that the emergence of patient registration was historically linked either to the introduction of UHC reforms (e.g. in Israel, the Netherlands, the UK, and the Nordic countries) or to reforms aiming to improve the integration, coordination and efficiency of care (e.g. in France, Germany, Switzerland). Today, the characteristics of patient registration differ considerably across countries concerning its mandatory or voluntary nature, the availability of choice, the degree of population coverage, the incentives used, and the use of explicit patient-provider agreements.

The main implications of the paper are that (1) patient registration means different things in different countries and policy-makers and researchers need to take into consideration the historical evolution of patient registration in the country and the specific characteristics of the registration system with regard to the key dimensions defined in our framework; (2) the use of incentives for patients and providers may contribute to increasing the proportion of the population covered by patient registration; and (3) there may be greater potential for the explicit use of patient-provider contracts as a policy tool to achieve more timely, appropriate, continuous and integrated care in the future.

More (quasi-)experimental research is needed to better understand the effects of patient registration within (and across) countries and to isolate its effects from other health system characteristics, such as gatekeeping and capitation systems. Overall, more research is needed on patient registration in jurisdictions where patient registration is being expanded beyond a specific group to all citizens or where it is being introduced for the first time. Further research is also needed comparing intermediate effects and ultimate outcomes of different types of patient registration.

Author Contributions

Gregory P. Marchildon and Wilm Quentin: Conceptualization; Data curation; Formal analysis; Project administration; Investigation; Writing, first draft and subsequent revisions

All authors: Data curation; Formal analysis; Investigation; Writing- review & editing

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Conflict of interests

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Supplementary materials

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