2 Greater efficiency

This chapter analyses the efficiency of primary health care across OECD countries. The chapter starts with a review of published studies which shows that strong primary health care makes health systems more efficient, notably by containing the rate of growth in health spending, and by reducing the use of costly hospital inputs. The chapter then goes on to show that there are unrealised opportunities from better primary health care, and that systems will need to operate differently in order to reap better efficiency from primary health care across OECD countries. The chapter concludes by identifying areas where policy makers need to act so as to realise efficiency gains. Special emphasis is devoted to changes in training and improved matching of skills to tasks, greater use of digital technology, financial incentives that encourage good primary health care processes and good health outcomes, as well as availing primary and community care options.

Key findings

- Good primary health care can make health systems more efficient, notably by reducing rates of avoidable hospitalisations and unnecessary emergency department visits.
- In many OECD countries primary health care is not achieving the expected results, as demonstrated by high rates of avoidable hospitalisations and inappropriate prescribing:
  - Inappropriate use of antibiotics in general practice ranges between 45% and 90% of all systemic antibiotic prescriptions.
  - Hospital admissions for chronic conditions were equivalent to 5.8% of hospital bed days in 2016, many of which could be avoided with good primary health care.
- Shortcomings in primary health care services may partly be attributed to the shortage of required skills and skills mismatches in primary health care practice. Reductions in the share of generalist medical practitioners, coupled with imbalances between skills and tasks, is a source of sub-optimal use of resources in primary health care.
- There are many opportunities to improve technical and allocative efficiency in primary health care practice and it is essential that primary health care teams have the following:
  - Expertise in a wide range of areas, which goes beyond treating infectious diseases and includes, for example, providing information on nutrition, dealing with addiction and mental health issues. Primary health care teams also need soft skills, such as counselling, shared communication, collaboration and the ability to use health technology. France and Belgium have recently developed programmes to expand the skills and knowledge of primary health care teams in areas of health promotion and disease prevention. England, Germany and the United States, have also introduced modules in the medical curricula to build the attitudes and skills necessary for an effective deployment of digital health technology.
  - An appropriate mix of professionals with the right combination of skills. New support roles for nurses, community pharmacists or health workers (e.g. as developed in Canada and the United Kingdom) will help meet patient's clinical needs more effectively and comprehensively, with less use of physician time and at lower costs: this will improve technical efficiency.
  - Access and training to enable the functionalities offered by digital technologies to be fully embraced. Telemedicine, mHealth, electronic health records (EHR) and ePrescribing have been shown to enhance appropriateness of treatment, accuracy of diagnosis and patient experiences with primary health care. In particular, implementing well-structured and portable EHR systems is critical for improving workflow, communication and the clinical practices recommended for safe patient care in primary health care settings (e.g. the system used in Israel).
  - Greater diffusion of payment systems targeting desired activities, including the management of chronic diseases (e.g. Iceland, Italy and Israel), care co-ordination (e.g. Austria, Denmark, Germany and Sweden), early discharge from hospitals (e.g. the Czech Republic, Norway, Sweden and the United Kingdom) or other targets (e.g. Estonia, France and the United States) have great potential to maximise health care outputs through better processes of care, and to reduce the use of expensive inputs by moving care out of the hospital sector. To be effective, such payment systems need to encourage the delivery of appropriate services in primary health care that can be directly influenced by the level of the primary health care team's efforts.

- Developing intermediate care facilities (e.g. Costa Rica, Mexico, the Netherlands and Norway) and home-based programmes (e.g. Canada, Germany and the United Kingdom) are good options to reduce instances where costly hospital inputs are used instead of less expensive alternatives. Such policies consist of ensuring that patients with minor and non-acute conditions are in the right place at the right time.

2.1. Primary health care is associated with reduced use of costly hospital and emergency department inputs

High performing primary health care has been shown to help control health care spending. Not only do studies show that health care systems in which specialist or hospital care is only accessible after referral by a general practitioner (GP) have lower health care costs or are better able to contain the growth of health spending, but others suggest that primary health care also helps reduce the avoidable use of hospitals. Together, these conclusions suggest that when patients can be treated in the primary health care sector, fewer expensive services need to be provided at secondary levels of care, which can contain the growth in health care costs.

Delnoij et. al. (2000[1]), showed that in countries with gatekeeping GPs, ambulatory care expenditure has increased more slowly than in non-gatekeeping systems. Using international health expenditure and OECD data, Gerdtham et al (2011[2]) confirm this result by showing that the use of primary health care "gatekeepers" resulted in lower health expenditure. This relationship can be explained, in part, due to the role of primary health care systems in avoiding unnecessary procedures or avoidable use of costly facilities, such as emergency rooms and hospitals, through better preventive care.

A large number of empirical studies have confirmed the ability of primary health care to avoid unnecessary procedures and reduce the use of costly facilities, such as emergency rooms and hospitals, through better preventive care (World Health Organization, 2018[3]). Indeed, there is strong evidence that associates primary health care with lower rates of hospitalisations (Wolters, Braspenning and Wensing, 2017[4]; Rosano et al., 2013[5]; Van den Berg, Van Loenen and Westert, 2016[6]) and emergency department use (Kirkland, Soleimani and Newton, 2018[7]; Huntley et al., 2014[8]; Berchet, 2015[9])for so-called ambulatory care sensitive conditions (ACSCs).

ACSCs are conditions for which people-centred primary health care can generally prevent the need for hospitalisation, or for which early intervention can reduce the risk of complications or prevent more severe diseases developing (Agency for Healthcare Research and Quality, 2018[10]). Diabetes, chronic obstructive pulmonary disease (COPD), asthma, hypertension and congestive heart failure (CHF) are ACSCs with an established evidence base that much of the recommended treatment can be delivered by outpatient care at the primary or community care level. Treated early and appropriately, acute deterioration in people with these conditions and consequent hospital admissions could be avoided, therefore hospitalisations due to ACSCs are defined as "avoidable hospitalisations" (Purdy, 2010[11]; Nuffieldtrust, 2019[12]; Starfield, Shi and Macinko, 2005[13]).

As demonstrated by Starfield, Shi and Macinko (2005[13]), results suggest that people with primary health care physicians as a regular source of care were relatively better protected against hospitalisation for a preventable complication from chronic conditions. Lower rates of hospitalisations for ACSCs are consistently and strongly associated with the receipt of primary health care. In a similar vein, in a review paper identifying research evidence on the value of primary health care, Shi (2012) confirmed that primary health care is associated with a decrease in hospitalisation and emergency department visits (Shi, 2012[14]).

More recently, international literature and research offer some important insights on the significant contribution of care continuity and accessibility of care to explain the relationship between a strong primary health care system and avoidable hospitalisations for ACSCs. Van Loenon et al (2014[15]; 2016[16]) suggested that there is compelling evidence that adequate physician supply and better longitudinal continuity of care reduced avoidable hospitalisations. The higher the number of primary health care physicians per thousand people, the lower the risk of avoidable hospitalisation for ACSCs. The same negative relationship was found between care continuity and avoidable hospitalisation for ACSCs. The authors concluded that patients with long-term relationships with their primary health care physicians or the primary health care team, are more likely to communicate about changes in their medical conditions, thus reducing the risk of deterioration (van Loenen et al., 2014[15]; 2016[16]).

The negative relationship between care continuity and avoidable hospitalisations has been confirmed for specific conditions including diabetes, COPD and hypertension. Across studies, better care continuity and access to primary health care is associated with a lower likelihood of diabetes-related hospitalisations (Van Loenen et al., 2016[16]; Gibson, Segal and McDermott, 2013[17]; Wolters, Braspenning and Wensing, 2017[18]). Lin, Wu and Huang (2015[19]) show that COPD patients in Taiwan who receive a higher continuity of care have a significantly lower likelihood of avoidable hospitalisations (Lin, Wu and Huang, 2015[19]). Sung, Choi, and Lee (2018[20]), using the nationally representative 2013 Korea Health Panel data, found that adults with hypertension having a primary health care physician as a regular source of care have a lower risk of visiting an emergency department and being hospitalised (Sung, Choi and Lee, 2018[20]).

In addition to generating avoidable hospitalisations, delays in diagnosis and inappropriate therapeutic interventions in primary health care for ACSCs are also key sources of patient harm, and can result in emergency department visits (Lin, Wu and Huang, 2015[19]; Sung, Choi and Lee, 2018[20]; Van den Berg, Van Loenen and Westert, 2016[21]). Such emergency department visits are considered “inappropriate” or “non-urgent” visits, and are characterised by low urgency problems requiring other health services including, for example, telephone-based services and primary or community health care services (McHale et al., 2013[22]). According to national definitions and estimates, “avoidable”, “inappropriate” or “non-urgent” visits to emergency departments account for around 9% of emergency department in Australia[1], 12% in the United States, between 11.7% and 15% in England, 20% in Italy, 25% in Canada, 31% in Portugal and 56% in Belgium (Berchet, 2015[9]). Van den Berg et al (2016[21]) suggest that good accessibility to primary health care and a more continuous relationship between patients and the primary health care team helps reduce emergency department visits (Van den Berg, Van Loenen and Westert, 2016[21]).

As unit costs for treating patients with the same condition in primary health care are lower than those observed in emergency departments and hospitals, health systems with strong primary health care may attain higher levels of allocative efficiency, which describes a situation where a different combination of inputs could bring better results. Therefore, avoidable emergency department visits or hospital admissions are indicators of possible misallocation of resources across different types of goods and services or, in this case, levels of care (Cylus, Papanicolas and Smith, 2016[23]).

2.2. Shortcomings in primary health care delivery lead to unnecessary use of more expensive specialised services

Across OECD countries, evidence shows that too many patients do not receive the appropriate primary health care at the appropriate place, leading to unnecessary use of more expensive specialised services. For example, international data, suggest that inappropriate prescribing of medication in general practice is too high: prescriptions for unsuitable antibiotics or opioids are either harmful or do not deliver benefits to patients, costing lives and money for health care systems. Avoidable hospital admissions and inappropriate emergency department visits are also excessive, particularly at a time of great fiscal pressure. Primary health care is thereby not delivering care in the right way, meaning that some health care spending could

be eliminated, whilst achieving the same or improved population health outcomes. This means that policy makers could improve both technical efficiency (which describes a situation where a given result is obtained at the lowest possible cost) and allocative efficiency (which describes a situation where a different combination of inputs could bring better results).

These shortcomings may relate to the declining share of primary health care physicians, due in part to the lower attractiveness of general practice relative to specialisation, which means that fewer primary health care physicians are asked to deliver care to a growing number of people with complex care needs.

2.2.1. Too many patients do not receive the right primary health care, at the right place

Inappropriate prescribing in general practice is common in many OECD countries

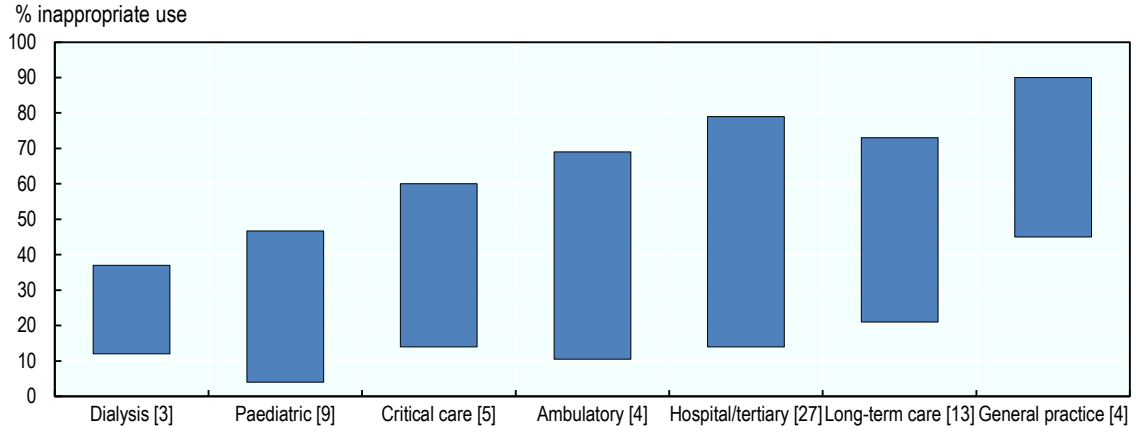
Inappropriate use of antibiotics

Antibiotics are indispensable for treating bacterial infections, but their effectiveness is threatened by the spread of antibacterial resistance. Antibiotics should only be prescribed where there is an evidence-based need, as overuse will increase the risk of resistant strains.

The amount of all antibiotics prescribed in primary health care in 2017 was 19 defined daily doses per 1 000 inhabitants per day. Total amounts vary more than three-fold across countries, ranging from 10 to 36 defined daily doses, with the Netherlands, Estonia, and Sweden reporting the lowest amounts, and Greece and France reporting volumes much higher than the OECD average. Such discrepancies indicate that a significant share of antibiotic prescription is unnecessary and inappropriate (OECD, 2019[24]).

Recent evidence also shows that general practice services are the areas of most concern, as consistently high levels of inappropriate use are reported, and because the discipline consists of a high volume of patients. The inappropriate use of antibiotics in general practice ranges between 45% and 90% of all systemic antibiotic prescriptions (Figure 2.1). This inappropriate prescribing is likely to have marginal, if any, patient benefit, ignoring the added complications of inappropriate choice of drug, dosage or treatment duration.

Figure 2.1. Inappropriate use of antibiotics in general practice is high



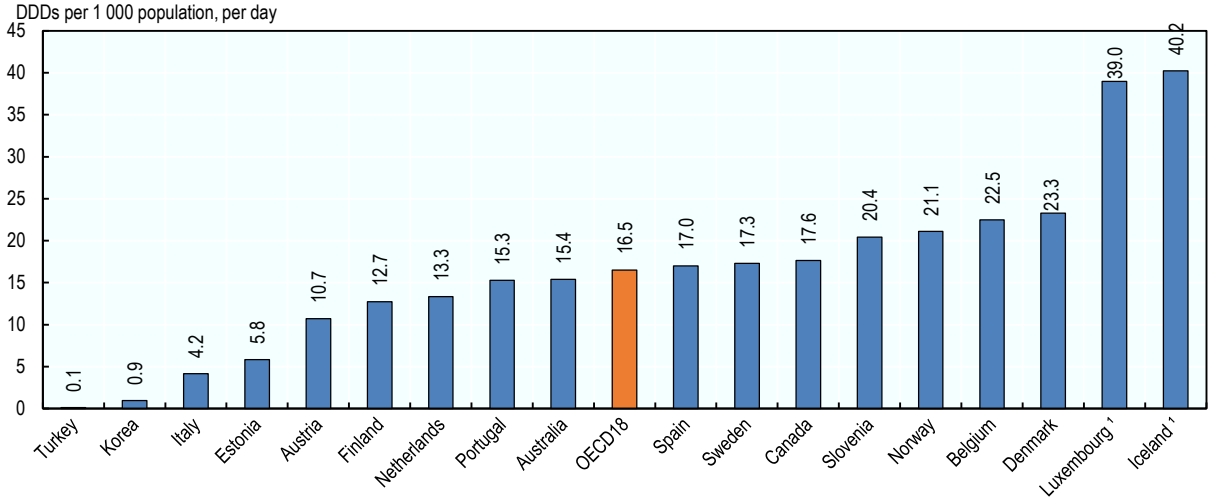
Note: Numbers in brackets indicate the number of studies used to determine the extent of inappropriate use.
Source: OECD (2017[25]), *Tackling Wasteful Spending on Health*, https://doi.org/10.1787/9789264266414-en.

