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Payment models to incentivise preventive health care services: review of published literature

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Glossary

DRG	Diagnostic related groups
FFS	Fee-for-service
GP	General practitioner
MeSH	Medical Subject Headings
OECD	Organization for Economic Cooperation and Development
P4P	Pay for performance
QOF	Quality and Outcome Framework
SR	Systematic review

Executive summary

As health care systems grapple with shifting care needs related to ageing societies, medical advances and growing prevalence of chronic conditions, the prioritization of preventive health care services has become increasingly important. To support health systems to respond to these challenges, purchasers have become increasingly interested in how payment models can be used as a tool to incentivise (or disincentivise) behaviours, including enabling providers to deliver integrated care packages or payment models that are designed to support the management of patients with multi-comorbidities.

Based on a synthesis of peer reviewed literature, this review describes the different payment models delivered within preventive or primary health care services in Europe. Analysis focused on those payment models most relevant to the Romanian health and care system, where the two main service providers delivering preventive services are general practice and community health services.

Financing health and social care involves three basic functions of revenue mobilization, pooling and purchasing. This report focuses on purchasing, defined as the payment or allocation of resources to health service providers. The report describes three traditional payment methods for preventive and primary health care services, these are **Fee-for-service (FFS)**, **Capitation**, and **Global budget**, and fourthly, one payment method more commonly used in the last two decades **Pay for performance (P4P)**, also known as results-based financing. We present the evidence related to these four payment models related to incentivising preventive health care.

The review is based on analysis of 37 papers identified through formal and informal searches. The theoretical and practical effect of these four payment models in incentivising preventive health care services is reported.

Payment models need to be designed based on the context and desired outcomes of individual health systems. In line with other evidence, our review found that **no single payment method is perfect**. Each payment method carries advantages and disadvantages, which we have described in the following report. To meet the challenges of today's health care needs, many countries have therefore moved towards blended payment systems, which combine elements of multiple payment methods, in part to maximise the beneficial incentives and minimise the perverse incentives of each option.

Service delivery models, health information systems, contracting and audit are all relevant, are important enabling factors and are thus highlighted throughout the review.

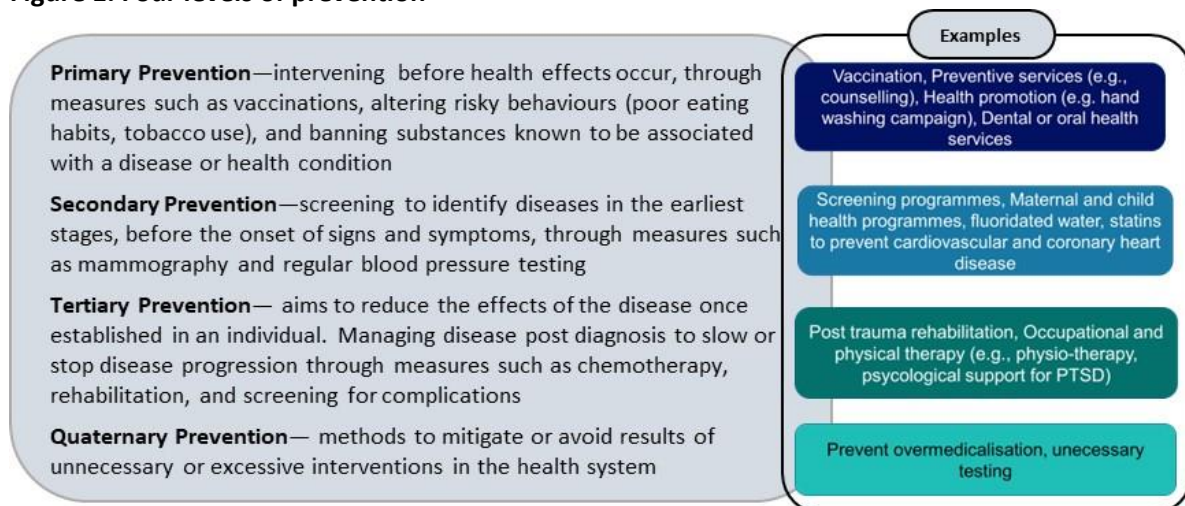
The report is set out in the following way. First, we introduce traditional payment methods for health care services, presenting the evidence related to how these methods can incentivise or disincentivise providers' behaviours. We then expand on these concepts in the context of purchasing preventive services, synthesising what the evidence about the effectiveness of different payment models. The report concludes by offering implications for practice.

