D6.2 – Report mapping existing incentives for GPs

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Abbreviations

CAPI: Contrat d'amélioration des pratiques individuelles
DMPs: Disease Management Programs
EU: European Union
GP: General Practitioner
GPCC: General Practice Centered Care
OECD: Organisation for Economic Co-operation and Development
P4P: Pay-for-performance
QOF: Quality and Outcomes Framework
ROSP: Rémunération sur Objectifs de Santé Publique
WHO: World Health Organization

Glossary of terms

Health care system: A healthcare system refers to the organized network of institutions, resources, and people intended to deliver health care services to meet the health needs of target populations.

Primary care: Primary care is the first point of contact a patient has with the health system. It encompasses a broad range of services, including disease prevention, wellness promotion, diagnosis and treatment of acute and chronic illnesses, and patient education. Primary care is provided by General Practitioners (GPs), family physicians, nurse practitioners, or physician assistants.

General Practitioner (GP): GPs serve as primary contact points in the healthcare system, guiding patients through health maintenance, disease prevention, and referrals to specialists when necessary. They play a critical role in health systems, often influencing the efficiency and effectiveness of healthcare delivery and financing.

Financial incentives: Additional payments that are made on top of the baseline salary. These bonuses are awarded when specific criteria are met, such as delivering certain services, engaging in specific activities, or achieving pre-set quality goals.

Pay for Performance (P4P): Pay-for-Performance is a financial incentive model that links compensation or bonuses to the achievement of specific, measured performance outcomes. This approach aims to improve the quality, efficiency, and overall value of health care by rewarding physicians for meeting certain performance indicators, including improved health outcomes.

Capitation: Capitation payments involve a set amount of money per patient per unit of time paid in advance to the physician for the delivery of health care services. The payments are typically based on rostered patient populations, meaning that the provider receives a fixed payment for each enrolled patient regardless of how many visits the patient makes.

Intrinsic and extrinsic motivation: Intrinsic motivation refers to behaviour that is driven by internal rewards. When a person is intrinsically motivated, they engage in an activity for its own sake, not for the sake of obtaining an external reward. Extrinsic motivation refers to behaviour that is driven by external rewards such as money, fame, grades, and praise. This type of motivation arises from outside the individual, as opposed to intrinsic motivation, which originates inside of the individual.

1. Executive summary

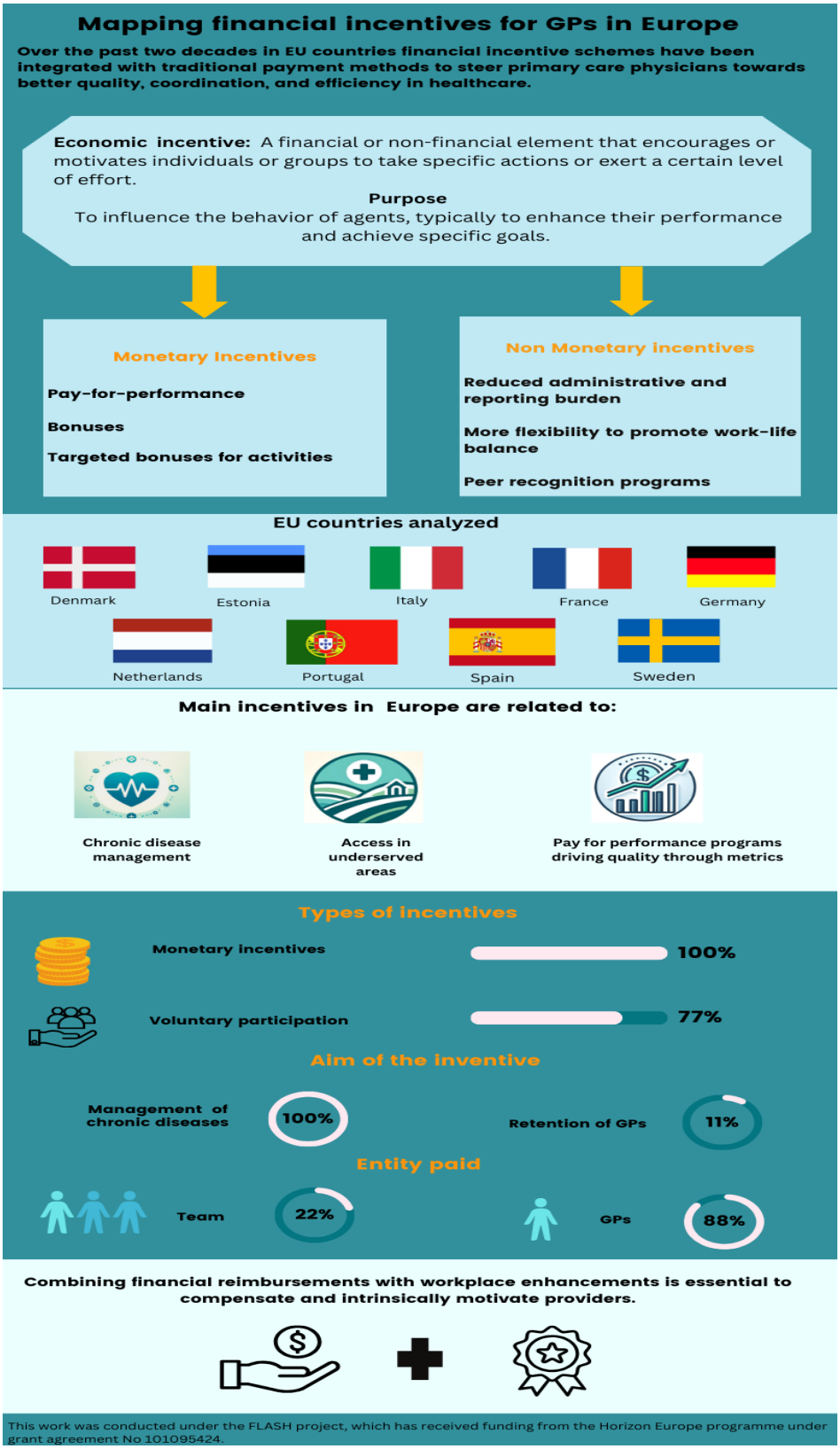
It is widely acknowledged that **primary care plays a pivotal role to health care systems.** Nevertheless, it faces rising sustainability pressures across Europe from trends like aging populations and increased chronic disease prevalence**. Financial incentives** are an emerging policy tool aiming to improve **primary care quality and efficiency** amidst these challenges. However, evidence on effectiveness of financial incentive programs in European primary care remains mixed.

This study maps the incentive programs implemented in European primary care over the past 15 years. The focus is on assessing incentive schemes applied, objectives targeted, impacts demonstrated, and implementation factors influencing outcomes. Policy-relevant findings are intended to aid decisions on if/how **to incorporate quality-based payments in primary care** going forward.

Key results show **pay-for-performance** (P4P) schemes and capitation models are the most prevalent financial incentives recently implemented across European countries. Normally, these incentive programs are related to health care quality improvement, namely expanded coverage of preventive services, chronic disease management, integrated care, digital health adoption. Modest benefits are seen for incentivised activities, but effects on downstream metrics like admissions and mortality are limited thus far. Success depends heavily on context, **design choices aligning incentives** well to objectives, and strong governance. Unintended gaming behaviours and equity impacts surface at times as ethical concerns.

In conclusion, thoughtfully designed incentive schemes appear to be promising in enhancing European primary care quality amidst 21st century realities, nonetheless they should be one component of broader reforms. Continued evidence generation on optimal structuring is warranted. Recommendations centre on mitigating unintended consequences through integrity processes and monitoring. Fundamentally, the **appropriateness of monetary incentives** hinges on the philosophy that financial gain and professional duty and motivation need not conflict in healthcare. If designed and governed accountably around patient welfare, financial incentives can be a viable policy option going forward.

Gaph 1: Infographic of Economic Incentives in parimary care in the EU countries



2. Introduction

Primary care serves a vital role as the first point of contact with health systems for most patients, focusing on comprehensive, coordinated, and continuing care. As the cornerstone of healthcare delivery, strong primary care is associated with improved population health outcomes, lower costs, and greater health equity (Macinko et al., 2003; Starfield et al., 2005). Nevertheless, primary care in many European countries faces rising pressures from aging populations, budget constraints, increased prevalence of chronic diseases, (OECD, 2022). These challenges threaten access, quality, and sustainability of primary care across Europe. In 2020, an average of 13% of total health expenditure was devoted to primary health care across EU countries. However, there was notable variation, with the share of spending allocated to primary health ranging from a low of 8% in Romania to a high of approximately 18% in Lithuania. However, the expenditure will increase in the future due to the aging of the population and the complexity of health needs. Population ageing poses a major challenge for European Union (EU) societies and economies. According to the World Health Organization (WHO), approximately two-thirds of European senior citizens who are of retirement age suffer from at least two chronic medical conditions. This high prevalence of multi-morbidities among older demographic groups exerts substantial pressure on healthcare systems across EU countries (Ricciardi et al., 2014). While overall life expectancy and healthy life years have risen globally, quality of life and functional capacity have declined due to an increase in non-communicable diseases strongly associated with aging populations (Murray et al., 2015).