Inappropriate opioid prescribing in general practice

Opioid analgesic prescribing has steadily increased in recent years in OECD countries, and many patients are being treated with opioids for chronic non-malignant pain. While opioid analgesic is beneficial for pain management, the level of usage is now generating significant harm in the community. The number of overdose deaths has mounted to alarming numbers, creating the so-called “opioid crisis” in some OECD countries, such as Canada and the United States (OECD, 2019[26]). Some European countries, are also experiencing a trend of rising opioid consumption and deaths caused by overdoses (OECD, 2019[26]).

Across the OECD, the overall volume of opioids prescribed in 2017 varies almost four-fold across countries, with Iceland leading markedly with the highest volume of opioids prescribed at 40.2 defined daily doses (DDD) per 1 000 inhabitants per day, well above the OECD average, followed by Luxembourg (39.0) and Denmark (23.3) (Figure 2.2). Turkey (0.1) and Korea (0.9) show very modest prescription opioid use with less than 1 DDD per 1 000 inhabitants per day, followed by Estonia and Italy with values of 5.8 and 4.2, respectively.

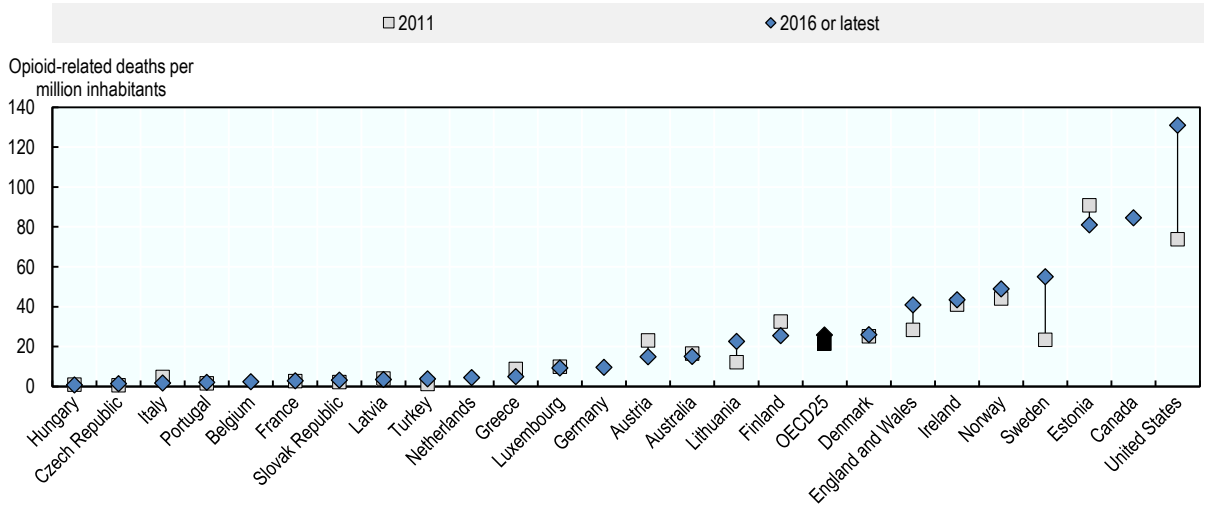
Figure 2.2. The average volume of opioids prescribed in primary health care is more than 16 DDDs per 1 000 population per day, 2017



Note: DDDs = defined daily doses. Exclusion of products used in the treatment of addiction. Some countries cannot split primary health care data from outpatient care or long-term care data. 1. Three-year average.
Source: OECD (2019[24]), *Health at a Glance 2019: OECD Indicators*, https://doi.org/10.1787/4dd50c09-en.

Inappropriate opioid prescribing is associated with non-fatal opioid overdose, fatal opioid overdose and all-cause mortality (Rose et al., 2018[27]). In 25 OECD countries for which data are available, opioid-related deaths have increased by 20% on average in recent years (see Figure 2.3). Among the countries above the average, the United States, Canada, Sweden, Norway, Ireland, and England and Wales have seen particularly worrying trends. The increased mortality rates associated with misuse of opioid prescriptions place a significant cost burden on health systems.

Figure 2.3. Opioid-related deaths in OECD countries have increased by an average of 20% in recent years



Note: Countries ranked by most recent year with data available.
Source: OECD (2019[26]). *Addressing Problematic Opioid Use in OECD Countries*, https://doi.org/10.1787/a18286f0-en.

Hospital admissions for five chronic conditions are equivalent to 5.8% of total hospital bed days

Diabetes, COPD, asthma, hypertension and CHF are ACSCs with an established evidence base that much of the treatment can be delivered by outpatient care at the primary or community care level. Treated early and appropriately, acute deterioration in people with these conditions and consequent hospital admissions could be avoided (Purdy, 2010[11]; Nuffieldtrust, 2019[12]; Starfield, Shi and Macinko, 2005[13]). Delays in diagnosis and inappropriate therapeutic interventions in primary health care for these ACSCs are key sources of patient harm, and can result in emergency department visits (Lin, Wu and Huang, 2015[19]; Sung, Choi and Lee, 2018[20]; Van den Berg, Van Loenen and Westert, 2016[21]).

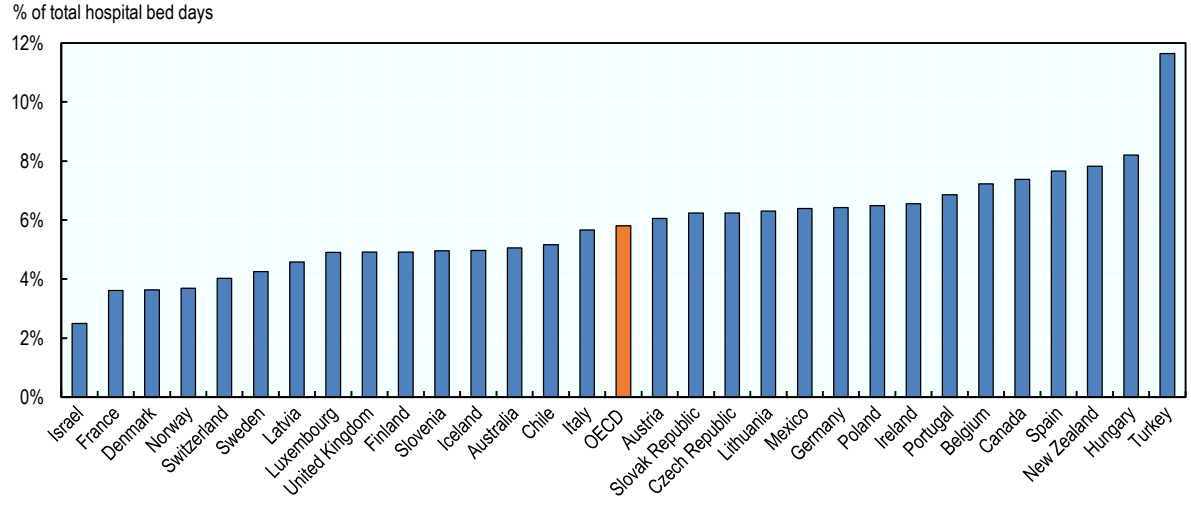
Analysis of hospital admission data for five chronic conditions (diabetes mellitus, hypertensive diseases, heart failure, COPD, and asthma) across 30 OECD countries shows that in 2016, just over 5.6 million hospitalisations with a principal diagnosis of one of these five conditions took place (see Box 2.1 for methodology). The average length of stay across all five diagnoses was eight days, ranging from 6.0 days for asthma to 9.7 for heart failure. In total, in 2016, over 47.5 million bed days were consumed by admissions for these five chronic conditions alone across OECD countries, amounting to 5.8% of the total hospital bed day (Figure 2.4). For statistical purposes a bed day is a day during which a person is confined to a bed and in which the patient stays overnight in a hospital.

Box 2.1. Estimating the opportunity cost related to avoidable hospitalisation for chronic conditions

The data on hospital admissions refer to discharges (including deaths in hospital). They include patients in all age groups, but exclude outpatient and day cases (patients who do not stay overnight in hospital). Following the methodology employed by Auraane, Slawomirski and Klazinga (2018[28]), the number of bed days was calculated by multiplying the number of admissions (discharges) by the average length of stay.

The data on cost per hospital bed day refer to the 2011 WHO-CHOICE model, which gives an estimation of cost per bed day for primary, secondary and tertiary public hospitals across 193 countries. The cost is expressed in US dollars. For the purpose of the report, the cost per bed day for secondary hospitals was used as an average value for each country. It is important to note that these estimates represent only the "hotel" component of hospital costs (including costs such as personal, capital and food costs), excluding the cost of drugs, treatment and diagnostic tests. This means that the opportunity cost related to avoidable hospitalisation is grossly underestimated.

Figure 2.4. Share of potentially avoidable hospital admissions due to five chronic conditions as a percentage of total hospital bed days, 2016



Note: The data includes only admissions with a minimum of one night's hospital stay. Not counted are 'same-day' admissions (e.g. a patient with acute on chronic conditions admitted for observation but discharged a few hours later). These "same-day" admissions consume hospital resources. In addition, the share of avoidable hospital admissions is also largely underestimated as there are more causes of hospitalisations that are potentially preventable. In Australia for example, potentially avoidable hospitalisations for 22 conditions accounted for 9% of all hospital bed days in 2016-17 (AIHW, 2019[29]). Cross-country comparisons of potentially avoidable hospital admissions should also be interpreted with caution, as many other factors, beyond better access to primary health care, can influence the statistics, including data comparability and the prevalence of these chronic conditions. These are crude data and are not age-standardised.
Source: OECD estimates based on OECD Health Statistics 2018, https://doi.org/10.1787/health-data-en.

The use of "cost per hospital bed day", as estimated by the 2011 WHO CHOICE model, gives a rough estimation of the opportunity cost associated with avoidable hospitalisation for ACSCs across OECD countries. On a methodology point, it is important to emphasise that only the "hotel" component of hospital costs (including costs such as personnel, capital and food costs) is considered here. The WHO CHOICE model estimation excludes the cost of drugs, treatment and diagnostic tests, meaning that the cost related to avoidable hospitalisation is largely underestimated. Moreover, there are more causes of hospitalisation that are potentially avoidable than just the five conditions listed in this estimation (including angina,

influenza and other vaccine preventable diseases, illnesses resulting from nutritional deficiencies, etc.) (Fleetcroft et al., 2018[30]). The Australian Institute of Health and Welfare for example defined 22 conditions for which hospitalisation is considered potentially preventable across three broad categories (vaccine-preventable conditions, acute conditions and chronic conditions) (AIHW, 2019[29]). The total number of avoidable hospitalisations is also significantly underestimated.

The total cost generated by avoidable hospitalisations for these five chronic conditions in 30 OECD countries is estimated to be USD 21.1 billion in 2016 (Table 2.1). Equipped with the right resources, good primary health care can avoid many of these hospitalisations, increasing efficiency of health systems and improving people's well-being.

Table 2.1. Cost of avoidable hospitalisation for chronic conditions in 30 OECD countries

	Number of hospital bed days	Unit cost of hospital bed days (secondary hospital)	Cost in USD (million)
Australia	1 176 886	660	777
Austria	1 097 267	666	731
Belgium	872 987	625	545
Canada	1 827 485	606	1 108
Chile	516 240	113	58
Czech Republic	1 226 609	255	313
Denmark	162 691	826	134
Finland	390 616	678	265
France	3 994 807	582	2 327
Germany	12 084 564	590	7 128
Hungary	1 522 572	184	280
Iceland	12 088	704	9
Ireland	240 666	821	198
Israel	226 710	347	79
Italy	3 124 832	497	1 552
Latvia	117 965	173	20
Lithuania	319 203	166	53
Luxembourg	32 627	1 852	60
Mexico	1 362 369	113	154
New Zealand	398 323	375	149
Norway	177 011	1 371	243
Poland	3 136 231	160	502
Portugal	458 124	293	134
Slovak Republic	488 094	211	103
Slovenia	126 992	342	43
Spain	2 597 803	452	1 175
Sweden	357 999	707	253
Switzerland	482 199	901	434
Turkey	6 197 769	113	700
United Kingdom	2 800 763	577	1 615
Total	47 530 492	-	21 142
Average	1 584 350	532	843

Note: See Box 2.1 for the methodology. These estimates represent only the "hotel" component of hospital costs (including costs such as personal, capital and food costs), excluding the cost of drugs, treatment and diagnostic tests. Moreover, there are more causes of hospitalisation that are potentially avoidable than just the five conditions listed in this estimation (diabetes mellitus, hypertensive diseases, heart failure, COPD, and asthma). This means that the opportunity cost related to avoidable hospitalisation is grossly underestimated.
Source: OECD estimates based on OECD Health Statistics 2018, https://doi.org/10.1787/health-data-en.