Background

What do we mean by preventive health care services?

Disease prevention interventions are commonly classified into four levels of prevention that span from primary to secondary, tertiary and quaternary prevention (Figure 1) (1, 2). For example, consider the case of a patient who meets the risk factors for alcohol use disorder. Primary prevention could implicate primary care clinicians and nurses who may support the patient with care and advice that prevents the patient from developing an alcohol use disorder. These same clinicians can be involved in secondary prevention because in their role they may detect an alcoholic patient early and provide the patient with guidelines to avoid deterioration. In the situation where the patient develops an alcoholic liver disease, and the health professionals decide the best course of treatment is a liver transplant, some services can prevent potential complications from arising during the waiting period. Both primary and secondary preventive services occur before the transplant; while tertiary prevention takes place once the intervention is completed, with the objective of avoiding further complications. The aim of quaternary prevention in this case could be avoiding unnecessary care. In this report, primary prevention provided at community level is the main focus of analysis.

Figure 1. Four levels of prevention



Source: authors compilation, adapted from (1, 2).

What do we understand a health payment model to mean?

For the purpose of this report, a health payment model is a term used to describe a system for distributing financial and other resources from one or more paying parties to one or more health service providers (e.g., private general practitioners (GP), government health services) (3). These payments are linked to a set of services or responsibilities that the health service provider is required to deliver. The type of funding and expectations for how the funding is distributed are generally outlined in a contract.

The World Health Organization (WHO) promotes health financing as a means to improve service coverage and financial protection to facilitate advancement towards universal health coverage (4). Financing health and social care involves three connected steps of three financial flows: revenue mobilisation, risk pooling and purchasing (3, 4).

This report focuses mainly on the last step of the financial flow, the purchasing of health services. The report is set out in the following way. First, we introduce traditional payment methods for health care services, describing how these methods can incentivise or disincentivise providers' behaviours. We

then explain these concepts in the context of purchasing preventative services, synthesising the evidence about the effectiveness of different payment models. The report concludes by offering implications for practice.

Traditional payment methods for all types of health services

Payment models can vary from relatively simple to highly complex. The four traditional payment models commonly used to pay for all types of health services are:

- **Fee-for-service (FFS):** is a *retrospective* payment model where services are unbundled and paid for separately. It is used as a method where clinicians and other health care providers are paid for each service performed (5).
- **Payment per case** e.g., diagnostic related groups (DRG): is based on the treated patient (e.g., discharge), rather than the number of services delivered. Applying a tariff to each DRG results in a bundled payment, covering the treatments, services and inpatient bed days attributable to a specific admission diagnose (3).
- **Capitation:** is a *prospective* payment of a fixed amount per patient per unit of time paid in advance to the health service provider for the delivery of health care services.
- **Global budget:** is a *prospective* payment of a fixed amount paid in advance to the health provider for the delivery of health care services, independent of the actual volume provided. For the clinician, this means they are paid a salary.

Additionally, a fifth type that is designed to incentivise providers to prioritise certain outcomes, e.g., more activity, higher quality, or improved health outcomes, is:

- **Pay for performance (P4P),** also known as activity-based or results-based financing. P4P is a *prospective* payment. The payment amount is based on the target number of procedures that are undertaken. It is an add-on payment to promote specific outcomes that are linked to specific targets (5). It can be a sole payment model, but is more commonly used as an add-on payment to FFS.

In primary care most OECD countries combine capitation with FFS payments (5). Figures 2, 3 and 4 describe and summarise the key differences between these four provider payment methods.