In this environment, policymakers have shown growing interest in using financial incentives to motivate performance improvements in primary care. Monetary incentives can help align healthcare providers' behaviour with health system goals to enhance quality, efficiency, and population health impact. Payment reforms establishing incentive structures are a key health policy tool across OECD countries (OECD, 2016).

In primary care specifically, prevalent forms of financial incentives include pay-for-performance schemes tying reimbursement to quality metrics, capitation payments based on rostered patient populations, and targeted bonuses for activities like after-hours care, preventive services, and health information technology adoption.

Pay-for performance schemes Implementation aims to steer primary care organizations and practitioners towards delivering higher-value, more integrated and preventive care. The inaugural large-scale pay-for performance initiative in European primary care was the Quality and Outcomes Framework (QOF) in UK in 2004. Following this, many additional P4P

programs were launched in European primary care, e.g. the Estonian Quality Bonus Scheme or the French Contrat d'amélioration des pratiques individuelles (CAPI) / Rémunération sur Objectifs de Santé Publique (ROSP), that were established in 2007 and 2009, respectively. Analogous performance-target incentive schemes were introduced in primary care within Spain and Italy, although structured and implemented at the regional level (Gené-Badia et al., 2007; Fiorentini et al., 2011; López-Sepúlveda et al., 2017).

Capitation incentive payments tied to enrolled patient populations are commonly exerted to foster a better integration between primary and secondary care, especially in the management of patients with chronic conditions. For instance, since 2002 the German Disease Management Programs entail a capitation payment for the number of patients enrolled, which is usually complemented by a fee for the participation and further possible incentives for the attainment of certain quality indicators. Similar incentive programs have been implemented in Denmark and in the Netherlands (Frølich A et al., 2015; Karimi et al., 2021; Lefevre et al., 2023).

However, empirical evidence regarding effectiveness remains mixed. Some studies of incentive programs indicate modest improvements on targeted activities like prescribing practices, chronic disease monitoring, and preventive screenings. But effects tend to be specific to incentivized areas only. One review found limited impacts on mortality, emergency admissions, or overall costs from primary care incentive programs. Heterogeneity across schemes, context-dependencies, gaming behaviours, and unintended consequences can also limit success (Scott et al., 2011).

This study conducts a map of incentives programs in European primary care settings to assess the current evidence. Specificly, we explore the types of incentive programs implemented in European primary care, and the specific activities/objectives they target. We systematically review both peer-reviewed and grey literature surrounding primary care incentive programs implemented in European countries within the past years.

Our study fills key gaps in understanding the appropriate role of incentives for improving primary care delivery in Europe. Our findings may contribute to the implementation of better, evidence-based incentive programs, thus minimizing downsides and maximizing health system returns on investment. Results can inform both policy decisions on whether/how to link payments to quality in primary care and implementation considerations for real-world success. The intended audience includes health policymakers, payers, and primary care leaders in Europe considering or revising incentive-based financing reforms. Findings will aid decision-making on when/how monetary incentives can improve primary care delivery amidst 21st century pressures.

When it comes to health care provision, one of the major concerns of policy makers lies in managing the gaps that exist between best practices in delivering health care and the actual delivery of these services. Indeed, many health care systems suffer from suboptimal supply of

health care due to services fragmentation, inappropriate service levels, inequities in access to health care systems and/or inefficiency. Hence, policy makers have channelled their focus on the identification of which parts of these health care systems where resources can be more efficiently allocated to enhance health care quality, while ensuring cost-containment.

The remainder of the paper will be structured as follows: Section 3 provides background on primary care organization and financing across Europe and rationale for studying incentive programs. Section 4 presents the primary care incentives implemented in EU countries, and Section 5 concludes.

3. Incentive in Primary Care in the EU

In this section, we will first provide a brief overview of the incentives in primary care, describing what are their salient aspect according to the main literature. We will then provide a clear definition of the incentive schemes that have been implemented for primary care professionals across some European health care systems.
In recent years, the emphasis on quality enhancement of health care delivery and cost containment within healthcare systems has heightened the necessity to pinpoint areas where resources can be optimally directed. In this context, the economic and health advantages of effective primary care have gained escalating attention. Indeed, primary care plays a crucial role as the initial interface with healthcare systems for patients, emphasizing comprehensive, coordinated, and continuous care (Starfield et al., 2005; WHO, 2009).

Payment models have long been recognized as an influential policy lever capable **of shaping healthcare provider behaviours** related to service quantity, quality and costs (Donaldson & Gerard, 1989). In the past two decades, several primary care reforms across European health systems have been made with the aim to improve quality and efficiency while ensuring affordability. A centrepiece of these initiatives has been integrating financial incentive schemes into traditional fee-for-service or capitation methods in order to align primary care physicians' behaviour to health care system objectives, namely quality improvement, care coordination and efficiency (Gosden et al., 2000; Scott et al., 2011).

Furthermore, in some instances these incentives aim to counteract unintended consequences arising from traditional payment mechanisms (Rudoler et al., 2015; OECD, 2016). Differently from the baseline payment systems, indeed, the introduction of these incentives may further affect physicians' behaviour by explicitly rewarding the achievement of specific targets, the provision of certain services or the participation in specific activities (e.g. training activities), or even the coordination of healthcare professionals. Popular models have included target payments for screening services, pay-for-performance programs linking bonuses to quality indicators, and enhanced capitation allotments for effectively managing chronic diseases. The

goals encompass reducing unnecessary utilization, encouraging prevention and care coordination, and promoting population health. However, empirical impacts have been mixed, with some studies showing limited effect on meaningful quality and outcomes improvements (Flodgren et al., 2011; Scott et al., 2011;Gupta and Ayles, 2020).

Germany was an early pioneer of using financial incentives to improve chronic disease management, implementing Disease Management Programs (DMPs) in 2002 to promote better care integration and coordination for patients with long-term conditions (Busse, 2004). Since then, many similar programs have been introduced in different countries, such as Denmark and the Netherlands (Frølich A et al., 2015; Karimi et al., 2021; Vestergaard et al., 2022). The common denominator between these programs is that the incentive scheme usually consists of two components: a payment by capitation, based on the number of patients with chronic disorders enrolled by the general practitioner or the primary care professional, and a payment conditional on the attainment of specific targets in terms of patients' monitoring. The implementation of the Quality and Outcomes Framework (QOF) in the United Kingdom marked another significant milestone in the proliferation of financial incentive programs aimed at improving quality of care in European primary care. Formally presented as a pay-for-performance (P4P) national incentive scheme, this program signed in 2003 and running from 2004, provide a mix of pay-for-performance and pay-for-compliance incentives, based on the attainment of targets represented by several quality indicators, the management of different chronic conditions, the organization of care and patients' experience quality (NHS digital, 2023).

After the introduction of these kick-off primary care incentive programs, several European countries have emulated their models and implemented further incentive schemes for professionals working in primary care. While these programs share common elements like pay-for-performance bonuses and quality target payments, there remains some heterogeneity in program design reflecting each EU country priorities. For instance, incentive frameworks differ across EU countries in the scope of quality domains targeted, the magnitude of incentives offered, and even the level of government responsible for planning and monitoring the programs. Some health systems take a narrow approach focused on chronic disease management, whereas others incorporate a broader set of preventive services, access metrics, and patient satisfaction. The size of bonuses or target payments also varies significantly, from just 1-2% of income to over 25% in some cases. Furthermore, administration ranges from national stewardship to locally-developed initiatives at the municipal or regional level (Cashin et al., 2014).

This diversity highlights the ongoing evolution and contextual adaptation of incentive policy for primary care across Europe. The UK and Germany created the first financial incentive programs for primary care. But each country in Europe has adapted these models to fit their own needs and resources. The goals and designs keep changing to match what works best in

each health system. Understanding this heterogeneity will be critical to identifying best practices for balancing cost control and quality improvement moving forward.