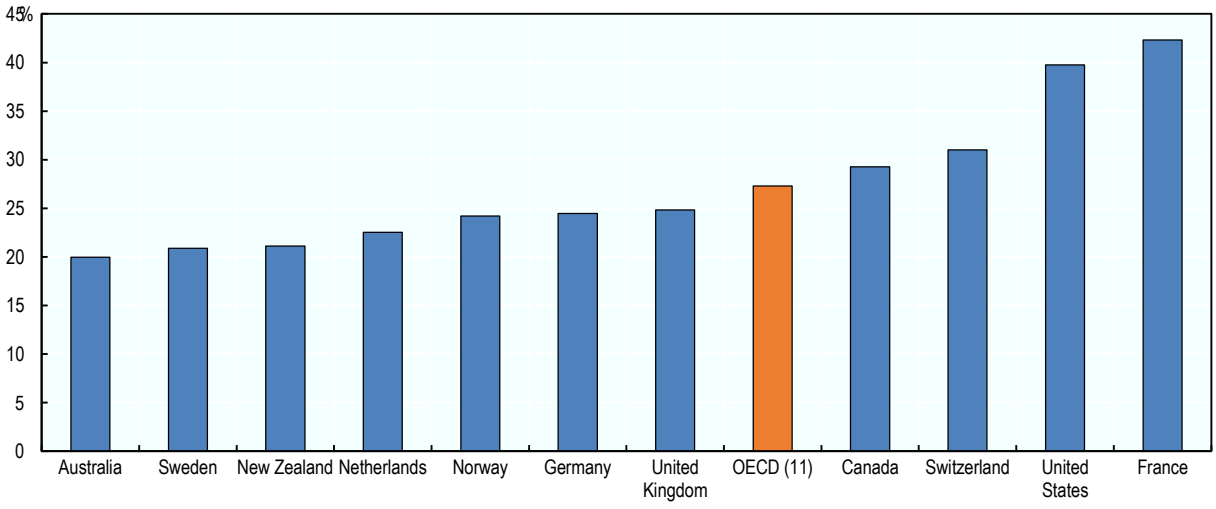
Almost 30% of elderly people visited an emergency department for conditions that could have been treated in primary health care settings

Attendance at emergency departments for low-urgency problems that could be dealt with within the primary health care sector is another source of inefficiency for OECD health care systems.

While injuries are the most common reason for using emergency services, many other emergency department visits are motivated by low-urgency problems that do not require emergency admissions. Drivers of avoidable emergency department visits include, among others, a lack of alternatives to hospital care, misaligned financial incentives with system objectives or patient preference for hospital services over primary health care (notably among the most disadvantaged populations) (Berchet, 2015[9]). Unwarranted use of emergency services is costly and potentially harmful to patients. Indeed, costly hospital inputs are used instead of less expensive ones, with no additional benefit to the patient. Within hospitals, inappropriate emergency department visits lead to overcrowding, which results in delayed diagnosis and treatment (OECD, 2017[25]).

Recent international data show that a significant proportion of elderly patients visited the emergency department for a condition that could have been equally well addressed, or better treated, in primary health care. In 2017, the proportion of inappropriate emergency department visits among elderly people was the highest in France and the United States, with more than 40% of elderly patients visiting an emergency department for a condition that could have been treated by the primary health care team (Figure 2.5). The proportion of inappropriate emergency department visits was also very high in Canada and Switzerland, where 25% and 30% of elderly people inappropriately visited the emergency department, respectively. At the other end of the scale, Australia, Sweden and New Zealand had fewer inappropriate emergency department visits, at around 20% of elderly patients. Recent data from the Australian Institute of Health and Welfare show that after-hours lower urgency emergency department visits fell by 3.4% over 2015-16 to 2017-18 (Aihw, 2018[31]).

Figure 2.5. On average almost 30% of elderly patients visited an emergency department for a condition that could have been treated in primary health care, 2017



Note: Respondents were asked: "The last time you went to the hospital emergency department, was it for a condition that you thought could have been treated by the doctors or staff at the place where you usually get medical care if they had been available?" Results show the proportion of people responding "yes" to the question. In Australia, recent data from the Australian Institute of Health and Welfare show that in 2017-18, 37% of all ED presentations were for lower urgency care (Aihw, 2018[31]).
Source: The Commonwealth Fund, 2017, International Health Policy Survey of Older Adults (65+).

The opportunity cost associated with avoidable emergency department visits can be large (OECD, 2017[25]). In the United States, a recent cost estimates study showed that around one-fifth of emergency department visits could be avoided, with an annual estimated expense of greater than USD 60 billion (Galarraga and Pines, 2016[32]).

2.2.2. The declining share of primary health care physicians and skills mismatches in primary health care make it increasingly difficult to meet complex care needs

A shortage and mismatch of skills in primary health care practice is an important factor causing shortcomings in primary health care systems. Indeed, international figures demonstrate a reduction in the share of primary health care physicians, while at the same time there are imbalances between skills and tasks. Together, this might adversely affect the quality of patient care, and lead to sub-optimal use of resources in primary health care.

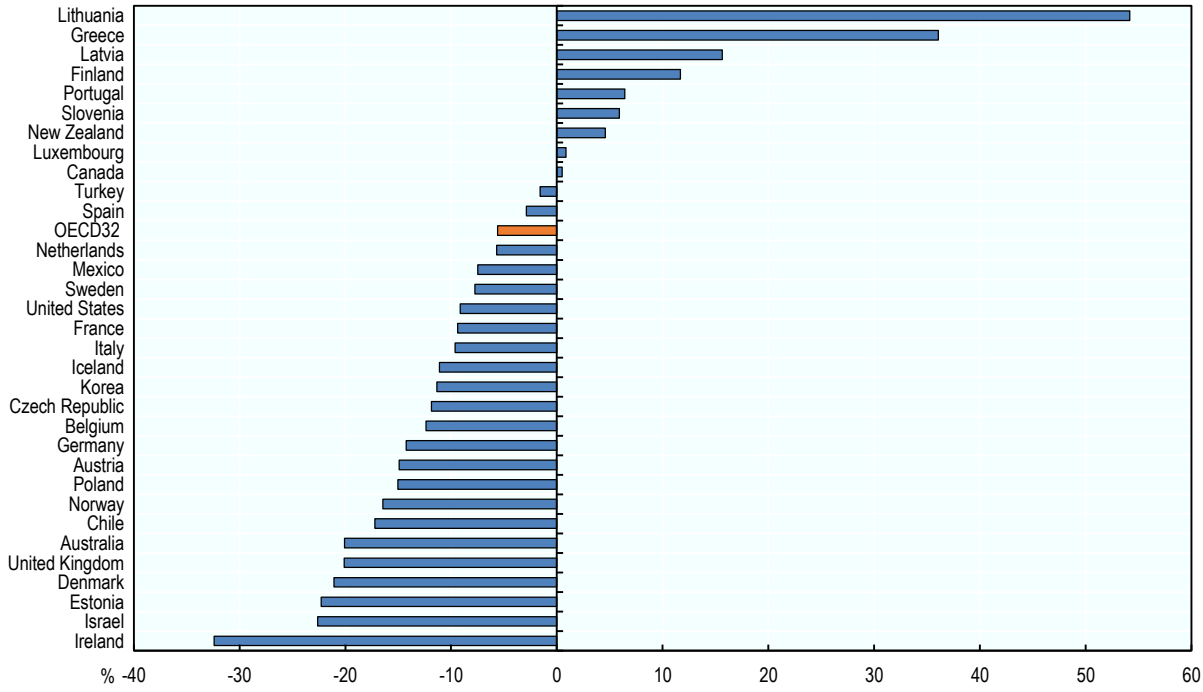
Reduction in the share of generalist medical practitioners and new burdens in workload increase the need for more technical efficiency in primary health care

The number of doctors and nurses has never been greater in OECD countries. In 2017, there was on average 3.5 doctors and 8.8 nurses per 1 000 inhabitants in OECD countries, up from 2.7 doctors and 7.4 nurses per 1 000 inhabitants in 2000 (OECD, 2019[33]). However, while the overall number of doctors and nurses has largely increased, the share of generalist medical practitioners dropped between 2000 and 2017 in the majority of countries (see Figure 2.6). On average across OECD countries, generalists made up about 29% of all physicians in 2017. Between 2000 and 2017, the share of generalist medical practitioners decreased by more than 20% in Australia, the United Kingdom, Israel, Denmark, Estonia and Ireland (Figure 2.6).

While there are proportionally fewer doctors, the upward trend in both the clinical and administrative workload of general practice is putting strain on primary health care services, and this trend is likely to continue to grow especially in view of population ageing and the rising burden of chronic conditions across OECD countries. In the United Kingdom, for example, the number of consultations per patient per year rose by roughly 12% between 2007-08 and 2013-14, which is equivalent to a 16% rise in clinical workload (Hobbs et al., 2016[34]; Thompson and Walter, 2016[35]). In Australia, 40% of GPs stated that their workload can be excessive and more than a quarter of GPs (27%) have seen their workload increase in the past two years (The Royal Australian College of General Practitioners, 2018[36]). Similarly, in Canada family physicians work long hours: the 2017 CMA Physician Workforce Survey indicates that family physicians or GPs work on average 48.69 hours a week, 14 hours more per week than the average Canadian. Between 2004 and 2017, CMA observed a steady decrease in time spent directly caring for patients, which contrasts with a rising time commitment to indirect care and other tasks, including phone calls, family meetings, administration, managing practice etc. (Grava-Gubins, Safarov and Eriksson, 2012[37]; Medical Association, 2017[38]). In 14 other European countries, the current workload for primary health care physicians was found to be unreasonable and unsustainable over the longer term (Croatia, Hungary, Ireland, Lithuania, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovenia, Spain, Sweden and Turkey)[2]. The growing workload might adversely affect the quality of patient care, and is inadequate to meet patients' need (Fisher et al., 2017[39]). A recent study also shows that over one-third of primary health care physicians in ten countries are dissatisfied with the time available per patient (Osborn et al., 2015[40]), which can in turn compromises the care provided and adversely affects physician stress and workload (Irving et al., 2017[41]).

Figure 2.6. The share of generalist medical practitioners continues to drop across the majority of OECD countries

% changes between 2000 and 2017



Note: The category of generalist medical practitioners includes general practitioners, district medical doctors, family medical practitioners, primary health care physicians, general medical doctors, general medical officers, medical interns or residents specialising in general practice or without any area of specialisation yet. Generalist medical practitioners do not limit their practice to certain disease categories or methods of treatment, and may assume responsibility for the provision of continuing and comprehensive medical care to individuals, families and communities. There are many breaks in the series for Australia, Estonia, and Ireland over the period. In some countries (Ireland, Israel, Korea and Poland), the share of general practitioners among all doctors has increased over the same period.
Source: OECD Health Statistics 2019, https://doi.org/10.1787/health-data-en.

On the issue of the supply of primary health care physicians, several factors explain the growing imbalance away from general practice in favour of greater specialisation, including: the retirement of GPs, lower remuneration in general medicine compared with specialised medicine and high workload in primary health care (OECD, 2016[42]). In most OECD countries, specialists earn significantly more than the GPs (OECD, 2017[43]). In 2015, the income gap between specialists and GPs was particularly high in Australia, Belgium and Luxemburg, where the self-employed specialists earned over twice the remuneration earned by GPs. The income gap between GPs and specialists continues to widen, reducing the financial attractiveness of general practice. Since 2005, the remuneration of specialists has risen faster than that of generalists in Canada, Finland, France, Hungary, Iceland, Israel, Luxembourg and Mexico.

However, budgetary constraints make it very unlikely that remuneration of primary health care physicians will increase, unless gains in productivity can be achieved simultaneously. Therefore, increases in technical efficiency in primary health care are central to addressing the potential shortage in primary health care workforce (Shipman and Sinsky, 2013[44]).

A better match of skills to tasks is more important than ever, especially given the challenges and opportunities offered by digital technologies

Beyond pressures coming from a reduction in the share of GPs and increasing workload, there is evidence that the distribution of skills and tasks among primary health care teams is inefficient (OECD, 2016[42]). On the one hand, 76% of doctors and 79% of nurses reported being overskilled for some of the tasks they have to do in their day-to-day work. For nurses, those who have a postgraduate degree (master's level or equivalent) are twice as likely to report being overskilled for some of the work they do, compared to those with qualifications up to and including a bachelor's degree. Given the significant length of training of doctors and nurses, this represents a dramatic waste in human capital.

In the United States, there is evidence that the amount of administrative work doctors have to do is increasing. For every hour physicians were seeing patients, they were spending nearly two additional hours on administrative work (including EHR and deskwork) (Sinsky et al., 2016[45]). In another study, primary health care physicians in the United States have been found to spend more than one-half of their workday (equivalent to six hours) interacting with the EHR (Brian G. Arndt et al., 2017[46]). In England, the National Health Service (NHS) estimates that 11% of a GP's time is taken up by paperwork (The Economist, 2019[47]). Many primary health care systems aim to improve care co-ordination and it may be that the increase in paperwork and other administrative tasks relates to these increased responsibilities. This is not a bad thing per se, but such non-medical tasks should be delegated to appropriately qualified, but also less expensive workforce. Not only does this strategy reduce administrative workload for primary health care physicians, but it also improves time for patient care and communication.

At the same time as being overskilled for some tasks, physicians and nurses also report being underskilled for others. Across OECD countries, 51% of doctors and 43% of nurses, reported being underskilled for some of the tasks they have to do. Rapid progress in medical research, demographic and epidemiological transition, combined with increased expectations for the management of complex cases in primary health care practices, may be drivers for reports of underskilling. A systematic review found that, on average, clinicians have more than one question about patient care for every two clinical encounters, and 49% of these questions are never pursued (Del Fiol, Workman and Gorman, 2014[48]). Of the total questions raised, 34% were related to drug treatment and 24% to causes of a symptom or diagnostic test result. In addition, medical doctors might not have the required soft skills, including shared communication, collaboration and partnership, to deliver people-centred care (Ranjan, Kumari and Chakrawarty, 2015[49]). The need for change in the training and development of primary health care teams is thereby evident (see also Section 3.1).

2.3. Policy options to enable the workforce to deliver more efficient primary health care

There are many opportunities to improve technical and allocative efficiency in primary health care practice. Policy options having most potential range from changes in training and improved matching of skills to tasks, greater use of digital technology (notably of EHR), financial incentives that encourage good primary health care processes and good health outcomes, as well as availing primary and community care options to avoid unnecessary use of hospitals.

2.3.1. New mechanisms for workforce recruitment and training are needed to ensure the right mix of skills and competences throughout primary health care teams

Changes in training are required, especially with technological progress and new ways of delivering services

Professional education in primary health care may not be aligned with changes related to technological progress and new ways of delivering services. Furthermore, it may not match increasing citizen expectations, and there is a mismatch of competences to patient needs (Frenk et al., 2010[50]). Available evidence for example show that primary health care practices still deliver reactive care that predominantly focuses on disease treatment and do not engage sufficiently in preventive care (Schäfer et al., 2016[51]) (see also Chapter 3).

Changes in training are required to ensure that the primary health care teams have expertise in a wide range of areas, which go beyond treating infectious diseases and include nutrition, addiction, mental health and healthy ageing. In addition, "soft" and transversal skills (including behaviour counselling, shared communication, collaboration, or partnership) are also needed to deliver people-centred and proactive care (Ranjan, Kumari and Chakrawarty, 2015[49]).