Figure 2. An overview of traditional payment methods in health care systems

Payment method	Description	Setting	Degree of bundling
Fee-for-service	Retrospective activity-based payment. Billing of individual services	Predominant mode of payment for GPs and outpatient specialist services	unbundled ↑ ↓ bundled
Payment per case	Prospective activity-based payment per patient, patient classified into groups based on diagnoses and resource use	Payment for hospital inpatient cases in many countries	
Capitation	Prospective lump-sum payment per enrolled patient covering a range of services	Mode of payment for GPs in a number of countries	
Global budget	Prospective lump-sum payment covering a range of services independent of actual volume provided	Payment for public hospitals in a number of countries	

Source: OECD et al, 2016

Providers are funded retrospectively with FFS, through cost-reimbursement, where the amount paid varies depending on the number of procedures performed. For capitation or global budget financing, the fixed amount will be paid in advance, regardless of the number of procedures completed (5).

Payment systems in many countries have evolved beyond the three traditional payment models, and in the case of FFS, are often supplemented by additional payments (like P4P) (5). P4P is a prospective payment that will vary depending on the target outcomes, as agreed usually on an annual basis in the contract between the payer and the health provider.

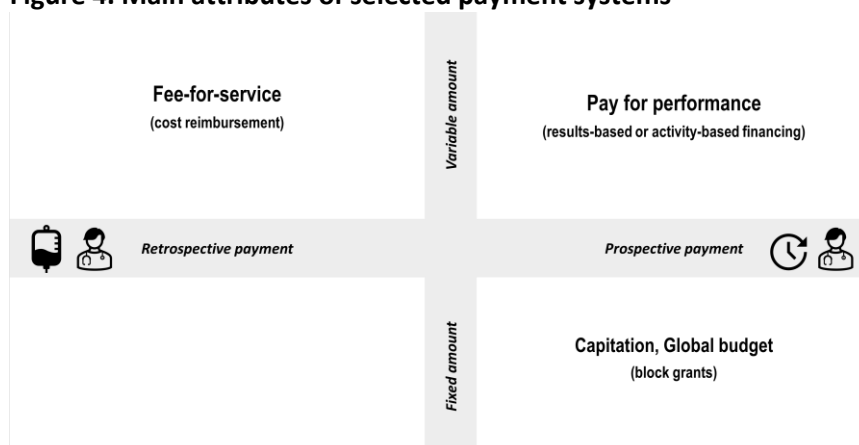
Figure 3. Pay for performance payment method in health care systems

Payment method	Description	Setting	Degree of bundling
Pay for performance	Prospective <i>add-on</i> activity-based payment based on a target number of procedures undertaken	Add-on payment for mode of payment for GPs and outpatient specialist services	unbundled

Source: adapted from OECD et al, 2016

Depending on the payment model, the implications for the provider can differ and will therefore influence service delivery outcomes. Starting with traditional payment mechanisms, as described in Figure 2, some payment models can be characterised by those that are focused on a case-based approach (unbundled) towards a population-based approach (bundled).

Figure 4. Main attributes of selected payment systems



Payment models and preventive health services

The four payment models relevant for the different types of preventive health care services are **capitation**, **FFS**, **global budget** and **P4P**. Different payment models may incentivise health facilities or individual practitioners to deliver health services in a different way. If you take an example of a person with a chronic condition, in theory a bundled payment model enables the service provider to shift resource allocation from reactive services to a proactive design, prioritizing aftercare, disease monitoring, management, or relapse (3). Alternatively, as FFS is often critiqued for rewarding the provision of services, without regard for if they are necessary or not (6), a results-based funding model like P4P may be better suited to financially incentivise service providers to move from over-use to under-use of services. In this report we present the evidence related to the four different payment models and conclude with possible implications for practice.