3.1. Economic incentives

Incentive theory, also called reward theory, suggests people are motivated by external rewards like money, promotions, or helping others. Incentive theories arose in the 1940s from ideas about drives and inner forces, which psychological factors like self-esteem and neurosis can influence. The idea that external factors influence or reinforce our behaviors is largely credited to psychologist B.F. Skinner. In his book "Behavior of Organisms", Skinner, 1938, argued that people are not driven to act by internal states, like acting aggressively when angry. Instead, he said people are motivated to act mostly by three environmental events: deprivation, satiation, and aversive stimulation. In the 1940s and 1950s, incentive theory underwent further revisions. Psychologist Clark Hull's drive theories were among the influences that shaped the ongoing development of incentive theory during this period (Heckhausen and Heckhausen, 2018). Incentive economics involves creating rules and institutions that encourage economic agents to put forth strong effort and truthfully disclose socially important information they have.
The idea behind economic incentives is largely drawn from principal-agent economic theory (Arrow, 1962). This theory says a principal, usually a purchaser, makes a contract with an agent, in this case a primary care doctor or team, to guarantee high-quality, affordable care and minimize moral hazard and information asymmetry. Since providing high-quality care takes effort from providers, they must receive financial rewards for meeting targets. For more on the economic theory of incentives, see the work of Vickrey (1945, 1960, 1961) and Mirrlees (1971). As the healthcare sector is prone to **market failures** due to factors like information asymmetry and externalities, incentives can help reduce the bias of these failures. For example, providers have more medical knowledge than patients, causing an information imbalance. Financial incentives for quality of care and positive health outcomes can motivate providers to use their expertise responsibly and ethically. Incentives can also account for externalities like health benefits and cost savings that accrue to society when individuals get preventive care. By aligning provider compensation with social goals, incentives make the market more efficient. Though not a cure-all, incentives can shift behaviours in healthcare to partially compensate for inherent market failures (Donaldson and Gerard, 1993; Dudley et al., 1998;Conrad & Christianson, 2004).

An incentive is an element, either financial or non-financial, that provides encouragement or motivation for an individual or a group of people to undertake a specific course of action, or to exert a certain level of effort. The purpose of incentive schemes is to influence the behaviour of agents, usually to improve their performance and reach certain goals. There are two main types of incentives that influence human decision-making: **intrinsic and extrinsic**. Intrinsic incentives come from within and drive people to do something for its own sake, like learning a new skill for fun. Extrinsic incentives involve external rewards or punishments to motivate

behavior, like money or penalties (Deci & Ryan, 1985). However, designing effective incentives is challenging. Healthcare incentives should be designed holistically to motivate physicians toward desired outcomes. The optimal structure increases the potential of incentives to enhance quality, access, and cost-effectiveness of care. It is important to test different incentive models to find the right balance.

There are several important factors to consider when **setting up incentives for primary care** physicians. For example:

1) Incentive Payment Size - The monetary amount of the incentive influences the degree of behavioral change. Larger payments have more impact, but smaller recurring rewards can also change habits over time.
2) Recipient - Incentives can target individual physicians or physician teams. Teaming incentivizes collaboration and information sharing. Individual rewards maintain accountability.
3) Non-Monetary Incentives - Complimentary non-financial rewards like public recognition, leadership opportunities, or training can augment financial incentives. These appeal to intrinsic motivations.
4) Voluntary vs. Mandatory - Voluntary incentive programs foster autonomy but have lower participation. Mandatory initiatives ensure widespread adoption but may face resistance or gaming of the system

Usually, incentive schemes tend to offer relatively small rewards. **Excessively large financial incentives** risk undermining intrinsic motivations to provide quality care by shifting focus heavily to external rewards. They could also lead to cherry-picking easier patients to meet targets while neglecting complex cases, as well as tunnel vision on narrow metrics at the expense of broader health outcomes (see Thiel and Leeuw, 2002; Mannion and Davies, 2008 and Fiorentini et al., 2011 among others). However, empirical evidence shows that incentives entailing bigger rewards encourage a stronger behavioural response to the reward. For instance, the French CAPI/ROSP P4P programme, provides payments conditional on the attainment of the targets which amount to about 10% of the general practitioners' income (Cashin et al., 2014).

In many European countries, including Spain, Italy, and Portugal in recent years there has been a tendency to move towards **aggregated forms of primary care delivery**. Therefore, in many incentives schemes the payment is made to the whole team instead of rewarding the individual physician or general practitioner. For instance, in Portugal (Kalinichenko et al., 2022) there exist types of primary care units, known as Family Health Units (FHU); these units are rewarded according to a pay-for-performance incentive, which may be directed to either the individual general practitioner or the team, depending on the type of FHU they have chosen to work in.
Financial incentives are usually complemented by non-financial incentives, like mission-based or reputational incentives (e.g. public ranking or internal peer-comparison). These types of

incentives serve a complementary function with financial rewards, as well as a transparency and accountability function for the entire delivery of primary care (Campanella et al., 2016).

3.2. Type of incentives in primary care

Across European healthcare systems, incentive schemes for primary care providers can be largely classified into four categories based on their purpose: 1) promoting collaboration between health professionals, 2) guaranteeing access to specific critical services, 3) expanding access for underserved populations, and 4) pay-for-performance programs linked to quality metrics (see Scott et al., 2011;OECD, 2016) among others). Furthermore, incentives can be either financial or non-financial.

Financial Incentives: there are various forms of direct financial incentives used to motivate, reward, and compensate primary care providers, including:

- Pay-for-performance - additional payments tied to achieving specific metrics for quality of care, patient outcomes, preventive screening rates, proper disease management, etc. This ties income directly to performance.
- Bonuses - additional lump-sum payments for taking on more patients, achieving high patient satisfaction scores, practicing in certain underserved locations that lack access, etc. These provide financial motivation.
- Increased reimbursement rates - higher payments per patient visit or procedure to incentivize taking on more patients and increasing capacity. This raises revenue potential.

Non-Financial Incentives: there are also non-monetary incentives aimed at improving job satisfaction:

- Reduced administrative/reporting burden - decreasing paperwork and data entry needs to allow more time practicing medicine. This improves workplace experience.
- More flexibility - promoting work-life balance through flexible schedules, remote work options, and greater paid time off. This aids recruitment and retention.
- Peer recognition programs - awards, profiling top performers, and annual ceremonies to give public acknowledgment and praise. This utilizes status as an incentive.

The optimal mix of financial versus non-financial incentives depends on the healthcare setting, resources, workforce dynamics, and priorities - but employing both drives better access, quality, and outcomes.

In the next section we will explore some of the major types of financial and non-financial incentives for primary care providers more in detail.

3.2.1. Pay-for-performance

Pay-for-performance (P4P) incentives tie financial rewards directly to healthcare providers **meeting predetermined quality and outcome metrics.** Also referred to as performance-based payments or value-based payments, P4P offers bonus payments on top of base compensation (OECD, 2016). This makes part of a medical professional's overall income conditional upon attaining defined performance targets and care standards. In essence, P4P stimulates improved adherence to evidence-based protocols and best practices by linking bonus reimbursements to the actual level of positive patient impacts achieved. Well-designed P4P key performance indicators assess dimensions like adoption of effective **chronic disease management plans,** achieving better control of critical health parameters across an entire patient panel, and boosting preventative screening rates for major conditions. By connecting compensation to targeted system-wide health priorities, pay-for-performance aims to advance healthcare quality, affordability, and access (Jamili et al., 2023).

Every pay-for-performance (P4P) program has two key design elements that align with broader incentive scheme principles: targeted performance domains with indicators, and the methodology for determining rewards or penalties (Cashin et al., 2014).The first P4P element involves defining which domains and specific measurable indicators will be linked to incentives, based on the program's scale and objectives. These typically involve clinical quality dimensions (structure, process or outcomes), essential service coverage, efficiency, or patient experience. Most P4P schemes focus on structural aspects like facilities, staffing, and technology or process metrics around evidence-based protocols (Donabedian, 1988;Cashin et al., 2014). The second major component of P4P program design involves defining how providers' performance on the chosen metrics links to financial rewards or penalties.

There are typically three approaches:

1) Absolute measure level - incentives based on predefined targets of clinical quality, service coverage, efficiency etc. This is the most common approach.
2) Improvement over baseline - rewards for achieving significant gains on metrics compared to a provider's past performance. Rarely used.
3) Relative ranking - compensation tied to a provider's achievement on metrics compared to peers. Also, less common.

Most P4P programs reward each metric separately rather than aggregating performance across areas. An exception is France's CAPI model which uses formulas accounting for baseline values, improvement, and national standards across metrics to determine incentives (Cashin et al., 2014).
Well-designed P4P schemes require balancing simplicity and comprehensiveness in how performance is scored and tied to fair incentive levels.