Providing initial and continuing training programmes in all these areas is critical to improve technical efficiency. Initial and continuing education should, in particular, prepare primary health care teams to better understand the signs and symptoms of chronic diseases and associated risk factors, to recognise the importance of environmental determinants of unhealthy behaviour and the factors that impact behavioural change. Ideally, health promotion and disease prevention should be integrated into initial and continuing training for all members of the primary health care team (primary health care physicians, but also nurses, pharmacists, auxiliaries and community health workers). Screening assessment tools, individual counselling, behavioural change programmes and multidisciplinary collaboration in primary health care should be the main priority of training programmes, at least to the same extent as diagnosis and treatment of diseases. The need to learn about technology-enabled consultation, data-coding and analytics is also important at a time when digital health and new technologies show promise in improving care processes.

Achieving skills for person-centred communication will also be vital to expand attention to patients' personal and social situations. This is a prerequisite to improve diagnosis and tailor care plans, but also to practice shared decision making and consider patients' goals and values. Lastly, to break down professional silos and foster effective working with other health and social care professionals, primary health care teams should achieve skills for effective teamwork and interprofessional collaboration.

A few health care systems are working toward these goals. In France, the Ministry of Health, jointly with the Ministry of Education, recently announced that primary health care workforces will have to perform a public health rotation (see Box 2.2). In Belgium, the Flemish Coalition Agreement 2014-19 includes a simplification of primary health care structures and a strengthening of primary health care. In the area of education, the ongoing plan is to ensure that initial and ongoing training for primary health care professionals follows an integrated care approach, in which the patient takes the central position, whilst also promoting interdisciplinary partnership. The plan assumes that primary health care professionals will be trained following a broad definition of care, not only including treatment of disease and monitoring recovery, but also continued care through health promotion, disease prevention and shared communication and collaboration.

Another good example is the NHS in England, which created the NHS Digital Academy, which aims at strengthening providers' competencies in IT-based quality improvement tools. Canada, Germany, and the United States, have also introduced modules in the medical curricula to build the attitudes and skills necessary for an effective deployment of digital health technology. The courses address the skills needed for data-driven quality development and digital literacy, but also for interprofessional collaboration.

Box 2.2. The public health rotation in France

The Ministry of Health, jointly with the Ministry of Education, recently announced that students in the health sector will have to perform a public health rotation (called "*service sanitaire*"). The new curricula for medical doctor, nurse, pharmacist and physiotherapist students consists of going to public places, such as universities and high schools, to undertake prevention activities on four priority areas: diet, physical activity, addictions, and sexual health.

This rotation will last 6 weeks with three phases:

1. a theoretical phase of training to give students the appropriate tools and knowledge
2. a practical phase where students are expected to implement a preventive strategy
3. a final phase where students will have to demonstrate the effectiveness of the prevention strategy.

In the longer term, the public health rotation will be expanded to workplaces, elderly care facilities, social care facilities and prisons, and will also target rural and remote areas where health care supply is scarce.

Source: OECD (2018[52]), Policy Survey on the Future of Primary Care.

The use of community-based teams has been found to improve the efficiency of primary health care providers

To meet local health needs and realise efficiency gains, the primary health care workforce needs to have sufficient professionals with the right mix of skills. Nurses, community pharmacists and health agents can have important "soft skills" and relevant knowledge about their communities, and have thereby the potential to reduce the workload of primary health care physicians without undermining the quality of care and patient satisfaction (Green, Savin and Lu, 2013[53]). With appropriate training and adequate legislation, OECD health care systems could develop new support roles for nurses, community pharmacists and other community health agents. This could consist of introducing new roles of care co-ordinators, care planners, and patient navigators to provide continuous care across different specialist areas while promoting healthy living, and preventing and managing some diseases. These functions often extend beyond traditional health care boundaries, and include close working relationships with social services and long-term care teams. Primary health care physicians will remain leaders of health care teams, notably by guiding other members of the team with their diagnostic and management skills and by taking care of patients' medical needs.

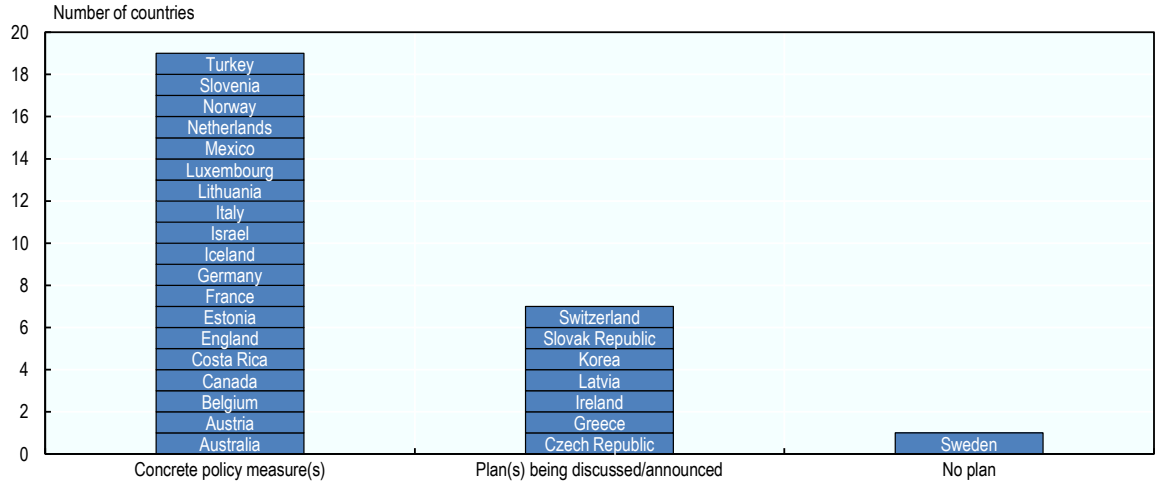
Only a few health care systems have moved toward this goal. In 2016, the majority of nurses or assistants independently provided immunisation, health promotion and routine checks for chronically ill patients in less than half of OECD countries (Table 2.2). In 2018, 19 out of 27 OECD countries had implemented concrete policy measures in the last five years to develop the primary health care workforce (Figure 2.7).

Table 2.2. Involvement of nurses and assistants in health promotion and prevention

	At least 75% of nurses or assistants independently provide immunisations	At least 75% of nurses or assistants independently provide health education	At least 75% of nurses or assistants independently provide routine checks of chronically ill patients
Austria	No	No	No
Belgium	No	No	No
Canada	No	Yes	Yes
Chile	Yes	Yes	Yes
Czech Republic	Yes	No	No
Denmark	No	Yes	No
Estonia	Yes	Yes	Yes
Finland	Yes	Yes	Yes
France	No	Yes	No
Greece	No	Yes	Yes
Iceland	Yes	No	No
Ireland	Yes	Yes	Yes
Israel	Yes	Yes	Yes
Italy	No	No	No
Latvia	Yes	Yes	Yes
Luxembourg	No	No	No
Netherlands	Yes	Yes	Yes
Norway	No	No	No
Poland	Yes	Yes	Yes
Portugal	Yes	Yes	Yes
Slovenia	No	No	No
Spain	Yes	Yes	Yes
Sweden	Yes	Yes	Yes
Switzerland	No	Yes	No
Turkey	Yes	NR	NR
United Kingdom	Yes	Yes	Yes
Total "yes" responses (out of 26 countries)	15	17	14

Source: OECD (2016[54]), Health System Characteristics Survey, http://www.oecd.org/els/health-systems/characteristics.htm.

Figure 2.7. Strategies to develop the primary health care workforce have been implemented in 19 OECD countries in the last five years



Source: OECD (2018[52]), Policy Survey on the Future of Primary Care.

Research confirms that expanding professional roles or delegating tasks to some primary health care professionals improves efficiency. Nurses or community pharmacists can, for example, help meet patients' clinical needs more effectively and comprehensively, with less use of physician time, and at lower costs. Some estimations show that up to 77% of preventive care and 47% of chronic care could be effectively delegated to non-physician team members (Shipman and Sinsky, 2013[44]). In England, the NHS estimates that 30% of GP time is spent on musculoskeletal problems which could be handled by a physiotherapist, while the latter costs around half as much as a GP (The Economist, 2019[47]). Experiences from the United States also show that care co-ordinators, flow managers or an empowered community based workforce helping with clerical duties can markedly improve physicians' efficiency (Shipman and Sinsky, 2013[44]). Such initiatives are found to increase the number of patients a GP can manage on their list, at the same time as reducing after-hours work for physicians, and resulting in less overtime for the primary health care team. Physician assistants in the United States who are licensed to diagnose, treat, and prescribe medicines, have helped to decrease hospital readmission rates, length of hospital stays and infection rates. In a similar vein, Green, Saving and Lu (2013[53]) show that the use non-physician providers expands manageable patient numbers for GPs, and offsets, to some extent, the primary health care physician shortage (Green, Savin and Lu, 2013[53]). Matthys, Remmen and Bogaert (2017[55]), in their systematic review of more than 60 studies, provide a firm evidence base for greater engagement of nurses in general practice by providing patient education, co-ordination, prevention advice or drug prescriptions and by working in collaboration with primary health care physicians (Matthys, Remmen and Van Bogaert, 2017[55]). The review shows that primary health care teams that include nurses with an advanced role lead to better patient outcomes, greater patient satisfaction and reduced hospitalisation.

The following section presents country specific examples relating to expanding roles for nurses, community pharmacists and community health workers.

Expanding nurses' roles

In Canada, registered nurses and nurse navigators have an important role in improving co-ordination and continuity of care in the MyHealthTeam model of primary health care. Nurses with a navigator role ensure that patients move appropriately through the health care system, and that they receive the appropriate care in the appropriate place. Evidence shows that nurses with a co-ordination role offer value in the care of cancer, cardiovascular illnesses and for patients with other chronic conditions, by supporting patients in managing their symptoms. These measures have been shown to reduce the need to seek additional medical attention such as expensive hospital care (Martin-Misener and Bryant-Lukosius, 2014[56]).

In other OECD countries, such as Estonia, Ireland, Mexico, Sweden and the United Kingdom[3], registered nurses are also allowed to prescribe medication. In Ireland, for example, a 6-month education programme has been established to enhance the skills of nurses and midwifes to become registered nurse prescribers. Registered nurse prescribers are, under authority from their health service provider, able to prescribe a range of medicinal products within their scope of practice. In 2016, a total of 894 nurses and midwives in the country were registered to prescribe medicinal products. Available evidence shows that expanding role of nurses has improved the level of appropriate referrals to specialists, and increased the satisfaction of patients, carers and nurses. At the same time, extending the power to prescribe medications to nurses and midwives in advanced roles has reduced some of the workload of primary health care physicians, and decreased both non-compliance with treatment plans and polypharmacy[4] (Adam et al., 2017[57]). Overall, the strategy has demonstrated efficiency gains.

In Latvia, "second practice nurses" have been introduced in primary health care teams, their role is to deliver health checks and public health care. Employing a second nurse became mandatory in 2014 for practices with more than 1 800 registered patients or 800 patients aged under 18. These additional general practice nurses focus on health promotion and disease prevention. They are expected to deal with lifestyle risk factors such as smoking and harmful alcohol consumption and to carry out behavioural counselling (OECD, 2016[58]).

Finally, in Australia, there is a specific project aimed at upskilling primary health care nurses in mental health literacy and clinical skills. The objective is also to develop a flexible and sustainable model of care that will deliver effective mental health care across a range of health settings. The programme will enable a mental health nurse to transition between acute and primary health care settings. The overarching objective is to improve continuity of care, but also streamline workflow to realise efficiency gains.

Expanding community pharmacists' role

The role of community pharmacists could also evolve to better meet patients' needs. Beyond dispensing medications, community pharmacists have a role to play as medical counsellors and educators, and in performing preventive care screenings. Pharmacists with advanced roles contribute to health improvement, help patients to make the best use of their medicines and help prevent harm that may arise from taking medicines incorrectly (International Pharmaceutical Federation, 2016[59]).

In some OECD countries community pharmacists are engaged in health promotion activities, screening programmes, vaccination and counselling activities. They are allowed to monitor particular clinical parameters and screen for undiagnosed conditions including, for example, cardiovascular risk assessment, colon cancer screening, and some infectious diseases such as HIV and tuberculosis. In Switzerland, for example, the "No to Colorectal Cancer" campaign was recently developed by the Swiss Pharmacy Association. The programme offers a screening service in collaboration with doctors. Pharmacists have to screen patients aged between 50 and 75 who have not had a colonoscopy within ten years. The pharmacist uses a questionnaire to determine a patient's risk of colon cancer. Then either a stool test is performed by the pharmacist, or the pharmacist will refer the patient to a primary health care physician. The pharmacist discusses the results of the stool test and those patients with negative results are scheduled for follow-up screening in two years. Evidence from the Swiss Pharmacy Association shows that within six weeks, the programme detected an estimated 58 cases of cancer and 368 cases of advanced adenoma. Overall, the programme was found cost-neutral, compared to the cost of preventive treatments. Through the campaign, pharmacists are starting to be recognised as advocates of health promotion, which is a positive step towards better using pharmacists' skills for preventive care.

The involvement of community pharmacists in care management for patients suffering from chronic conditions is also a valuable initiative that other OECD countries should consider. Evidence is somewhat conclusive that when community pharmacists provide patient education and behavioural counselling this can improve medication adherence and therapeutic outcomes in patients with chronic conditions (Mossialos et al., 2015[60]). Unfortunately, community pharmacists are given these roles in a disappointingly small number of OECD countries at present.

In the England, the announcement of new Community Pharmacy Contractual Framework (CPCF) arrangements for 2019/24 outlines an important future for community pharmacy in delivering clinical services as a fully integrated partner within local Primary Care Networks (NHS, 2019[61]). The five year agreement will expand the role of pharmacists in a multi-faceted approach, encompassing urgent care, medicines optimisation and prevention to better utilise the skills and reach of community pharmacies. An expanded range of services will be commissioned from community pharmacies alongside legislative reforms designed to free up capacity to enable pharmacists to spend more time delivering face to face services with patients. These new services will see more people triaged to community pharmacies for a wide range of support and advice. The CPCF for 2019/24 will introduce a Community Pharmacist Consultation Service which will develop the role of community pharmacy to support urgent care. It will allow people to be referred direct to a community pharmacy from NHS 111 to receive advice for minor illnesses, including self-care advice and wellbeing support, and treatment as necessary, as well as the supply of urgent medicines. If further testing is successful, this will be expanded over the next five years to include referrals from GPs, Urgent Treatment Centres and NHS 111 online. This will deliver faster access to a clinical consultation for patients with minor illness whilst also helping reduce pressure elsewhere in the health and care system. These new arrangements will continue the New Medicines Service that has been

established to improve adherence of patients receiving medication for diabetes, hypertension, asthma and anticoagulant medication. As part of the New Medicines Service, community pharmacists are allowed to carry out either face-to-face or telephone consultations in order to identify any problems, side-effects, concerns or non-adherence to the medication. Recent evaluation of the service provides evidence that the New Medicines Service delivered better patient outcomes through better adherence to treatment (Elliott et al., 2016[62]).