Objectives

In this review, we undertook to address the following objectives:

- Describe existing payment models for targeted preventive services in primary health care in Europe.
- Provide decision makers in Romania with empirical evidence on various approaches payment models to contracting and paying for preventive services at community level, including GP services.
- Describe evidence on the potential impact of pay-for-performance on behaviour of primary care clinicians and patient outcomes.
- Provide an objective evaluation of pay-for-performance.

Methods

This report is guided by scoping review methods (7). A protocol was drafted at project inception and shared with an information specialist at the Norwegian Institute of Public Health who then used the protocol to guide the design of the search strategy.

In Romania, there are two main service providers delivering preventive services—**general practice**, and **community health services**. To ensure that the findings of this review are relevant to the Romanian context, we have therefore limited our analysis of those payment methods most relevant to these two modes of service delivery, prioritising studies that from Europe as it was deemed that these are most relevant to Romania.

Two literature searches were performed on 5 and 6 January 2023, one for systematic reviews and one for primary studies.

We searched the Epistemonikos database (which includes regular updating of ten databases) for systematic reviews on the topic. No time constraint was placed on the search.

Search terms for the scoping review included three strings, simplified searches are listed below (see Annex 1 for the full search):

- 1) "incentive plan" OR "reimbursement incentive" (and similar) "fee for service" (and similar) OR "capitation fee" (and similar) OR "pay for performance" (and similar) OR "financial model" (and similar) OR "health financing" (and similar)
AND
"primary prevention" OR "preventive health" (and similar)
- 2) "incentive plan" OR "reimbursement incentive" (and similar) "fee for service" (and similar) OR "capitation fee" (and similar) OR "pay for performance" (and similar) OR "financial model" (and similar) OR "health financing" (and similar)
AND
"primary care" OR "primary health" (and similar)
- 3) "incentive plan" OR "reimbursement incentive" (and similar) "fee for service" (and similar) OR "capitation fee" (and similar) OR "pay for performance" (and similar) OR "financial model" (and similar) OR "health financing" (and similar)
AND
"general practice" (and similar) OR "public health" (and similar)

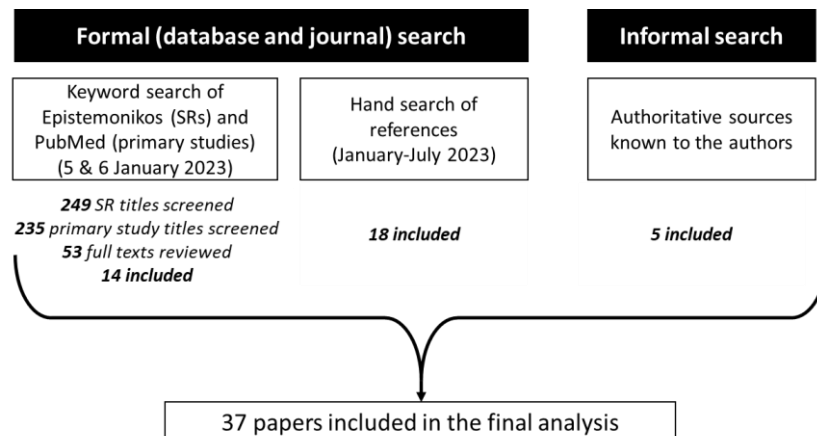
A second search was completed for primary studies linking the ten priority preventive services as identified by the Romanian health insurance agency with the relevant Medical Subject Headings (MeSH) terms (see Annex 2 and 3). This search was limited to the last ten years (2013-2023); and included records from North America and Europe. Additional informal information sources were included based on the authors' prior knowledge and information available.

Screening of full-text and data extraction was carried out by one reviewer (TM) or (EP). The studies were not appraised for their quality. The main aim of the analyses was to describe different health payment models for preventative health care, and present any evidence of effectiveness, and factors relevant to implementation. Results are presented based on the evidence gathered through the formal and informal searches as described above. Main findings for all questions were summarized narratively and in summary tables. The report was subjected to internal peer review by a health financing expert from the Norwegian Institute of Public Health.