3.2.2. Incentives for coordination

Incentive schemes to foster **co-ordination and collaboration** among different health care professionals have been introduced in several European countries (OECD, 2016). This category of incentive schemes includes both those granting rewards for collaboration within primary care multiprofessional teams, as well as incentives designed to promote better integration of healthcare delivery across the care continuum.

Particularly crucial is improving coordination and transitions of care between primary and specialty providers for management of patients with chronic conditions requiring ongoing treatments over time (OECD/EU, 2016). Well-integrated care teams can enhance the patient experience and outcomes when dealing with complex, long-term illnesses. These incentive schemes, when effective, can yield favourable results not only in terms of patient care and outcomes, but also in terms of efficiency gains and overall cost containment (Tsiachristas et al., 2013).

As mentioned in the section above, German DMP were the first incentive schemes of this type introduced in Europe. Similar incentive programs have subsequently launched in other European countries like Denmark, the Netherlands, and Spain. Alternatively, some EU country like France have incorporated chronic illness metrics into larger primary care pay-for-performance schemes. Two major shared features among these incentives are:

1) A focus on facilitating comprehensive interdisciplinary care for medically complex patients.
2) Twin financial incentives via capitation payments based on the number of chronic-disease patients managed as well as bonus payments for hitting targets around evidence-based monitoring and care coordination.

The dual incentives aim to simultaneously **boost capacity to take on more complex cases** while rewarding high performance on crucial care processes and risk factor control known to improve outcomes. By concentrating on vulnerable high-need patients and tying reimbursements to discerning process and outcome indicators, well-designed incentives can help advance integrated, patient-centred chronic care management.

3.2.3. Incentives for recruitment and retainment in underserved areas

Despite ongoing policy efforts towards universal primary care coverage in Europe, underserved areas with general practitioner shortages still persist across many regions (Bes et al., 2023). To help address this access gap and recruit providers to under-resourced communities, policymakers have deployed targeted financial incentives packages as well as initiatives aimed at improving frontline working conditions and job satisfaction (WHO, 2010; Kroezen et al., 2015). Several Northern European countries employ targeted financial incentives to attract and retain primary care doctors in underserved areas struggling with provider shortages.

Approaches include supplementary fee-for-service or capitation payments for physicians serving isolated **rural communities** (Denmark, Finland), salary increases of up to 30-40% over baseline levels (Norway, Sweden), and allocated stipends tied to the remoteness of a practice (up to 3% of budget in Estonia). The tailored monetary incentives attempt to account for factors like additional travel costs in remote areas and unfilled patient demand (Aars & Kaarbøe, 2023). Beyond direct financial incentives, some Northern European countries have also focused policies on making rural and isolated practice settings more professionally appealing. For example, Denmark has promoted primary care group practices in remote regions which can help alleviate workload strains via task-shifting, provide peer learning opportunities that aid professional development, and cultivate great camaraderie and workplace satisfaction (Aars and Kaarbøe, 2023).

Related non-financial incentives in Finland and Iceland concentrate on reducing administrative burdens for rural physicians through medical scribes and other supportive staff roles that allow doctors to focus their energies on direct patient care. Enriching rural practice life, flexibility and career growth prospects can strongly complement monetary incentives when attempting to eliminate underservice through voluntary provider recruitment and retention in targeted regions.

4. Map of incentives by country

While the localized contexts may differ, these European incentive schemes have unifying goals and shared implementation challenges, like managing complex provider behaviors and ensuring accessibility of services. A deeper look at both their universal and unique factors across regional contexts in Europe could help determine the most constructive frameworks that may be replicable in efforts to continuously advance health equity, affordability and quality of care.

In this section, we will map out the landscape of primary care incentives implemented across several EU countries including France, Italy, Germany, Estonia, Spain, Netherlands, Sweden, Denmark and Portugal. For each country, we will overview the major incentives adopted, discuss their intended role and policy objectives, outline their targeted recipients and participation details, and summarize their core features around provider behavior change and performance measurement.

Mapping the incentive terrain in this manner for influential European health systems can help identify common challenges around designing and operationalizing financial motivation programs for primary care, while also showcasing innovative approaches or structures that effectively balance comprehensiveness and feasibility.

The primary care physician incentive schemes in Spain and Italy's National Health Services are **highly fragmented across regions**, lacking a unified national framework. This contrasts sharply with the uniform incentive structures implemented in other European countries such as Denmark, the Netherlands, Germany, and even France - to some extent. While Denmark, Netherlands, and Germany adopted centralized, systematic reforms to standardize financial incentives for providers nationally, France stands out for its multifaceted programs spanning chronic disease management and broader quality indicators unlike most healthcare systems.

However, the diversity of schemes at regional and national levels still poses complications in deriving a comprehensive overview of operative physician incentives in both Spain and Italy compared to the relatively consistent frameworks applied in France, Germany, Denmark, and the Netherlands. The latter group's shared regulatory approach through national legislation or standardized insurer-provider contracts enabled more widespread alignment in incentive design. Ultimately, the decentralization and variability across Spanish and Italian regions hinders comparative evaluation and coordinated optimization of primary care physician incentives relative to the unified models seen in other European countries. In both France and Sweden, policies initially originated at the regional (subnational) level before being expanded to the national level.

Presented in the tables below is a summary of the key reforms related to financial and performance incentives that have recently been implemented in the primary care systems of the following European Union member states: France, Italy, Germany, Estonia, Spain, the Netherlands, Sweden, Denmark and Portugal.

Table 1: Map of Incentives for FRANCE

Incentive name	**ASALEE (Action de Santé Libérale en Equipe)**
Monetary vs No monetary	Monetary: Training of nurses to cooperate with GPs
Context and legal basis	Started in 2004 in one department (Deux-Sèvres). Between 2008 and 2011, experiments in "task delegation" under article 51 of the 2008 Hospital, Patients, Health and Territories (HPST) law extended it to 4 regions and 50 practices. Between 2012 and 2017, the experiment was extended nationwide.
Type of incentives	Management of chronic patients with type 2 diabetes (T2DM) or chronic obstructive pulmonary bronchitis (COPD)
Type of reward	Reward based on enrollement
Entity to whom the incentive is granted	Primary care practice
Participation	Voluntary for GPs at the beginning, then extended. Nurses receive training and are hired to support GPs in the management of chronic diseases at the practice level
References	Mousquès et al., 2010;
Incentive name	**CAPI (Contract for Improving Individual Practices)**
Monetary vs No monetary	Monetary: pay-for-performance scheme providing additional payments to GPs based on their performance, as assessed by quality indicators.
Context and legal basis	The CAPI was initiated by the Public Health Insurance Fund in 2009
Type of incentives	Incentive for improving the quality of care assessed by the achievement and/or improvement of 16 indicators (Saint-Lary and Sicsic, 2015) covering three main fields: prevention and screening, chronic diseases follow up and prescription optimization
Type of reward	Reward based on Improvement on indicators
Entity to whom the incentive is granted	GPs
Participation	Voluntary contract for GPs, then generalized to all GPs in France from January 2012 under the ROSP Program
References	Saint-Lary & Sicsic, 2015; De Pouvourville, 2013; Massin et al., 2014
Incentive name	**ROSP (Remuneration based on Public Health Objectives)**
Monetary vs No monetary	Monetary: P4P: contract between GPs and the national health insurance system, determining payment rates based on indicator achievement.

Context and legal basis	In 2011, France implemented a "Payment for Performance" system called "Remuneration on Public Health Objectives" (ROSP). This system provided additional payment to general practitioners and pediatricians who adjusted their medical practice to meet certain criteria aimed at achieving specific public health goals.
Type of incentives	Incentive for improving the quality of care assessed by the achievement and/or improvement of 29 clinical indicators
Type of reward	Reward based on Improvement: individual provider's baseline value for the indicator, performance improvement and national targets.
Entity to whom the incentive is granted	Incentive to the individual physician
Participation	Extension of CAPI, mandatory to all GPs
References	Rat et al., 2014; Constantinou et al., 2017
Incentive name	**Maisons de santé pluriprofessionnelles (Primary Care Teams)**
Monetary vs No monetary	The state and the NHI have gradually supported multi-professional group practices that involve several categories of primary care HHRs (medical, paramedics or pharmacists) in a Primary Care Team (PCT). In addition to primary care, PCTs deliver public health, prevention and education to patients, and training or supervision to students.
Context and legal basis	Since 2005 financial incentives to attract and retain GPs in underserved areas (scholarships, loan facilities, tax exemptions, increase of fees and contracts with guaranteed incomes). Since 2009, financial incentives from the NHI specifically support volunteer PCTs.
Type of incentives	Attract and retain GPs in underserved areas: These incentives include co-funding for project engineering, building new multi-professional group practices, and covering operating costs.
Type of reward	Pay for performance
Entity to whom the incentive is granted	Primary Care Team
Participation	Voluntary
References	Chevillard et al., 2019; Cassou et al., 2020