In Finland, the "*Apteenkkien Diabetesohjelma*" is a diabetes programme for community pharmacists which aims at promoting successful diabetes care and prevention. The success factors rely on collaboration between pharmacies or other health care professionals. A diabetes contact is nominated within the pharmacy to be responsible for the implementation of the pharmacy programme at local level. According to the International Pharmaceutical Federation, the programme is now offered in over 650 Finnish community pharmacies (International Pharmaceutical Federation, 2016[59]).

Italy launched its first national diabetes prevention campaign in pharmacies in 2017. More than 5 600 community pharmacies co-operated throughout the national territory and a total of 160 313 patients were examined under the scheme. Among the patients examined, around 3% were found to be diabetic and 9% had a previous diagnosis of diabetes. In addition, 36% of patients were diagnosed with prediabetes, with high risk of developing diabetes within the next ten years.

Belgium introduced the concept of "pharmacist co-ordinators" in 2017. Patients with chronic diseases can choose a pharmacist co-ordinator to take the lead in medication reviews. The pharmacist is expected to have a global view of all of the patient's medications, to co-ordinate with the primary health care team and assess potential gaps in medication use. The aim is to allow patients with chronic illnesses to better manage their health and to stay autonomous as much as possible, but also to reduce the workload of primary health care physicians.

Such initiatives enable pharmacists to provide preventive care and early interventions to reduce the risk of complications or prevent more severe diseases, which could lead to the use of more costly interventions. Increasing the role for community pharmacists can also improve access to primary health care services in remote or underserved areas where there is a shortage of primary health care physicians (see Chapter 4).

Developing community health workers' roles

Beyond expanding the role of nurse practitioners and community pharmacists, some health care systems are working towards the development of community health workers within the primary health care team. Community health workers most often are responsible for delivering person-centred, support team-based care, addressing social determinants of health, and promoting improved access to health care for vulnerable and hard to reach populations (see also Chapter 4) (Hartzler et al., 2018[63]; Malcarney et al., 2017[64]). As shown by a systematic studies review, community health workers perform three main functions: providing clinical services, such as assessment of vital signs, lifestyle advice, and routine examinations aided by remote communication with physicians; linking patients with community-based services, such as referrals for transportation or food assistance; and providing health education and coaching, to help patients achieve health goals and increase self-efficacy (Hartzler et al., 2018[63]).

In the United States, Community Health Aides provide primary health care services in remote Alaskan villages, whose population would otherwise have no access to appropriate health care delivery (Golnick et al., 2012[65]). They are the first point of contact with the health care system for the population living in these very remote villages. They work under the supervision of Community Health Practitioners, and there is an integrated referral system that includes physicians, regional hospitals and a tertiary hospital (Golnick et al., 2012[65]). The range of primary health care services delivered by Community Health Aides mostly includes care for chronic illnesses and disease prevention, plus emergency visits for respiratory distress and chest pain.

Canada has recently introduced the new professional role of “primary health counsellors” to provide mental health care services. Their role is to provide early screening and brief interventions for mental health and addiction (Box 2.3). In the Province of Nova Scotia, community paramedics treat and release patients in the community to avoiding unnecessary emergency department visits and advanced paramedics assist in long-term care settings and within palliative patients in their homes.

In the area of health education and linking patients with community-based services, the community health educator referral liaison (CHERL) is a primary health care role that has been introduced in the United States (Holtrop et al., 2008[66]). Their objective is to reduce unhealthy behaviour such as tobacco use, unhealthy diet, lack of physical activity and risky alcohol use. CHERL assesses health risks, provides health and behaviour change counselling and co-ordinates care with practices, patients, and community resources. Evaluation results show that after six months improvements were reported for BMI, dietary patterns, alcohol use, tobacco use, health status, and days of limited activity in the past month (Holtrop et al., 2008[66]). In a similar vein, Costa Rica has established “health promotors” to specifically increase the focus on health promotion and disease prevention in primary health care settings. This new group of primary health care workforce are encouraged to prescribe physical activity for at-risk population groups with follow-up programmes supervised by other primary health care providers.

In the United Kingdom, the GP contract five year framework provides funding to contribute towards an extra 20 000 non-GP roles in general practice including clinical pharmacists, social prescribing link workers, physician associates, first contact physiotherapists and first contact community paramedics. These roles will provide clinical services, patient education and link patients with community-based services. These roles have been chosen to meet the strong practice demand, and because the tasks they perform can help reduce GP workload, improve practice efficiency and better meet health system objectives (NHS, 2019[67]). According to NHS England, the five roles will enrich the skills mix of general practice teams nationwide and enable all GPs to concentrate their time on tasks specifically requiring physician input. It is expected that the new roles will use data analysis to intervene early to help prevent illness.

Overall, health care systems need to ensure that their community-based workforce is able to take on different roles for the benefit of patients, such as prevention activities, co-ordination roles or person-centred communication. A greater use of a community-based workforce has all the potential to increase efficiency in primary health care practice, notably by increasing the panel size of primary health care physicians, reducing after-hours work for physicians, and by meeting patient’s clinical needs more effectively and comprehensively. Health care systems will need to ensure that laws and regulations in OECD countries do not restrict the scope of practice of primary health care staff. It is vital to allow nurse practitioners and other primary health care staff to practice to the fullest extent of their training and ability, and remove restrictions that limit their scope of practice (Buerhaus Peter, 2018[68]; Maier and Aiken, 2016[69]; Shipman and Sinsky, 2013[44]).

Box 2.3. Introduction of community health workers in Costa Rica and Canada to target specific health needs

Health promotors in Costa Rica

Costa Rica has recently established a new health profession called "health promotors" to specifically increase the focus on health promotion and disease prevention in primary health care settings.

Health promotors will participate in the diagnosis of community health issues and in the design of indicators and registration systems to help identify health determinants in order to prioritise areas of intervention.

They are expected to participate in interdisciplinary teams and to co-ordinate with primary health care teams. They will conduct counselling, training and guidance in health promotion and prevention of disease, and will also participate to inter-sectoral projects to address social determinants of health.

Mental health counsellors in Canada

The primary role of mental health counsellors is to provide early screening and brief interventions for mental health and addiction as part of the shared care services offered in primary health care settings. The mental health counsellor will work in partnership with the patient to identify the support and assistance they need to achieve their health goals.

Where possible, the mental health counsellor and the family physician (and even the psychiatrist) work in the same office or clinic, so all services can be offered from the same location. The mental health counsellor will provide individual, family or group counselling depending on the needs of the individual. Services are short term and time limited. The psychiatrist will provide assessment and consultation with the family physician around treatment for those who need specialised mental health care.

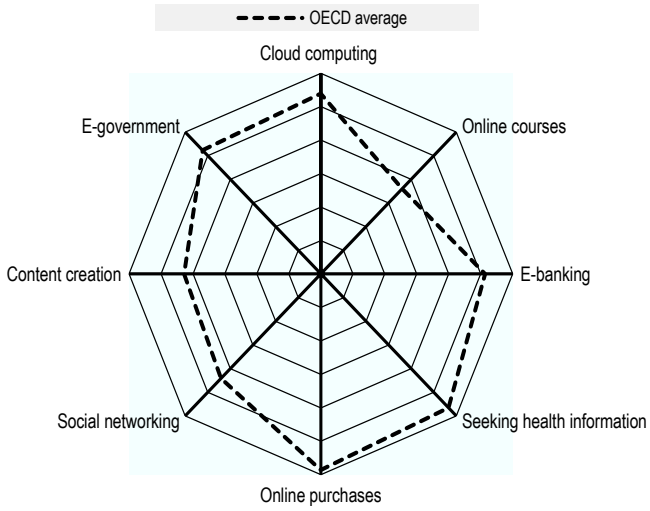
Source: OECD (2018[52]), Policy Survey on the Future of Primary Care.

2.3.2. The vast growth in digital technologies for health has brought both benefits and new challenges for primary health care

Digital health is closely related to the concept of eHealth, which can be defined as the use of information and communication technology in support of health and health-related fields (WHO, 2016[70]). Digital health covers this term and includes emerging areas, such as the use of advanced computer sciences in genomics, "big data", and artificial intelligence (WHO, 2019[71]). Health sectors across countries are undergoing a profound transformation as they capitalise on the opportunities provided by information and communication technologies. Key objectives shaping this transformation process include improved efficiency, productivity and quality of care (OECD/IDB, 2016[72]).

Patients and providers are more aware than ever about advances in technology and that these can be used in health-related issues. Health systems are responding and adapting in different ways to this trend. In Europe, a recent report found that in all the 27 countries surveyed, eHealth adoption in primary health care has increased between 2013 to 2018, with the highest levels of implementation in Denmark, Estonia, Finland, Spain, Sweden and the United Kingdom, while in Greece, Luxembourg and the Slovak Republic uptake remains relatively low (Valverde-Albacete et al., 2019[73]). Figure 2.8 shows the proportion of Internet users in OECD countries utilising common digital technologies or engaged in selected online activities. Notably, health-related searches are the second most common use of the Internet, with almost 57% of people using the Internet in this way, only surpassed by online purchases with 59% (OECD, 2017[74]).

Figure 2.8. Seeking health information ranks second in the utilisation of digital technologies



Note: All indicators have been standardised with a range between 0 and 1.
Source: Adapted Figure 1.4, from OECD (2017[74]), *OECD Digital Economy Outlook 2017*, https://doi.org/10.1787/9789264276284-en.

Likewise, a survey of almost 5 000 people in the United States, found that among the respondents who indicated that they are open to using digital tools: the majority said they would prefer to receive them from their primary health care provider; 58% said they would prefer to receive appointment reminders by email, text or phone; 53% would prefer to use EHR; 53% would choose to have email and online communication; and 50% favoured having video or online doctor's appointments (Cordina, Qian and Sanfilippo, 2019[75]).

The following section is focused on three of the most relevant and developed digital technologies used in primary health care: telemedicine, mobile health, and electronic medical support systems.

Telemedicine can result in a better use of resources to improve health care processes and is cost-effective in the majority of studies

Telemedicine can be classified into three categories (Flodgren et al., 2015[76]): telemonitoring, store and forward and interactive telemedicine. Telemonitoring is the use of mobile devices and platforms to conduct routine medical tests, communicate the results to health care workers in real time, and potentially launch pre-programmed automated responses. Store and forward is similar, but is used for clinical data that are less time-sensitive and for which a delay between transmission and response is acceptable. Interactive or real-time telemedicine involves direct and synchronous communication between providers and patients, also called digital consultations (e.g. direct-to-patient or in health care facilities).

Telemedicine may contribute to providing care in the right place at the right time

Telemedicine may contribute to providing care in the right place at the right time in several different ways, notably by improving the process of care and appropriateness of referrals. Teleconsultations, which are one of the most utilised telemedicine interventions in primary health care, may also lead to GPs feeling less isolated from their peers and being better able to triage and treat patients. Indeed, primary health care professionals aided with telemedicine can contact specialists to get specific medical expertise for a consultation. This is associated with continuous learning between peers and with a reduction of unnecessary referrals to secondary care. A review found that face-to-face visits with specialists are reduced between 22% and 68% with the use of teleconsultations (Liddy et al., 2019[77]). Importantly, the same review found that patients were highly satisfied with teleconsultation (median ratings of five on a

five-point Likert scale) in terms of expectations being met and confidence in the service, and patients rated the service high for quality of care, timeliness, improved access and safety.

In Colombia, the development of telemedicine is a priority objective to improve quality and access to primary health care to the population. Efforts are being made to develop the regulation and guidelines for a safe use of telemedicine, and to ensure sustainable financing and payment mechanisms of telemedicine services.

In Canada the Ontario Telehomecare project provides co-ordinated support from primary health care teams to people with complex chronic diseases in their own homes. The overarching objective is to provide people with chronic conditions access to appropriate care when needed and decrease the need for emergency department visits and acute hospital admissions, thereby increasing efficiency. The programme focuses on people with CHF, COPD, diabetes, patients transitioning from hospital to home and patients requiring remote monitoring in a shared post-acute care model. Recent evaluations show positive results: patients with CHF and/or COPD reported increased confidence in self-managing symptoms, while hospital emergency department visits and hospital admissions decreased (OTN, 2016[78]).

In Estonia, telemedicine and tele-expertise support interactions among professionals, save time and make care more efficient. The eConsultation service in primary health care has been implemented to allow primary health care physicians to consult with specialists on difficult cases online. The use of the eConsultation service has increased among primary health care physicians and has great potential to reduce unnecessary referrals to specialist care. In 2018, 882 primary health care physicians used the eConsultation service compared to 670 in 2017 (Eesti Haigekassa, 2019[79]).

In the United Kingdom, Babylon GP at Hand offers digital and face-to-face consultations to registered patients. Although there are several questions around the financial sustainability of the GP at Hand practice and other nearby practices (notably because telemedicine services attract younger and healthier patients than other GP practices) (Burki, 2019[80]; Cravo Oliveira Hashiguchi, 2020[81]), a recent evaluation shows that patients were positive about the quality of care they received, the level of antibiotics prescribing was lower among GP at Hand patients than among patients in other traditional practices, and GPs working at the practice reported high levels of satisfaction in terms of work-life balance (Iacobucci, 2019[82]; Burki, 2019[80]; Quigley, Hex and Aznar, 2019[83]). Additional evaluation must however be performed to guarantee the benefits of such digital services are maximised, notably with regards to the use of specialised health care services.

Telemedicine has been found to be cost-effective in the majority of analysis, but important cost savings are missing from many economic assessments

An OECD umbrella review of systematic reviews, found that of 19 systematic reviews on cost-effectiveness, 13 concluded that telemedicine interventions were either cost-effective or had the potential to be cost-effective (Cravo Oliveira Hashiguchi, 2020[81]). For instance, cost-minimisation studies show that the cost of teleconsultations can range between USD 5 and USD 298 per session, compared with face-to-face specialist visits that range between USD 56 and USD 338 (Liddy et al., 2019[77]).