Table 2: Map of Incentives for GERMANY

Incentive name	DMPs
Monetary vs No monetary	Monetary incentive to GPs: about 40% additional reimbursement for included patients. In addition to bonus payments for hitting targets around evidence-based monitoring and care coordination
Context and legal basis	Physician-based and patient-centered disease-management programs (DMPs) were introduced into the German Statutory Health Insurance (SHI) in 2002 to strengthen general practice role in integrated primary care. The different contracts on disease management between sickness funds and health care providers are highly standardized.
Type of incentives	The physician participates in disease management programs (DMP) which concern moslty adult patients with diabetes, asthma/COPD, and coronary heart disease. Also paediatric primary care for children and adolescents with ADHD was targeted to reduce the risk of hospitalisation for mental disorders. Practice assistants are encouraged to take part in an additional training program for better management of patients with chronic diseases. Practices who have their assistants qualified are entitled to receive a financial bonus.
Type of reward	Absolute performance standards: physicians get paid if they enroll in the program.
Entity to whom the incentive is granted	GPs
Participation	Participation in genaral practice centered care (GPCC) is a voluntary choice of physicians and patients.
References	Busse, 2004;Greß et al., 2006;Szecsenyi et al., 2008;Schäfer et al., 2010;Stock et al., 2010; Linder et al., 2011; Szecsenyi et al., 2011 ; Drabik et al., 2012 ;Wensing et al., 2017;Mueller et al., 2022.

Table 3: Map of Incentives for ITALY

Incentive name	**Performance Evaluation System (PES) in Tuscany region**
Monetary vs No monetary	Monetary reward on top of GPs' capitation payment
Context and legal basis	Starting in 2013, selected performance indicators within the PES were also calculated at 'Territorial Functional Aggregations' (AFTs) level to monitor and compare GPs' performance. AFTs created under the Balduzzi Law No. 189/2012 and the Patto per la Salute ('Agreement for Health') 2014–2016.
Type of incentives	Monitor GPs' performance with respect to: management of chronic disease; prevention of avoidable hospital admission and inappropriate diagnostic tests; preventive care and home care for the elderly; drug prescriptions; practice organisation; and patient experience
Type of reward	Incentive to GPs based on improvement in indicator (25 indicators defined
Entity to whom the incentive is granted	GPs
Participation	Voluntary participation
References	Barsanti and Nuti, 2016; Santos et al., 2018
Incentive name	**DMP in Emilia Romagna region**
Monetary vs No monetary	GPs receive additional payments exceeding capitation (on average >40% per enrolled patient)
Context and legal basis	In 2003, the Emilia-Romagna Department of Health introduced a new DMP called "Integrated Management" targeting low-severity type-2 diabetes patients.
Type of incentives	Payment for achieving integrated care management of T2DM patients
Type of reward	Reward based upon patient enrolment in the program
Entity to whom the incentive is granted	GPs
Participation	Voluntary participation of GPs who ask T2DM patients to be enrolled on the program
References	Fiorentini et al., 2008, 2011, 2013;Iezzi et al., 2014; Santos et al., 2018; Ugolini et al., 2019.

Table 4: Map of Incentives for DENMARK

Incentive name	Chronic Disease Management Program
Monetary vs No monetary	New payment policy for chronic disease care to substitute previous GPs salary based on combined capitation and fee-for-service. By the new policy GPs are paid an annual fee for each patient following an annual extensive consultation. Subsequent consultations related to chronic diseases must be provided without further reimbursement.
Context and legal basis	New payment policy in the GP-contract aiming to strengthen General Practitioners' (GPs) role as case managers for patients with chronic disease (e.g. diabetes). Introduced with the agreement between Board for Wages and Tariffs of the Regions and the Organization of General Practitioners in Denmark.
Type of incentives	GPs are paid to enroll into disease management program and provide at least one annual chronic care consultation (minimum once a year per condition, a maximum of four conditions per year). It includes a patient health overview, medication review, lifestyle talk, and goal setting. The remuneration is approximately 2.5 times that of an ordinary consultation.
Type of reward	Absolute performance standards: physicians get paid if they enroll in the program and depending on how many follow-up consultations they agree to set with the patients.
Entity to whom the incentive is granted	GPs
Participation	Entering this policy is voluntary, but once the GP enters all chronic patients must be included presumably to avoid patient selection/cream skimming.
References	Rudkjøbing et al., 2015; Frølich A et al., 2015; Vestergaard et al., 2022

Table 5: Map of Incentives for ESTONIA

Incentive name	Quality Bonus System
Monetary vs Non-monetary	Monetary: Pay-for-performance scheme providing additional payments to GPs based on their performance, as assessed by quality indicators.
Context and legal basis	The Quality Bonus Scheme was launched by the Estonian Health Insurance Fund and by the Estonian Society of Family Doctors in 2006. The aim of the QBS was to incentivize preventive care and management of chronic conditions
Type of incentives	Reward based on achievement of clinical quality indicators: follow-up and immunisation indicators for children (0–7 years), screening for cardiovascular diseases (40–60 years), monitoring patients with type 2 diabetes and hypertension, follow-up of patients with hypothyroidism and post-myocardial infarction, providing minor surgical procedures and cervical smears, observation of pregnancy and participation in continuing medical education (CME) courses.
Type of reward	Reward based on improvement against baseline
Entity to whom the incentive is granted	Most QBS incentives are directed to individual GPs.
Participation	Joining the quality system is a voluntary process for all family doctors in Estonia and forms part of their contract. No penalties for doctors who do not participate in the quality system.
References	Atun et al., 2006;Merilind et al., 2014;World Bank, 2018;OECD, 2023.

Table 6: Map of Incentives NETHERLANDS

Incentive name	**Bundled payments for chronic disease management**
Monetary vs Non-monetary	Monetary: Introduction of bundled payments mechanism for specific chronic conditions to optimise GPs' behaviour and deliver a predefined bundle of chronic care services.
Context and legal basis	Bundled payments for DM2, VRM, COPD were introduced in 2010 to improve quality of care and prevent avoidable healthcare expenditure related to type-2 diabetes mellitus (DM2), cardiovascular risk management (VRM), or chronic obstructive pulmonary disease (COPD)
Type of incentive	Change in GPs remuneration mechanism to achieve a better quality of care and cut unnecessary expenses for preventable conditions.
Type of reward	Reward based on enrollment of patients into program.
Entity to whom the incentive is granted	GPs
Participation	Voluntary
References	Karimi et al., 2021.
Incentive name	**Shared Savings Program**
Monetary vs Non-monetary	Monetary: GPs earn a portion of the savings they generated in the entire spectrum of healthcare by cutting expenditures.
Context and legal basis	The shared savings contract was initially tested by Menzis in collaboration with "Arts en Zorg" (AEZ), a nationwide network of primary care centers. The program was launched in July 2014.
Type of incentive	Payment to achieve goal of lowering public health expenditures.
Type of reward	Payout to GPs was determined by absolute performance, improvement on performance, quality indicators, sharing rate, and a payout maximum.
Entity to whom the incentive is granted	GPs
Participation	Voluntary
References	Hayen et al., 2021

Table 7: Map of Incentives for SPAIN

Incentive name	Fragmented Pay-for-Performance Schemes across Spain
Monetary vs Non-monetary	Monetary incentives to GPs, nurses and primary care teams, with spatial heterogeneity across regions
Context and legal basis	The pioneer experience was n 2003 the Catalan Institute of Health (CIH) introduces new management by objectives and quality improvement strategy: P4P scheme among physicians, plus a set of economic incentives for GPs and nurses who join professional development scheme
Type of incentive	The incentive scheme is largely based on the attainment of quality indicators for individual GPs and primary care teams. These quality metrics may involve for instance prescription and immunization rates according to the regional/local priorities. Many incentive schemes entail also indicators related to the professional development of GPs and nurses.
Type of reward	The payment is based on absolute performance metrics of the individual GP or of the primary care professionals as a team
Entity to whom the incentive is granted	GPs and nurses who agree to participate.
Participation	Voluntary
References	Gené Badia and Gallo De Puelles, 2004; Gené-Badia et al., 2007;Fernández Urrusuno et al., 2013

Table 8: Map of Incentives for PORTUGAL

Incentive name	Pay-for-Performance Program
Monetary vs Non-monetary	Monetary: two models of incentives for primary care centres with different retribution mechanisms.
Context and legal basis	The Pay-for-Performance (P4P) program was launched as part of a major reform initiated by the Ministry of Health in 2005, introducing a new type of PHC unit, the family health unit ("USFs"— Unidades de Saúde Familiar)
Type of incentive	Model A: staff payment is a fixed salary, supplemented by financial incentives for achieving specific targets. The incentive quota is given to the whole primary care team. Model B: staff receives a small fixed payment along with supplement payments, including capitation-based payment, fee-for-service payment for home visits, and a P4P component associated with organizational and individual performance targets. The incentive payment is given to the individual general practitioner.
Type of reward	Combination of relative and absolute performance assessments in order to reinforce the effect of P4P on primary care providers with different performance levels
Entity to whom the incentive is granted	Primary Care Centre: USFs can access the government's PHC incentive scheme, which rewards good practices with grants to fund training and research activities for the PHC teams.
Participation	All primary health care centres can be rewarded for accessing the incentive schemes
References	Dimitrovová et al., 2020;Pereira et al., 2022; Kalinichenko et al., 2022.

Table 9: Map of Incentives for SWEDEN

	Enhanced Patient Choice Reform
Monetary vs Non-monetary	Monetary: changes to the reimbursement system. The aim of the reform was to promote competition among providers and quality through a more market-driven healthcare system.
Context and legal basis	2007 Swedish Primary Care reform: some regions implemented enhanced patient choice in combination with free establishment for private providers. Mandatory for all regions in 2010.
Type of incentive	New primary health care centres (PHCC) payment scheme to ensure more competition and a higher quality in healthcare provision.
Type of reward	From previous need-weighted capitation system towards a system largely based on fee-for-service and freedom of establishment of primary care clinics.
Entity to whom the incentive is granted	The new reimbursement scheme was directed at primary health care, either private or public, who compete in quality to attract patients. Reimbursement based on the basis of the services performed by the PHCC.
Participation	Mandatory after 2010.
References	Ödesjö et al., 2015; Agerholm et al., 2015; Ellegård et al., 2018; Fernholm et al., 2019; Hoffstedt et al., 2020; (Fredriksson, 2022)

5. Conclusion and Discussion

This review aimed to map the landscape of financial incentive programs implemented in European primary care over the past years. We summarized key features of major incentive schemes across influential EU health systems, analyzing commonalities and differences in their goals, design elements, targets, and participation details.

Our findings reveal that while heterogeneity exists, incentive initiatives in Europe gravitate towards a few priority domains like chronic disease management, access in underserved areas, and pay-for-performance programs driving quality through metrics. Dual incentives combining financial reimbursements with non-monetary workplace enhancements are also increasingly common. This signals recognition of the need to both compensate and intrinsically motivate providers to align behaviors with policy objectives.

However, the empirical evidence base regarding impacts on meaningful quality, utilization, and population health metrics remains inconclusive. Reasons likely include scheme complexity, variable context-dependencies, unintended gaming behaviors, and methodological challenges in isolating incentive effects. This suggests that while financial motivation through bonuses and targets offers theoretical appeal, real-world success hinges on excellent design and local adaptability.

As such, policymakers seeking "success factors" should note that one size likely does not fit all. But best practices include: 1) concentrating incentives on a few high-priority areas where provider effort is vital, 2) balancing comprehensiveness and simplicity in scheme design and metrics, 3) combining financial reimbursements with complementary non-financial rewards, and 4) allowing flexibility for regional customization meeting local needs. Further research should rigorously assess well-designed programs using experiemtnal or quai-experimental approaches.

This mapping of the European incentive landscape provides an important knowledge base for policymakers to make context-specific, evidence-based decisions surrounding if and how to deploy monetary motivation packages capable of sustainably elevating primary care performance.

6. References

Aars, O. K., & Kaarbøe, O. (2023). GP Recruitment and retention in the Nordic countries. *Nordic Journal of Health Economics*. https://doi.org/10.5617/njhe.8560

Agerholm, J., Bruce, D., De Leon, A. P., & Burström, B. (2015). Equity impact of a choice reform and change in reimbursement system in primary care in Stockholm County Council. *BMC Health Services Research*, *15*(1). https://doi.org/10.1186/s12913-015-1105-8

Arrow, K. J. (1962). The Economic Implications of Learning by Doing. *The Review of Economic Studies*, *29*(3), 155–173. https://about.jstor.org/terms

Atun, R. A., Menabde, N., Saluvere, K., Jesse, M., & Habicht, J. (2006). Introducing a complex health innovation-Primary health care reforms in Estonia (multimethods evaluation). *Health Policy*, *79*(1), 79–91. https://doi.org/10.1016/j.healthpol.2005.12.005

Barsanti, S., & Nuti, S. (2016). *Il sistema di valutazione della performance delle AFT toscane* (Edizioni del Gallo).

Bes, J. M., Flinterman, L. E., González, A. I., & Batenburg, R. S. (2023). Recruitment and retention of general practitioners in European medical deserts: a systematic review. In *Rural and Remote Health* (Vol. 23, Issue 1). James Cook University. https://doi.org/10.22605/RRH7477

Busse, R. (2004). Disease management programs in Germany's Statutory Health Insurance System: A Gordian solution to the adverse selection of chronically ill people in competitive markets? *Health Affairs*, *23*(3), 56–67. https://doi.org/10.1377/hlthaff.23.3.56

Campanella, P., Vukovic, V., Parente, P., Sulejmani, A., Ricciardi, W., & Specchia, M. L. (2016). The impact of Public Reporting on clinical outcomes: A systematic review and meta-analysis. *BMC Health Services Research*, *16*(1). https://doi.org/10.1186/s12913-016-1543-y

Cashin, C., Chi, Y.-L., Smith, P., Borowitz, M., & Thomson, S. (2014). *Paying for Performance in Health Care. Implications for health system performance and accountability*.

Cassou, M., Mousquès, J., & Franc, C. (2020). General practitioners' income and activity: the impact of multi-professional group practice in France. *European Journal of Health Economics*, *21*(9), 1295–1315. https://doi.org/10.1007/s10198-020-01226-4

Chevillard, G., Mousquès, J., Lucas-Gabrielli, V., & Rican, S. (2019). Has the diffusion of primary care teams in France improved attraction and retention of general practitioners in rural areas? *Health Policy*, *123*(5), 508–515. https://doi.org/10.1016/j.healthpol.2019.03.002

Conrad, D. A., & Christianson, J. B. (2004). Penetrating the "black box": Financial incentives for enhancing the quality of physician services. *Medical Care Research and Review*, *61*(3 SUPPL.). https://doi.org/10.1177/1077558704266770

Constantinou, P., Sicsic, J., & Franc, C. (2017). Effect of pay-for-performance on cervical cancer screening participation in France. *International Journal of Health Economics and Management*, *17*(2), 181–201. https://doi.org/10.1007/s10754-016-9207-3

De Pouvourville, G. (2013). Paying doctors for performance. *European Journal of Health Economics*, *14*(1), 1–4. https://doi.org/10.1007/s10198-012-0401-z

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic Motivation and Self-Determination in Human Behavior*. Plenum Press.

Dimitrovová, K., Perelman, J., & Serrano-Alarcón, M. (2020). Effect of a national primary care reform on avoidable hospital admissions (2000–2015): A difference-in-difference analysis. *Social Science and Medicine*, *252*. https://doi.org/10.1016/j.socscimed.2020.112908

Donabedian A. (1988). The Quality of Care. How Can It Be Assessed? *JAMA*, *260*(12), 1743–1748.

Donaldson, C., & Gerard, K. (1989). Paying general practitioners: shedding light on the review of health services. *Journal of the Royal College of General Practitioners*, *39*, 114–117.

Drabik, A., Büscher, G., Sawicki, P. T., Thomas, K., Graf, C., Müller, D., & Stock, S. (2012). Life prolonging of disease management programs in patients with type 2 diabetes is cost-effective. *Diabetes Research and Clinical Practice*, *95*(2), 194–200. https://doi.org/10.1016/j.diabres.2011.09.015

Dudley, R. A., Miller, R. H., Korenbrot, T. Y., & Luft, H. S. (1998). The Impact of Financial Incentives on Quality of Health Care. In *Source: The Milbank Quarterly* (Vol. 76, Issue 4).