However, there are examples that place a cautionary note. A review including studies conducted in primary health care centres and hospitals in Austria, Italy and the United Kingdom, found that tele-dermatology accounts for more time (7.54 minutes extra on average) than conventional consultations and this difference represents an opportunity cost of EUR 29.25 for each remote consultation, with a unitary factor cost of EUR 3.88 per minute (Fuertes-Guiró and Girabent-Farrés, 2017[84]). Moreover, teleconsultation services in primary health care may lead to difficulties in patient pathways when providers have dissimilar objectives and incentives, or are defectively integrated. This problem has been noted in the United States and the United Kingdom, where there is a risk that providers might prioritise easy-to-access, quick and convenient teleconsultations to younger and healthier patients under fee-for-service payment schemes. This risk can

be exacerbated when the primary health care provider is not the patient's usual physician, and continuity of care is limited, which creates an inefficient use of resources (Cravo Oliveira Hashiguchi, 2020[81]). In addition, it is important to ensure a strong quality control for telemedicine so that these digital services offer safe and high-quality care to populations across OECD countries (see also Chapter 4).

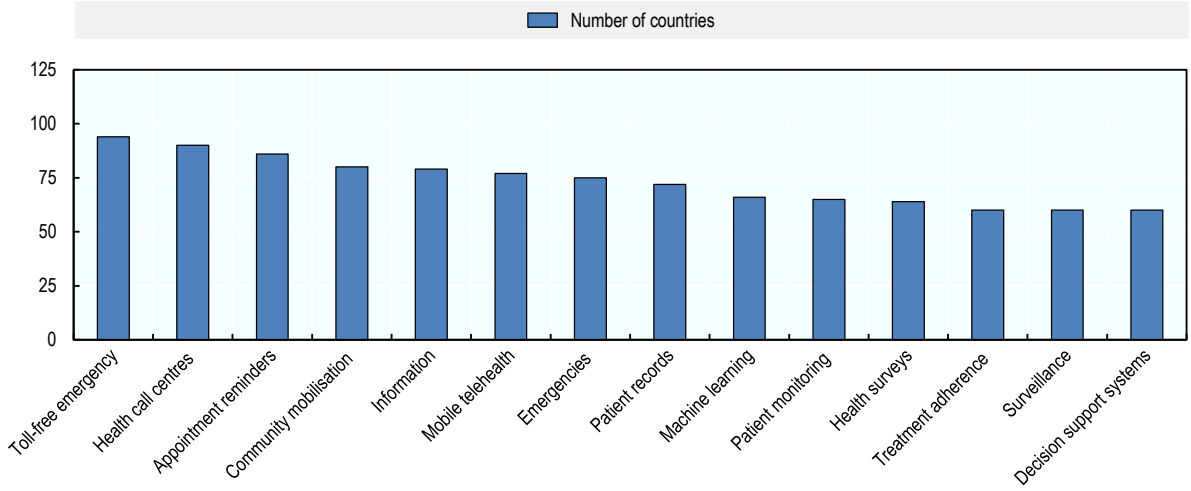
Despite the growing number of economic assessments of telemedicine in recent years, the comprehensive and methodological approach used in these studies has generated some questions. A review found that most of the economic studies regarding telemedicine have a sufficiently broad sample and use well-defined cost items and outcome variables, but the perspective of analysis remains an unsolved issue (Fusco, Trieste and Turchetti, 2014[85]). Because economic analyses of telemedicine interventions usually take a relatively narrow health system perspective and fail to introduce a social perspective, they tend to miss important cost categories that would make the economic case for telemedicine more favourable. For instance, in 2017, patients in the Canadian Ontario Telemedicine Network avoided travelling 270 million kilometres and the network saved CAD 71.9 million in travel grants (OTN, 2018[86]). While provider savings associated with travel subsidies would be included in a cost-effectiveness analysis with a health system perspective, the significant costs of unsubsidised patient travelling would not. These costs would include not only direct costs (e.g. gas, bus fare, etc.), but also indirect costs in time away from work or leisure, as well as pollutant emissions (Oliveira et al., 2013[87]). While the costs of avoidable and unplanned admissions are frequently considered in cost-effectiveness analyses of telemonitoring interventions, again the potential costs to family members meeting their relatives at the hospital and the productivity loss for the patient and their families are not (Fusco, Trieste and Turchetti, 2014[85]). These are all quantifiable costs that can improve economic evaluations of telemedicine (Cravo Oliveira Hashiguchi, 2020[81]).

Mobile health apps as a tool to embrace technology and bring patients closer to primary health care practices

The use of smartphones and mobile devices has increased at a fast pace in most countries and mobile health (mHealth) has been one of the fastest growing sectors of information and communication technologies in health. Mobile technologies offer a wide range of smart modalities by which patients can interact with health professionals or systems, ranging from prevention, diagnosis, treatment and monitoring (OECD, 2017[74]). Health-related mobile applications available to consumers surpassed 318 500 in 2017, nearly double the number available in 2015, with approximately 200 new apps added to the market each day. Nonetheless, 85% of all health apps have fewer than 5 000 downloads and only 41 apps have registered at least ten million downloads, together representing nearly half of all app download activity (IQVIA, 2017[88]).

In 2015, the World Health Organization surveyed over 125 countries on eHealth and mHealth activities at the national level (WHO, 2016[89]). Over 80% of these countries reported government-sponsored mHealth programmes, many of which are directly related to primary health care, such as call centres, appointment reminders, community mobilisation, mobile telehealth, patient records, patient monitoring, health surveys, treatment adherence and decision support systems. mHealth projects primarily extend existing health programmes and services at the national or local level (Figure 2.9).

Figure 2.9. Adoption of mHealth programmes by type in 125 countries worldwide, 2015



Note: The results include responses from over 600 eHealth experts in 125 countries worldwide.
Source: OECD (2017[74]), *OECD Digital Economy Outlook 2017*, https://doi.org/10.1787/9789264276284-en, based on WHO (2016[89]), *Atlas of eHealth Country Profiles*.

There is an increasing body of evidence about the effectiveness and economic assessments of mHealth interventions, most of which apply for primary health care

mHealth is widely recognised as especially valuable for the management of non-communicable diseases, such as diabetes and cardiac disease, and other health conditions where primary health care has a crucial role. A study by IQVIA (2017) found that there is a growing body of evidence analysing the effectiveness of mobile apps to improve patients' health, with published studies increasing substantially in recent years. In this context, several mobile health apps have achieved significant levels of substantiated clinical evidence supporting them. In particular, three digital apps in the areas of diabetes, depression and anxiety were considered by the report to be candidates for inclusion in clinical guidelines because of favourable scientific evidence supporting them. As an example, an overview of systematic reviews about mHealth for managing diabetes, found that on average mHealth interventions improve glycaemic control (HbA1c), compared to standard care or other non-mHealth approaches, by as much as 0.8% for patients with type 2 diabetes and 0.3% for patients with type 1 diabetes, at least in the short-term (≤12 months) (Kitsiou et al., 2017[90]).

Similarly, there has been a growing number of economic assessments of mHealth. A review that included 39 studies spanning 19 countries (most of which were upper and upper-middle income countries) found economic evaluations about primary mHealth interventions, behaviour change communication (e.g. attendance rates, medication adherence) and use of mHealth short messaging system (SMS) (e.g. used to send reminders, information, provide support, conduct surveys or collect data). In 29 studies (74.3%), researchers reported that the mHealth intervention was cost-effective, economically beneficial, or cost saving at base case (Iribarren et al., 2017[91]). From a health system perspective, this can be explained because of a better use of resources when utilising mHealth. For instance, attendance rates to health care appointments can be improved by using mobile text messages. A review found moderate quality evidence from seven studies that mobile text message reminders improved the rate of attendance at health care appointments compared to no reminders. There was also moderate evidence from three studies that mobile text message reminders had a similar impact to phone call reminders, which require more resources than mobile texts (Gurol-Urganci et al., 2013[92]). At country level, a study which took a health system and social perspective, reported that in the United States using digital health apps in just five patient populations where apps have already been proven to reduce acute care utilisation (diabetes

prevention, diabetes, asthma, cardiac rehabilitation and pulmonary rehabilitation) would save the country's health care system USD 7 billion per year and provide tangible improvements (IQVIA, 2017[88]).

A comparative advantage of smartphone or mobile apps is their efficient model due to negligible marginal cost and scalability. Once programming is completed and the app tested and verified, the number of times it can be downloaded and used is virtually unlimited. There is no need for hardware as users will generally not purchase a smartphone only to use health and wellness apps. Any improvements or corrections to the software are automatically updated on the user's smartphone via the Internet. More importantly, an app can be used over and over, incurring only a one-off expense to the consumer. However, successful integration of mHealth in health care systems requires a number of adaptations: the performance and clinical utility of mobile applications must be assessed for reliable and efficient use in health care, and incentives are needed to encourage take-up of mobile applications that are both effective and cost-effective. In addition, exchanges of information must be protected by appropriate levels of cybersecurity (OECD, 2017[93]).

Beyond digital apps, the development of web-based patient portals shows promise for improving self-efficacy, health behaviours and clinical outcomes (Whitehead and Seaton, 2016[94]; Bender et al., 2011[95]). In Finland, the Oulu Self Care Service was launched in 2010 in the City of Oulu. The eService platform provides self-care services, including secure communication with health care professionals, booking appointments, checking laboratory results, accessing personal information, a self-care library (with content for self-care for diabetes, asthma and blood pressure), electronic health-checks and digital coaching (e.g. sleep, stress, weight and exercise) (Lupiañez-Villanueva, Sachinopoulou and Theben, 2015[96]). The platform is integrated with a person's EHR. The Oulu Self Care Service has been recognised as a key enabler of the chronic care model to improve health outcomes, and make care more efficient through a shared use of data among health and social care providers. Similar services are also available in Canada, Estonia and Turkey (see Chapter 3).

Electronic health records and electronic prescription systems can improve clinical decision making in primary health care

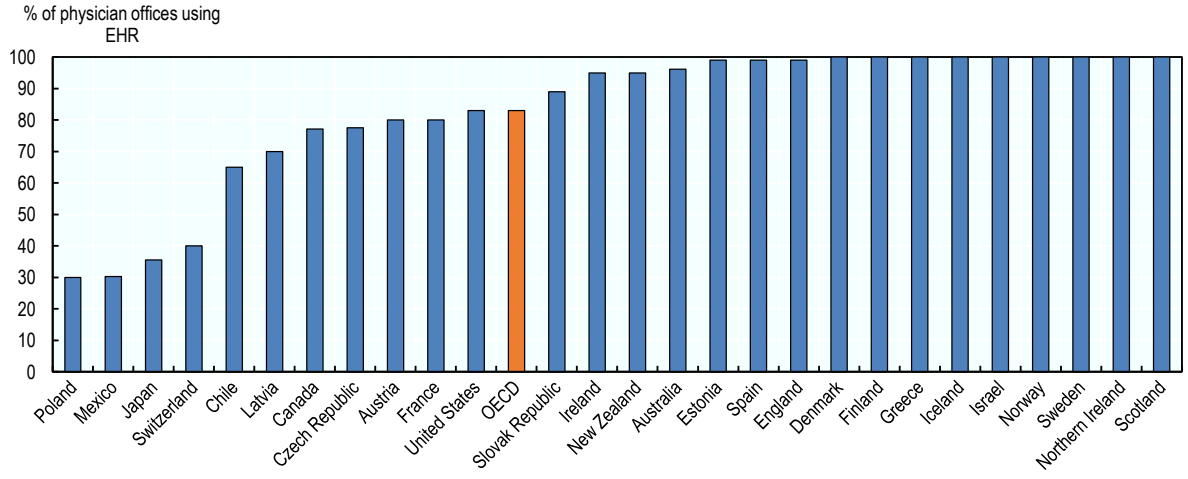
Electronic clinical support systems store and analyse data to help health care providers make decisions and improve patient care. They can also issue risk alerts, reminders and provide information about interaction between medicines. They are usually based on EHR and electronic medication prescription systems, which provide the foundation for more complex functionalities that promise greater care co-ordination and improved clinical management (OECD, 2017[74]; Santos et al., 2019[97]).

EHR have expanded in OECD countries and can improve primary health care clinical practice

In 2016, an OECD survey of 30 OECD countries revealed that most countries are investing in the development of EHR (Oderkirk, 2017[98]). Twenty-three countries reported that they are implementing EHR systems at a national level, but only 18 reported comprehensive record sharing within one countrywide system designed to support each patient having only one EHR, aiming to cover primary health care and hospitals. Moreover, six countries indicated that they are not aiming to implement an EHR system at the national level at this time (Chile, Czech Republic, Japan, Mexico and the United States).

In relation to primary health care, 15 countries reported that at least 90% of primary health care physician offices are capturing patient diagnosis and treatment information in EHR. Conversely, Mexico and Poland reported that less than one-third of primary health care physician offices are using EHR (see Figure 2.10). Comparing with data collected in 2012 (OECD, 2013[99]), some countries have substantially increased their EHR coverage in primary health care, for instance, Poland from 15% to 30%, Mexico from 15% to 30.3%, Japan from 15.2% to 35.6%, Switzerland from 20% to 40%, Canada from 41.3% to 77.2%, the United States from 57% to 83%, and Denmark from 51% to 100%. In Lithuania, the coverage of EHR also substantially increased during the past year.

Figure 2.10. Percentage of primary health care physician offices using electronic health records in OECD countries, 2016



Note: The data for Canada refer to the percentage of physicians, as opposed to physician offices.
Source: Oderkirk (2017[98]), "Readiness of electronic health record systems to contribute to national health information and research", https://dx.doi.org/10.1787/9e296bf3-en.

There is mounting evidence today to demonstrate that the introduction of EHR can contribute to better health care. A systematic review that conducted several meta-analyses found that EHR resulted in 33% higher adherence to guidelines and 54% reduction in medication errors, and 34% reduction in adverse drug effects. However, no association with mortality rates was found (Campanella et al., 2016[100]).

In Finland, the POTKU model has the potential to increase adherence to guidelines and to reduce medication errors. The model provides primary health care physicians with the locally developed Evidence-Based Medicine electronic Decision Support (EBMeDS) system, which is matched with patient records to provide personalised care guidance, and generate automated reminders and warnings (Hujala Anneli et al., 2016[101]).

EHR can also be accessed online by patients, allowing for a relatively new type of relationship between the primary health care system and the patient. A systematic review found that patients reported improved satisfaction with online access and services compared with standard provision, improved self-care, and better communication and engagement with clinicians. For instance, safety improvements were patient-led, for example, by identifying medication errors and facilitating more use of preventive services. Use of EHR also resulted in a moderate increase of email exchanges, no change on telephone contact, with variable effects on face-to-face contact. However, other tasks were necessary to sustain these services, which impacted on clinician time (Mold et al., 2015[102]).