Ellegård, L. M., Dietrichson, J., & Anell, A. (2018). Can pay-for-performance to primary care providers stimulate appropriate use of antibiotics? *Health Economics (United Kingdom)*, *27*(1), 39–54. https://doi.org/10.1002/hec.3535

Fernández Urrusuno, R., Montero Balosa, M. C., Pérez Pérez, P., & Pascual De La Pisa, B. (2013). Compliance with quality prescribing indicators in terms of their relationship to financial incentives. *European Journal of Clinical Pharmacology*, *69*(10), 1845–1853. https://doi.org/10.1007/s00228-013-1542-4

Fernholm, R., Arvidsson, E., & Wettermark, B. (2019). Financial incentives linked to quality improvement projects in Swedish primary care: A model for improving quality of care. *BMJ Open Quality*, *8*(2). https://doi.org/10.1136/bmjoq-2018-000402

Fiorentini, G., Iezzi, E., Bruni, M. L., & Ugolini, C. (2011). Incentives in primary care and their impact on potentially avoidable hospital admissions. *European Journal of Health Economics*, *12*(4), 297–309. https://doi.org/10.1007/s10198-010-0230-x

Fiorentini, G., Iezzi, E., Lippi Bruni, M., Ugolini, C., Bruni, M. L., & Scaravilli, P. (2008). *Incentives in primary care and their imact on potential avoidable hospital admissions*.

Fiorentini, G., Lippi Bruni, M., & Ugolini, C. (2013). GPs and hospital expenditures. Should we keep expenditure containment programs alive? *Social Science and Medicine*, *82*, 10–20. https://doi.org/10.1016/j.socscimed.2013.01.025

Flodgren, G., Eccles, M. P., Shepperd, S., Scott, A., Parmelli, E., & Beyer, F. R. (2011). An overview of reviews evaluating the effectiveness of financial incentives in changing healthcare professional behaviours and patient outcomes. *Cochrane Database of Systematic Reviews*. https://doi.org/10.1002/14651858.cd009255

Fredriksson, M., & 2, D. (2022). Fifteen years with patient choice and free establishment in Swedish primary healthcare: what do we know? *Scandinavian Journal of Public Health*, *50*(7), 852–863.

https://doi.org/10.1177/14034948221095365

Frølich A, Jacobsen R, & Knai C. (2015). Assessing Chronic Disease Management in European Health Systems: Country reports. In Nolte E & Knai C (Eds.), *Assessing Chronic Disease Management in European Health Systems: Country reports*.

Gené Badia, J., & Gallo De Puelles, P. (2004). Retribución variable vinculada a la calidad asistencial. *Aten Primaria*, *34*(4), 198–201.

Gené-Badia, J., Escaramis-Babiano, G., Sans-Corrales, M., Sampietro-Colom, L., Aguado-Menguy, F., Cabezas-Peña, C., & Puelles, P. G. de. (2007). Impact of economic incentives on quality of professional life and on end-user satisfaction in primary care. *Health Policy*, *80*(1), 2–10.
https://doi.org/10.1016/j.healthpol.2006.02.008

Gosden, T., Forland, F., Kristiansen, I., Sutton, M., Leese, B., Giuffrida, A., Sergison, M., & Pedersen, L. (2000). Capitation, salary, fee-for-service and mixed systems of payment: effects on the behaviour of primary care physicians. *Cochrane Database of Systematic Reviews*, *2011*(10).
https://doi.org/10.1002/14651858.CD002215

Greß, S., Focke, A., Hessel, F., & Wasem, J. (2006). Financial incentives for disease management programmes and integrated care in German social health insurance. *Health Policy*, *78*(2–3), 295–305.
https://doi.org/10.1016/j.healthpol.2005.11.011

Gupta, N., & Ayles, H. M. (2020). The evidence gap on gendered impacts of performance-based financing among family physicians for chronic disease care: A systematic review reanalysis in contexts of single-payer universal coverage. *Human Resources for Health*, *18*(1).
https://doi.org/10.1186/s12960-020-00512-9

Hayen, A., van den Berg, M. J., Struijs, J. N., & Westert (Gert), G. P. (2021). Dutch shared savings program targeted at primary care: Reduced expenditures in its first year. *Health Policy*, *125*(4), 489–494.
https://doi.org/10.1016/j.healthpol.2021.01.013

Heckhausen, J., & Heckhausen, H. (2018). *Motivation and action*. Springer, Cham.

Hoffstedt, C., Fredriksson, M., Lenhoff, H., & Winblad, U. (2020). When do people choose to be informed? Predictors of information-seeking in the choice of primary care provider in Sweden. *Health Economics, Policy and Law*, *15*(2), 210–224.

https://doi.org/10.1017/S1744133118000373

Iezzi, E., Lippi Bruni, M., & Ugolini, C. (2014). The role of GP's compensation schemes in diabetes care: Evidence from panel data. *Journal of Health Economics*, *34*(1), 104–120. https://doi.org/10.1016/j.jhealeco.2014.01.002

Jamili, S., Yousefi, M., pour, H. E., Houshmand, E., Taghipour, A., Tabatabaee, S. S., & Adel, A. (2023). Comparison of pay-for-performance (P4P) programs in primary care of selected countries: a comparative study. *BMC Health Services Research*, *23*(1). https://doi.org/10.1186/s12913-023-09841-6

Kalinichenko, O., Amado, C. A. F., & Santos, S. P. (2022). Exploring the potential of Data Envelopment Analysis for enhancing pay-for-performance programme design in primary health care. *European Journal of Operational Research*, *298*(3), 1084–1100. https://doi.org/10.1016/j.ejor.2021.07.037

Karimi, M., Tsiachristas, A., Looman, W., Stokes, J., Galen, M. van, & Rutten-van Mölken, M. (2021). Bundled payments for chronic diseases increased health care expenditure in the Netherlands, especially for multimorbid patients. *Health Policy*, *125*(6), 751–759. https://doi.org/10.1016/j.healthpol.2021.04.004

Kroezen, M., Dussault, G., Craveiro, I., Dieleman, M., Jansen, C., Buchan, J., Barriball, L., Rafferty, A. M., Bremner, J., & Sermeus, W. (2015). Recruitment and retention of health professionals across Europe: A literature review and multiple case study research. *Health Policy*, *119*(12), 1517–1528. https://doi.org/10.1016/j.healthpol.2015.08.003

Lefevre, M., Levy, M., Van Voorde, C. DE, Okkels Birk, H., & Ganzhorn Eriksen Berlin Hub, A. (2023). *General practitioner remuneration: overview of selected countries with a mixed system of fee-for-service and lump-sum payments*. www.kce.fgov.be

Linder, R., Ahrens, S., Köppel, D., Heilmann, T., & Verheyen, F. (2011). Nutzen und effizienz des disease-management-programms diabetes mellitus typ 2. *Deutsches Arzteblatt*, *108*(10), 155–162. https://doi.org/10.3238/arztebl.2011.0155

López-Sepúlveda, R., García Lirola, M. Á., Espínola García, E., Martín Sances, S., Anaya Ordóñez, S., Jurado Martínez, J. M., & Cabeza Barrera, J. (2017). Effects of a primary care intervention to improve the quality of zolpidem prescriptions in elderly patients. *European Journal of Clinical Pharmacology*, *73*(4), 455–461. https://doi.org/10.1007/s00228-016-2180-4

Macinko, J., Starfield, B., & Shi, L. (2003). The Contribution of Primary Care Systems to Health Outcomes within Organization for Economic Cooperation and Development (OECD) Countries, 1970-1998. *Health Services Research*, *38*(3), 831–865.

Mannion, R., & Davies, H. T. O. (2008). Payment for performance in health care. In *BMJ* (Vol. 336, Issue 7639, pp. 306–308). BMJ Publishing Group. https://doi.org/10.1136/bmj.39463.454815.94

Massin, S., Paraponaris, A., Bernhard, M., Verger, P., Cavillon, M., Mikol, F., & Ventelou, B. (2014). *Les médecins généralistes face au paiement à la performance et à la coopération avec les infirmiers*.

Merilind, E., Võstra, K., Baltic, K., Anastassia, E., Msc, K., & Kalda, R. (2014). *The impact of pay-for-performance on the workload of family practices in Estonia Rauno Salupere BA*.

Mirrlees, J. A. (1971). An Exploration in the Theory of Optimum Income Taxation. *The Review of Economic Studies*, *38*(2), 175–208. https://www.jstor.org/stable/2296779

Mousquès, J., Bourgueil, Y., Le Fur, P., & Yilmaz, E. (2010). Effect of a French experiment of team work between general practitioners and nurses on efficacy and cost of type 2 diabetes patients care. *Health Policy*, *98*(2–3), 131–143. https://doi.org/10.1016/j.healthpol.2010.06.001

Mueller, A., Sawicki, O. A., Günther, M. P., Glushan, A., Witte, C., Klaaßen-Mielke, R., Gerlach, F. M., Beyer, M., & Karimova, K. (2022). General practitioner-centred paediatric primary care reduces risk of hospitalisation for mental disorders in children and adolescents with ADHD: findings from a retrospective cohort study. *European Journal of General Practice*, *28*(1), 150–156. https://doi.org/10.1080/13814788.2022.2082409

Murray, C. J. L., Barber, R. M., Foreman, K. J., Ozgoren, A. A., Abd-Allah, F., Abera, S. F., Aboyans, V., Abraham, J. P., Abubakar, I., Abu-Raddad, L. J., Abu-Rmeileh, N. M., Achoki, T., Ackerman, I. N., Ademi, Z., Adou, A. K., Adsuar, J. C., Afshin, A., Agardh, E. E., Alam, S. S., … Vos, T. (2015). Global, regional, and national disability-adjusted life years (DALYs) for 306 diseases and injuries and healthy life expectancy (HALE) for 188 countries, 1990-2013: Quantifying the epidemiological transition. *The Lancet*, *386*(10009), 2145–2191. https://doi.org/10.1016/S0140-6736(15)61340-X

NHS digital. (2023, September 7). *Quality and Outcomes Framework, 2022-23*.

Ödesjö, H., Anell, A., Gudbjörnsdottir, S., Thorn, J., & Björck, S. (2015). Short-term effects of a pay-for-performance programme for diabetes in a primary care setting: An observational study. *Scandinavian Journal of Primary Health Care*, *33*(4), 291–297. https://doi.org/10.3109/02813432.2015.1118834

OECD. (2016). *Better Ways to Pay for Health Care* (OECD Health Policy Studies). OECD Publishing. https://doi.org/10.1787/9789264258211-en

OECD. (2022). *Expenditure on primary health care - Health at a Glance: Europe 2022: State of Health in the EU Cycle*. Https://Www.Oecd-Ilibrary.Org/Sites/47056b08-En/Index.Html?ItemId=/Content/Component/47056b08-En.

OECD. (2023). *The Development of the Estonian Health System Performance Assessment Framework*.

OECD/European Union. (2016). *Health at a Glance: Europe 2016: State of Health in the EU Cycle*.

Pereira, A., Biscaia, A., Calado, I., Freitas, A., Costa, A., & Coelho, A. (2022). Healthcare Equity and Commissioning: A Four-Year National Analysis of Portuguese Primary Healthcare Units. *International Journal of Environmental Research and Public Health*, *19*(22). https://doi.org/10.3390/ijerph192214819

Rat, C., Penhouet, G., Gaultier, A., Chaslerie, A., Pivette, J., Nguyen, J. M., & Victorri-Vigneau, C. (2014). Did the new French pay-for-performance system modify benzodiazepine prescribing practices? *BMC Health Services Research*, *14*(1). https://doi.org/10.1186/1472-6963-14-301

Ricciardi, W., Specchia, M. L., & Marino, M. (2014). Health of the Elderlies and Healthy Ageing: Challenge for Europe. *Studies in Health Technology and Informatics*, *203*, 1–9. https://doi.org/10.3233/978-1-61499-425-1-1

Rudkjøbing, A., Vrangbaek, K., Birk, H. O., Andersen, J. S., & Krasnik, A. (2015). Evaluation of a policy to strengthen case management and quality of diabetes care in general practice in Denmark. *Health Policy*, *119*(8), 1023–1030. https://doi.org/10.1016/j.healthpol.2015.04.004

Rudoler, D., Laporte, A., Barnsley, J., Glazier, R. H., & Deber, R. B. (2015). Paying for primary care: A cross-sectional analysis of cost and morbidity distributions across primary care payment models in Ontario Canada. *Social Science and Medicine*, *124*, 18–28. https://doi.org/10.1016/j.socscimed.2014.11.001

Saint-Lary, O., & Sicsic, J. (2015). Impact of a pay for performance programme on French GPs' consultation length. *Health Policy*, *119*(4), 417–426. https://doi.org/10.1016/j.healthpol.2014.10.001

Santos, R., Barsanti, S., & Seghieri, C. (2018a). Pay for performance in primary care: The use of administrative data by health economists. In *Data-Driven Policy Impact Evaluation: How Access to Microdata is Transforming Policy Design* (pp. 313–332). Springer International Publishing. https://doi.org/10.1007/978-3-319-78461-8_19

Santos, R., Barsanti, S., & Seghieri, C. (2018b). Pay for performance in primary care: The use of administrative data by health economists. In *Data-Driven Policy Impact Evaluation: How Access to Microdata is Transforming Policy Design* (pp. 313–332). Springer International Publishing. https://doi.org/10.1007/978-3-319-78461-8_19

Schäfer, I., Küver, C., Gedrose, B., Hoffmann, F., Ru-Thiel, B., Brose, H. P., Van Den Bussche, H., & Kaduszkiewicz, H. (2010). The disease management program for type 2 diabetes in Germany enhances process quality of diabetes care - A follow-up survey of patient's experiences. *BMC Health Services Research*, *10*. https://doi.org/10.1186/1472-6963-10-55

Scott, A., Sivey, P., Ait Ouakrim, D., Willenberg, L., Naccarella, L., Furler, J., & Young, D. (2011). The effect of financial incentives on the quality of health care provided by primary care physicians. *Cochrane Database of Systematic Reviews*. https://doi.org/10.1002/14651858.cd008451.pub2

Skinner, B. F. (1938). *The behavior of organisms: an experimental analysis*. Appleton-Century.

Starfield, B., Shi, L., & Macinko, J. (2005). Contribution of primary care to health systems and health. *Milbank Quarterly*, *83*(3), 457–502. https://doi.org/10.1111/j.1468-0009.2005.00409.x

Stock, S., Drabik, A., Büscher, G., Graf, C., Ullrich, W., Gerber, A., Lauterbach, K. W., & Lüngen, M. (2010). German diabetes management programs improve quality of care and curb costs. *Health Affairs*, *29*(12), 2197–2205. https://doi.org/10.1377/hlthaff.2009.0799

Szecsenyi, J., Campbell, S., Broge, B., Laux, G., Willms, S., Wensing, M., & Goetz, K. (2011). Effectiveness of a quality-improvement program in improving management of primary care practices. *CMAJ. Canadian Medical Association Journal*, *183*(18). https://doi.org/10.1503/cmaj.110412

Szecsenyi, J., Rosemann, T., Joos, S., Peters-Klimm, F., & Miksch, A. (2008). German Diabetes Disease Management Programs Are Appropriate for Restructuring Care According to the Chronic Care Model An evaluation with the Patient Assessment of Chronic Illness Care instrument. *Diabetes Care*, *31*(6), 1150–1154. https://doi.org/10.2337/dc07

Thiel, S. Van, & Leeuw, F. L. (2002). The Performance Paradox in the Public Sector. *Public Performance & Management Review*, *25*(3), 267–281.

Tsiachristas, A., Dikkers, C., Boland, M. R. S., & Rutten-van Mölken, M. P. M. H. (2013). Exploring payment schemes used to promote integrated chronic care in Europe. *Health Policy*, *113*(3), 296–304. https://doi.org/10.1016/j.healthpol.2013.07.007

Ugolini, C., Lippi Bruni, M., Leucci, A. C., Fiorentini, G., Berti, E., Nobilio, L., & Moro, M. L. (2019). Disease management in diabetes care: When involving GPs improves patient compliance and health outcomes. *Health Policy*, *123*(10), 955–962. https://doi.org/10.1016/j.healthpol.2019.08.014

Vestergaard, M., Vestergaard, C. H., Prior, A., Ribe, A. R., Vedsted, P., Fenger-Grøn, M., Sandbæk, A., Bro, F., & Smith, S. (2022). Chronic care services and variation between Danish general practices: A nationwide cohort study. *British Journal of General Practice*, *72*(717), E285–E292. https://doi.org/10.3399/BJGP.2021.0419

Vickrey, W. (1945). Measuring Marginal Utility by Reactions to Risk. *Econometrica*, *13*(4), 319–333. https://www.jstor.org/stable/1906925

Vickrey, W. (1960). Utility, Strategy, and Social Decision Rules. *The Quarterly Journal of Economics*, *74*(4), 507–535.

Vickrey, W. (1961). Counterspeculation, Auctions, and Competitive Sealed Tenders. In *Source: The Journal of Finance* (Vol. 16, Issue 1).

Wensing, M., Szecsenyi, J., Stock, C., Kaufmann Kolle, P., & Laux, G. (2017). Evaluation of a program to strengthen general practice care for patients with chronic disease in Germany. *BMC Health Services Research*, *17*(1). https://doi.org/10.1186/s12913-017-2000-2

WHO. (2010). *Increasing access to health workers in remote and rural areas through improved retention*.

World Bank. (2018). *Revising Estonia's Quality Bonus Scheme in Primary Care*.

World Health Organization. (2009). *Primary health care - Now More Than Ever*.