Regarding economic evaluations, there seems to be a salient lack of recently published economic evaluations about EHR in primary health care. A 2003 study (Wang et al., 2003[103]), found that the implementation of an EHR system in primary health care can result in a positive financial return on investment to the health care organisation, estimating a net benefit for a 5-year period of USD 86 400 per provider. Sensitivity analysis showed results ranging from a USD 2 300 net cost to a USD 330 900 net benefit. Benefits accrue primarily from savings in drug expenditure, improved utilisation of radiology tests, better capture of charges, and decreased billing errors. More recent discussion is focused on how the data coming from EHR can help develop economic evaluations of other interventions (Hazra, Rudisill and Gulliford, 2019[104]).

Spain, for example, as part of its "Chronicity Strategy" to provide integrated care to frail elderly adults and patients with multi-morbidity in the Basque country, integrates EHR with a patient portal, an electronic prescription system and tele-monitoring service. Based on a predictive model, risk stratification and case finding are used to unify various data sources, including demographics, primary health care, hospital care and prescription data. Risk stratification and case finding allow the alignment of the delivery of preventive services for groups at higher risk of worse health outcomes and to elaborate needs-based care plans. A recent evaluation of the project shows that the integrated care model was associated with a reduced number of hospital admissions and visits to emergency departments, and with higher satisfaction from patients and health care professionals. Overall, the analysis show that this intervention is cost effective (de Manuel Keenoy, 2018[105]; Scirocco, 2017[106]).

In Israel, all the health funds have comprehensive EHR in community care, which supports the sharing of information among physicians, laboratories, diagnostic centres, hospitals and patients. EHRs are used across the community care setting and they capture detailed patient level information, including demographics, diagnostic and testing information, and drug utilisation data (see also Chapter 3).

In Colombia, the National Government is currently working to improve the interoperability of EHR through defining the legal framework, the sources of financing and training needs.

ePrescription programmes can reduce medication errors and bring financial gains to primary health care

Electronic prescription (ePrescription) allows prescribers to write prescriptions that can be retrieved by a pharmacy electronically, to assess a patient's medication regimen at the point of care and to identify non-adherence. It may also be possible to notify a prescriber or pharmacist about refills, which can help trigger an intervention to avoid a potential gap in medication use and can improve the accuracy and efficiency of pharmaceutical drug dispensing (Khan and Socha-Dietrich, 2018[107]).

The rate of ePrescribing has been increasing in OECD countries. For instance, by 2014 the adoption of ePrescribing in primary health care was approximately 32% of European GPs. National ePrescribing services were established in 11 countries, with pilot projects underway in most others. The highest adoption rates were observed in countries with national health service models, concentrated in the Nordic area and the United Kingdom (Brennan, McElligott and Power, 2015[108]). Other OECD countries, for example Australia and New Zealand, also have ePrescribing infrastructures in place. In New Zealand, as of March 2019, the ePrescription service was used by 160 GP practices, up from 87 in March 2018 (84% increase) and prescribers generated 251 542 ePrescriptions compared to 148 450 the year before (Ministry of Health, 2019[109]). In Australia, by 2015, 95.7% of GPs had implemented Electronic Transfer of Prescription and the Australian Department of Human Services also mandated that all pharmacies have to move to online claiming (HIQA, 2018[110]). In Sweden, all pharmacies use the eHealth data base to get the information they need to dispense a prescription. In Lithuania, electronic medical records, including electronic prescriptions, has grown significantly since 2017. 100% of pharmacies are connected to central eHealth system and can issue medicines by electronic prescriptions. Health care institutions can use the central eHealth portal for free or they can use their own Information system to send medical documents including for example referrals, descriptions of consultations or ePrescription.

Published economic evaluations of ePrescription systems in primary health care settings are relatively scarce. Among the economic benefits described for ePrescribing (Deetjen, 2016[111]), there are efficiency gains for prescribers, mainly by reducing the time devoted to writing prescriptions and in obtaining information on patients' co-morbidities and other medications. Similarly, efficiency gains for dispensers arise from lower workload, better stock management, reduced volumes of paper to be sorted out for reimbursement, and the possibility of preparing orders before patients arrive. In addition, ePrescriptions can enable transparency, by making doctors more accountable for what they prescribe (e.g. allowing the evaluation of adherence to clinical guidelines), and making pharmacies more accountable for what they

dispense and in what timescales. Fraud reduction has been signalled as an economic benefit too, by facilitating detection and audit trials. Finally, printing costs are immensely reduced as well. A systematic review found that cost savings due to improved patient outcomes and decreased patient visits are estimated to be between USD 140 billion and USD 240 billion over ten years for practices that implement ePrescribing (Porterfield, Engelbert and Coustasse, 2014[112]).

In Estonia, the direct cost of implementing the service was almost EUR 500 000, including the set up costs, annual running costs for servers and maintenance, but this does not include the cost of auxiliary registries, project management and system integration for pharmacists and health care service providers (Parv et al., 2014[113]). Savings in printing materials were calculated to exceed the EUR 63 668 saved in 2009 to savings of around EUR 100 000 in 2010 (Deetjen, 2016[111]). In Sweden, by 2008 the cumulative investment costs, including operating expenditure over the eight years since nationwide implementation, were estimated at EUR 155 million, while the estimated cumulative benefits were estimated to be EUR 330 million (European Commission, 2008[114]).

Since ePrescribing is usually part of a wider health information system, a study (Dobrev et al., 2009[115]) evaluated the development of ePrescription systems attached to EHR in 11 different health care settings, including primary health care, specialist ambulatory care and hospital care. The experiences considered were from Bulgaria, the Czech Republic, France, Israel, Italy, Spain, Sweden, Switzerland, the United Kingdom and the United States. The study found that the average cumulative socio-economic returns on investment of interoperable EHR and ePrescribing systems was 78%, on average, over the evaluation timescales of between nine and 13 years. It took at least four and up to nine years, before initiatives produced their first positive annual socio-economic return, and 6-11 years, to realise a cumulative net benefit. These findings highlight the importance of long-term investments in EHR and ePrescribing systems to obtain both health and economic benefits.

2.3.3. New payment structures can help teams deliver primary health care more effectively

There are several forms of payment structure that encourage certain desirable behaviours at specific points of the care continuum, including providing additional payments to remunerate specific activities and pay-for-performance (P4P) programmes. Providing additional payments can support the management of chronic diseases, care co-ordination or early discharge from hospitals, while P4P targets quality or performance outcomes. Overall, such forms of payment are keys to incentivise primary health care teams to operate differently. Such economic incentives are designed to maximise health care output through better care processes, and to reduce the use of expensive inputs by moving care out of the hospital sector. Overall, this can help to improve technical and allocative efficiency.

To be effective, paying for specific activities or P4P needs to encourage the delivery of appropriate services in primary health care that can be directly influenced by the level of the primary health care team's efforts.

Paying for disease prevention, care co-ordination and for early discharge from hospitals signals how services should be delivered to improve care processes

Paying for disease prevention and for care co-ordination is a way of targeting specific dimensions of the care provision in order to improve health outcomes, notably through the establishment of care plans, collaborative care meetings or the provision of patient education, particularly for those suffering from multi-morbidity. The 2018 OECD Policy Survey on the Future of Primary Care shows that 11 OECD countries use this type of payment to incentivise care co-ordination or disease prevention (Figure 2.11).

In Canada, for example, the funding model encourages collaboration and communication among providers. Additional fees are offered to physicians to compensate for time spent communicating with other health care providers involved in the patient's care and for sharing information with other providers to better

manage complex needs. In Iceland and some regions of Italy, physicians have additional remuneration when they are responsible for patients with chronic disorders or with special care needs. They are expected to collaborate with specialists, nurses and social workers. In Israel, additional payments have been introduced to stimulate state-mandated health service organisations to improve quality and access to primary health care. The programme, for example, rewards providers for taking care of chronic patients in multi-disciplinary teams.

Australia has invested in the Practice Incentives Program, which supports general practice activities that encourage continuing improvement, quality care, enhance capacity and improve upon access and health outcomes for patients, including improving health outcomes relating to chronic disease. Components of the Practice Incentives Program include the use of outcomes payments to general practices. As of 1 August 2019, a new Practice Incentives Program Quality Improvement was introduced to provide funding to general practice to undertake continuous quality improvement activities through the collection and review of practice data in partnership with their local Primary Health Network (PHN). The Practice Incentives Program Quality Improvement will support work already underway where practices share data and work closely with their PHN to improve patient care. In addition, practice nurses can receive additional payments for co-ordinating activities. In 2011, the "working with others" programme was introduced as an annual payment for community pharmacists who collaborate with other health professionals.

In France, the *Experimentations de nouveaux modes de rémunération* (ENMR) entailed a lump-sum payment per patient for three types of activities: i) co-ordinating activities; ii) provision of new services, such as patient education; and iii) inter-professional co-operation. Pay-for-co-ordination schemes also exist in Austria, Denmark, Germany and Sweden (Suzuki, 2018[116]). In Austria and Germany, pay-for-co-ordination emerged out of disease management programmes for chronic diseases. In Sweden, municipalities can provide bonuses to primary health care physicians for care co-ordination. In Denmark, general practitioners get pay-for-coordination, notably when they have more responsibility for treatment of chronically ill patients (e.g. diabetes).

In the United States, the Comprehensive Primary Care Plus model (mentioned further in Chapter 3) is a unique public-private partnership, in which practices receive additional financial resources and flexibility to make investments, improve quality of care, and reduce the number of unnecessary services their patients receive. In addition, within the Medicare programme, new billing codes have been recently implemented so that providers can bill for care co-ordination and care transition services.

Other health care systems employ economic incentives to encourage reductions in delayed hospital discharge and to improve care transitions out of hospital. These often take the form of negative incentives, whereby an organisation is required to perform a certain way in order to avoid incurring a loss. In this case, hospitals or municipalities are fined for excessive delays in discharge from hospital, as seen in the Czech Republic, Denmark, Norway, Sweden and the United Kingdom. In Canada, by contrast, the primary health care physicians are provided with a financial incentive for a timely primary health care appointment post-hospital discharge (within seven days).

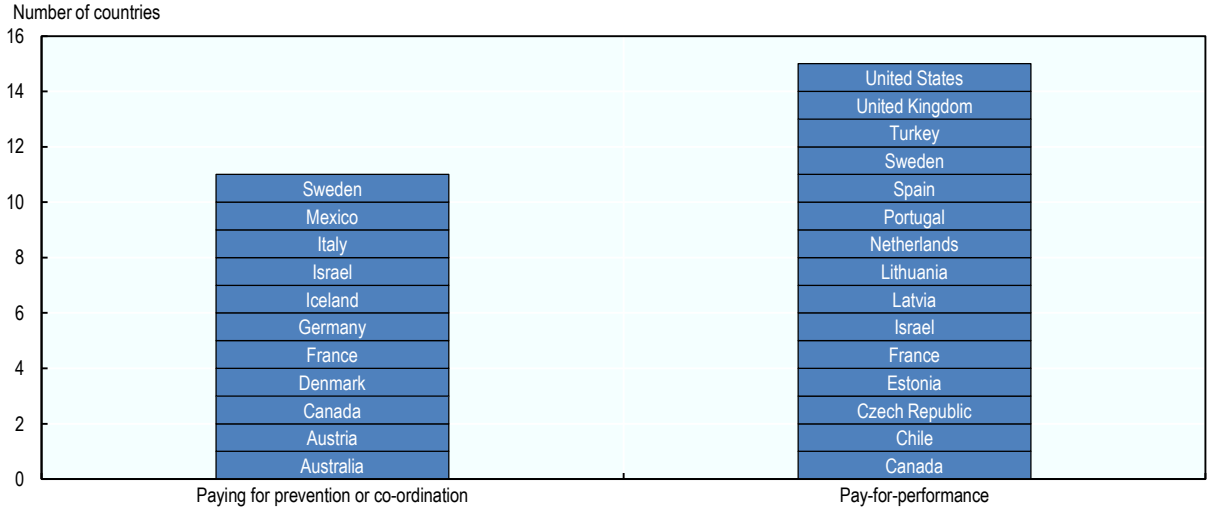
Experience from OECD countries also shows that financial incentives may be a useful way to compensate primary health care teams for the costs of transition associated with the introduction of digital technologies. In the United States, for example, the Medicare and Medicaid Promoting Interoperability Programs (previously called "meaningful use") are incentive schemes aimed at encouraging the adoption of certified EHR which, as mentioned in Section 2.3.2, has been found to improve efficiency in primary health care (Shipman and Sinsky, 2013[44]; Green, Savin and Lu, 2013[53]). The adoption of EHR should follow three stages:

- Stage 1: focus on promoting the adoption of certified technologies. The first stage establishes requirements for the electronic capture of clinical data and giving patients access to electronic copies of their own health information.

- Stage 2: emphasise care co-ordination and the exchange of patient information. This increases the thresholds of criteria compliance and introduces more clinical decision support, care co-ordination requirements and patient engagement rules.
- Stage 3: aim at improving health outcomes by implementing protected health information, ePrescribing, clinical decision support, computerised provider order entry, patient provider access, co-ordinated care through patient engagement, health information exchange, clinical data registry and case reporting.

Previous studies show that paying for specific activities is simple to implement and does not require large IT investment (OECD, 2016[117]). In France, available evidence suggests the ENMRs showed beneficial impact on both the quality of care and health care costs. The multidisciplinary structures signed up to the ENMR achieved better results than traditional practices for nearly all care indicators (diabetes care processes, disease prevention and efficient prescribing of medications). The organisation of care was also found to be more effective through greater collaboration and greater care co-ordination between health professionals (Mousquès and Bourgueil, 2014[118]). In Norway, the financial sanctions imposed on local authorities between 2012 and 2015 for delays in discharging patients from hospital was followed by a significant reduction in delayed discharges (OECD, 2017[25]). It is important to note that despite positive evaluation, it is always difficult to disentangle the contribution of economic incentives or sanctions from the influence of other factors.

Figure 2.11. Number of OECD countries using paying for prevention/co-ordination vs pay for performance incentives, 2018



Source: OECD (2018[52]), Policy Survey on the Future of Primary Care, and OECD (2016[54]), Health System Characteristics Survey, http://www.oecd.org/els/health-systems/characteristics.htm.

When properly designed and implemented, P4P programmes have the potential to encourage clinical excellence in primary health care

There are some P4P programmes in primary health care across OECD countries. The payment most often depends on quality or performance targets, and relates to the degree of achievement of certain objectives. Providers have to report the required indicators and outcomes, and have to demonstrate they have met the targets to receive payments. By contrast, if providers do not meet the required targets, the payment is withheld.

The latest evidence indicates that 15 OECD countries have introduced P4P schemes in primary health care. These schemes typically use process indicators to reward clinical excellence (such as blood pressure checks for patients with hypertension or tests for HgbA1c for diabetic patients) or better intermediate outcomes (such as cholesterol control in people with diabetes or controlled blood pressure for patients with hypertension).

In England, for example, these indicators are included in the Quality and Outcome Framework (QOF), a voluntary annual reward and incentive programme for all GP surgeries. In 2017-19, the QOF included 75 indicators, consisting of three domains. The three domains are clinical (e.g. heart failure, hypertension and chronic diseases), public health (e.g. blood pressure, prevention of cardiovascular disease, obesity and smoking) and public health additional services (e.g. cervical screening and contraception). As demonstrated by Roland and Guthrie (2016[119]), the successes of QOF included more systematic management of chronic conditions by multi-disciplinary teams and the widespread introduction of EHR. The QOF has been found to slightly improve care quality and to reduce socio-economic inequalities in care delivery (Roland and Guthrie, 2016[119]). Findings from Dusheiko et al (2011[120]) show that the QOF improves intermediate outcomes for stroke care, which was associated with reduced hospital costs (Dusheiko et al., 2011[120]). Harrison et al (2014[121]) confirmed these findings by suggesting that the introduction of the QOF in England was associated with a decrease in emergency admissions for conditions incentivised under the scheme, compared with conditions that were not incentivised (Harrison et al., 2014[121]). Rates of emergency admissions decreased by 10.9% in 2010/11. However, other studies show that the QOF had no positive impact on health outcomes. Using population-level mortality statistics between 1994 and 2010 for the United Kingdom and other high-income countries not implementing P4P schemes, Ryan et al (2016[122]) have shown that the QOF was not associated with changes in population mortality. Results are therefore highly inconsistent across studies (Ryan et al., 2016[122]).

Table 2.3. Indicators used as part of the Estonian pay-for-performance programme

Indicators of the P4P programme	
Part 1 – Prevention	
Immunisations	Pertussis, diphtheria, tetanus, poliomyelitis, measles, mumps, rubella, hepatitis B, haemophilus influenza type b according to immunisation plan
Children's health check	1, 3, 6, and 12-month checks, 2-year check, preschool health check
Cardio-vascular disease prevention programme	For the population aged 40-60 years, blood pressure, glucose, cholesterol with fractions SCORE calculation
Part 2 – Chronic diseases	
Diabetes mellitus type 2	Register of patients with type 2 diabetes, measuring glucose and HbA1c, cholesterol with fractions, serum creatinine testing, urine tests to detect microalbuminuria, blood pressure measurement, nurse counselling
Hypertension	Register of patients with hypertension, divided into 3 stages, measuring glucose, cholesterol with fractions, serum creatinine testing, urine tests to detect microalbuminuria, blood pressure, ECG, nurse counselling, treatment with ACE inhibitors
Myocardial infarction	Register of patients with myocardial infarction, measuring cholesterol with fractions, ECG, blood pressure, nurse counselling
Hypothyroidism	Register of patients with hypothyreosis, TSH testing
Part 3- Enhanced services	Observation of pregnancy, pap smear tests, minor surgery procedures, participation in CME courses

Source: Merilind et al (2016[123]), "Pay for performance of Estonian family doctors and impact of different practice- and patient-related characteristics on a good outcome: A quantitative assessment", https://doi.org/10.1016/j.medici.2016.04.003.

In France, the P4P programme is called the *Remunération sur Objectifs de Santé Publique* (ROSP). In 2018, the ROSP targeted management of chronic conditions (including diabetes, hypertension and cardiovascular diseases), prevention activities (such as for influenza, cancer screening and addiction) and efficiency (such as rate of antibiotic prescriptions). In Estonia, the Quality Bonus System also contains three major parts: prevention, monitoring of chronic diseases according to national guidelines and enhanced services (see Table 2.3).

In Chile, the P4P scheme has two components. The first one is called the “Health Goals”, which defines eight goals with ten indicators. It targets frontline workers in primary health care, who have the opportunity to receive bonus wages every three months, which can add up to two months of potential extra bonus salary per year. The goals were developed to target the main burdens of disease in the country and areas with low-compliance to set standards. The second component is called the Primary care Activity Indicators, which determine the monthly capitation payment from the Ministry of Health to municipalities. Three categories of activity are included: general activity (such as coverage of preventive medical examinations), continuity of care (such as around the clock availability) and compliance with care standards. Evaluations are conducted quarterly, and if the annually set goals for each of the indicators are not met, monthly capitation rates are lowered accordingly.

In the Czech Republic, each health insurance fund designs its own P4P programme for its contractual primary health care providers. Most of the programmes share some core features, albeit with different weights, targets and benefits. Primary health care providers will, for example, receive bonus payments according to the share of registered patients who receive annual preventive treatments, the share of patients (aged 40+) who receive colorectal cancer screening, the share of elderly patients inoculated against influenza or the share of generic medication among prescribed drugs.

There are also interesting P4P programmes outside of GP practices to encourage the expansion of the role of community pharmacies in the delivery of primary health care services, as seen in the United Kingdom or the United States (see Box 2.4).

All of these different schemes in different countries have a common aim of targeting important clinical areas and encouraging the delivery of appropriate services in a primary health care setting and that can be directly influenced by the level of provider’s efforts. This is an important prerequisite for successful implementation.

However, and as mentioned previously, evidence on the impact of P4P on health outcomes and performance remains inconclusive (OECD, 2016[117]), and some researchers argue that P4P schemes go in the opposite direction of goal-oriented care (De Maeseneer and Boeckxstaens, 2012[124]). P4P programmes and related quality and performance targets should thereby incentivise outcomes that matter the most to patients (such as improving quality of life or improving daily life activities through better management of chronic conditions) and on patient-centred care processes (such as care co-ordination). P4P programmes, and value-based payments more generally, need to be properly designed and blended with other payment schemes. Appropriate information systems is also required to monitor and follow up process- and outcome-indicators.

Box 2.4. Pay-for-performance programmes outside of GP practice

The Community Pharmacy Quality Payments Scheme in the **United Kingdom** was established in 2016. The scheme rewards community pharmacies for delivering quality criteria in all three of the quality dimensions: clinical effectiveness, patient safety and patient experience. Among the defined criteria to be met are public health, clinical efficacy for certain chronic conditions, and workforce development. For example, the scheme aims at:

- more effective treatment for asthma, by referring asthma patients who have been dispensed too many short-acting reliever inhalers without any preventer inhaler for an asthma review
- better care for people with dementia, by ensuring that 80% of all pharmacy staff working in patient-facing roles take part in the Alzheimer's Society's Dementia Friends Scheme
- increased support for healthy living, by ensuring there is a Royal Society of Public Health trained health champion in every one of the healthy living pharmacies across England.

Since April 2017, over 90% of pharmacies have taken part in the Pharmacy Quality Scheme. As part of the new Community Pharmacy Contractual Framework for 2019/2024, the Quality Payment Scheme continues under a new name, the Pharmacy Quality Scheme.

In the **United States**, a P4P programme for pharmacists is run by the Inland Empire Health Plan (IEHP), a non-profit Medicare and Medicaid health plan in Southern California. The quality measures that pharmacies must meet include: proportion of days covered (PDC) for diabetes, PDC for hypertension, PDC for statins, statin use in people with diabetes, absence of controller therapy in patients with asthma, sub-optimal control in patients with asthma, use of high-risk medications in older people and the generic dispensing rate. The programme also entails close follow-up with patients. For those suffering from diabetes for example, pharmacists check the medication history and associated past adverse events and follow-up with the patient's physician if necessary (Bonner, 2016[125]).

Source: Based on OECD (2018[52]), Policy Survey on the Future of Primary Care, Bonner (2016[125]) "As pay for performance grows, health plans work with pharmacies", https://doi.org/10.1016/j.ptdy.2016.02.024 and NHS (2019[61]), "The Community Pharmacy Contractual Framework for 2019/20 to 2023/24: supporting delivery for the NHS Long Term Plan", https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/819601/cpcf-2019-to-2024.pdf.

2.3.4. Availing primary and community care is essential to reduce inappropriate use of costly hospital inputs

To reduce instances where costly hospital inputs are used instead of less expensive options, it is important to avail less costly options at primary health care and community level. Intermediate care facilities and home-based programmes have opportunities to offer effective treatment at the primary health care level. Making full use of primary and community care helps to replace a substantial share of the workload in emergency departments and to prevent hospitalisations for chronic conditions. Such policies ensure that patients with minor and non-acute conditions are treated in the appropriate place at the appropriate time. This can increase allocative and technical efficiency due to the lower cost of primary health care alternatives compared with hospital care.

Developing intermediate care facilities

Intermediate care facilities (also called primary health care centres, community hospitals or local hospitals) provide non-urgent care and a mix of post-acute, rehabilitation and nursing care 24 hours a day, seven days a week. Intermediate care facilities are therefore available at times that suit the population and

for emergencies outside of normal working hours. Intermediate care facilities can also deliver short-term care for patients who no longer require acute hospital care, but require a level of support that they could not obtain if they were discharged directly home. The overarching objective of intermediate care facilities is to strengthen the role of the primary and community care systems, to improve experiences for patients, while moving care out of the hospital sector to reduce health care costs.

There is already a large body of evidence confirming that using intermediate care following a hospital admission may reduce the need for further hospital admissions, and reduces the number of emergency department visits. In Norway, for example, studies have shown that intermediate facilities significantly reduce the number of hospital readmissions for the same disease, increase the quality of life for patients, and did not result in an increased risk of mortality (Dahl, Steinsbekk and Johnsen, 2015[126]; Garåsen, Windspoll and Johnsen, 2007[127]). In the Netherlands, van der Brug (2017[128]) found that the use intermediate care facilities was associated with reduced hospital readmission rates (van der Brug, 2017[128]). More recently, intermediate care facilities have been established in three countries: Costa Rica (interdisciplinary outpatient units for people with mental health issues and health hostels for patients with chronic conditions), Ireland (Community Intervention Teams) and Mexico (CESSAS).

In France, the National Plan "*Ma Santé 2022*" envisages the establishment of more than 500 local hospitals to act as intermediate care facilities. Local hospitals will provide primary health care services, rehabilitation, nursing care for the population and will ensure access to technical imaging and medical biology. Local hospitals will help care for frail elderly people in their own homes by providing higher levels of support than GP practices, and by offering prevention activities. The objective is to bridge primary health care services with secondary care services in order to ensure more consistent patient pathways.

Providing post-discharge care at home

Early discharge home-based programmes allow patients to return home when they might previously have stayed longer in the hospital or been referred to a nursing home. This goes in line with the preference of patients for treatment at home. For policy makers, the objective is to curb hospital costs and to mitigate delays that are driven by insufficient availability of community care, while improving patient experience and health outcomes. Home-based early discharge programmes generally consist of providing post-discharge care at home, telephone support, counselling and education to improve self-management, care co-ordination with other community support, including social support and remote monitoring of vital signs (Zhu et al., 2015[129]).

A handful of studies provide evidence that patients receiving home interventions experience reduced length of hospital stays and lower risk of readmission (Zhu et al., 2015[129]). More recently, Hernandez el al (2018[130]) have shown that providing home hospitalisation and post-discharge care at home, results in good clinical outcomes and reduced length of stay in hospital (Hernández et al., 2018[130]). The benefit of early discharge home-based programmes is mostly evidenced among patients aged 60 years old and over, and those having chronic diseases, both groups of which are high users of emergency departments.

Some health care systems are increasingly providing post-discharge care at home as an alternative to hospital-based care. In Canada and the United Kingdom, virtual wards have been developed to reduce hospital readmissions, by providing short-term transitional care to high-risk patients with complex needs who have recently been discharged from hospital. Patients are referred to a virtual ward based on the use of an algorithm that predicts the risk of readmission, and they are provided with home-based care by a primary health care team. In the New Brunswick Region, a new extra-mural programme has been recently introduced to help patients and their families. The team provides home health care services, ranging from health education to more complex medical needs such as rehabilitative care, medication management, dementia, and end of life care. In Nova Scotia, the INSPIRED programme (Implementing a Novel and Supportive Program of Individualised care for patients and families living with a Respiratory Disease) aimed at decreasing inpatient hospitalisations due to ambulatory care sensitive conditions through supported self-

management of COPD, reduced emergency department visits and improved patient outcomes. The programme allowed more patients to be treated in their homes and prevented (or better managed) the disease exacerbations that are common with advanced COPD. In Germany, since 2017, mental health care following discharge from psychiatric hospitals can be delivered within the patient´s home. In such cases, the responsibility for the treatment process remains with the hospital, but the primary health care team will have a key role in delivering care co-ordination, counselling and education.

Digital technologies, including Internet-enabled home monitors, apps for mobile health, and digital consultations, are key levers for bringing care into patient's homes (see Section 2.3.2). Digital technologies will play a central role in expanding opportunities for accessing routine monitoring and counselling by primary health care teams, and for patients to receive support to manage health conditions at home. Of course, this will only be relevant for non-intensive medical conditions with no requirement for around the clock attention or human monitoring.

2.4. Conclusions

A high performing primary health care service offers opportunities to make health care systems more efficient. The literature suggests that when patients can be treated in a strong primary health care sector, fewer expensive services need to be provided at secondary levels of care, which can contain growth in health care costs. However, international figures demonstrate that there are several shortcomings across OECD countries. High rates of avoidable hospitalisations for chronic conditions and inappropriate prescribing in general practice are important sources of unnecessary use of more expensive resources for OECD health care systems. These shortcomings suggest that there is scope to improve both technical and allocative efficiency in primary health care.

Country experiences demonstrate that a number of policy solutions have great potential to improve efficiency in primary health care. These include: changes in training and improved matching of skills to meet patients' needs more effectively and at lower costs; a greater use of digital technology, notably of EHR to improve workflow, communication and clinical practices; and availing primary and community care options to make sure patients with minor and non-acute conditions are treated in the appropriate place at the appropriate time. To support these changes, the use of payments linked to outcomes or desired activities, such as those encouraging the management of chronic diseases, care co-ordination or discharge from hospitals, will help to improve technical and allocative efficiency.

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Notes

[1] The Australian Institute of Health and Welfare estimates that 8.8% of emergency department presentations in 2017-18 were assigned to the non-urgent triage category (Aihw, 2018[31]).

[2] Data are taken from the UEMO questionnaire.

[3] In England, only certain nurses are able to prescribe – nurse independent prescribers.

[4] Polypharmacy is defined as the administration of many drugs at the same time (more than five medications concurrently).