Results

Thirty-seven papers were deemed relevant to this review (Figure 5). Traditional payment systems are challenged by shifting care needs related to ageing societies, medical advances and increasing prevalence of chronic conditions (5). Additionally, as healthcare costs continue to increase, governments and funding agencies are reassessing funding models for preventive care, seeking alternative payment methods to efficiently use health care funding and maximise the delivery of services (8).

Figure 5. Flow-diagram of included studies



Health care provider and clinician behaviour is expected to be influenced by **financial incentives** (9, 10). In the example of bundled payment models (Figure 2), a health provider may be incentivised to restrict health care services for patients who are anticipated to have higher health care costs (11). In cases where there is a direct incentive to the clinician, health care payment models can influence their willingness to treat, or not treat.

Since prevention can take many forms, there are many ways to reimburse providers of preventive health care services. Firstly, it is necessary to differentiate between payment schemes directed to individuals (doctors, nurses and other health professionals), and payment schemes which are designed to reimburse organisations (primary care centres, clinics, etc.). The essence of incentive contracting is the effort by one individual or organization (the principal) to induce and reward certain behaviours by another (the agent) (6). There are a range of incentives and contractual flexibilities that health care payers can draw on to encourage service providers to invest in preventive services. Evidence from OECD countries suggests that innovative payment policies differ in the services they incentivise (5). **Individuals** can be compensated for the number of patients assigned to them (capitation model), for the number of consultations or treatments they have carried out (FFS), for meeting performance objectives (P4P), through a salary, or through a combination of all these schemes. Whereas **organisations'** reimbursement can be activity-based depending, for example, on the number of discharge (FFS); it can be based on the population assigned to that organisation, regardless of the population's use of the services provided (capitation); it can be conditional on meeting some performance objectives as well (P4P); it can be done through a budget; or using a mix of these models.

The incentives outlined in **contracts**, including ensuring that the health providers are **monitored**, is an essential aspect of any payment model as these levers of influence are critical to ensure that health care providers are being incentivised in the desired way, to prioritise different forms of service delivery (5, 8, 10).

Introducing a payment **reform** to an existing model creates an additional challenge for further investment in preventive services. Barriers such as information asymmetry, worsening reputation of insurers, lack of trust as a result of failed reform attempts, misaligned incentives in the hospital setting, hesitation to accept financial accountability and lack of start-up funding should be taken into account in the design of a payment reform (12).

Payment models may have different **administration costs**. FFS systems entail the highest costs since claims have to be made for each service while in capitation schemes the clinician claims a fixed payment per patient (13). Payers may be reluctant to reimburse procedures which cannot be clearly itemized because of the difficulty of checking abuse and the extra cost it would imply (14). Payment systems in many countries have evolved beyond the traditional payment models reported in the background of this report (pg. 6-9) (5). The next sections are dedicated to review the **four payment models** used in general practice, and community health services, and the evidence related to incentivising preventive activities.: **FFS, global budget, capitation and P4P**.

Fee-for-service

FFS is an unbundled payment model, where every activity performed under the scheme can be billed separately (5). From a **health system perspective**, the financial risk of FFS sits with the payer or purchaser, exposing the payer to financial uncertainty as FFS payments are directly related to proportion, i.e., quantity of services delivered (11, 15). Table 1 presents the theoretical positive and negative incentives associated with a FFS funding model. As payers reimburse the number of activities administered, it is expected that providers will be incentivised to complete more activity, which may encourage overtreatment (13).

Table 1. The theoretical incentives of fee-for-service for preventive care

Positive incentives	Negative incentives
+ increased activity means increase in income + refunding of actual costs + incentives are to increase marginal costs and then increase marginal income + transparency + less risk selection issues	- risk for over production - associated with higher costs - no incentive for providers to deliver a service that is not included in the fee schedule - alone it does not support care coordination or integration - higher transaction costs
Financial risks sit with the payer/purchaser	

Sources: (5, 13-19).

From a **health provider perspective**, FFS incentivises activity and transparency as there is a direct link between the service delivered and associated payment (20). FFS can also disincentivise efficiency, as the actual number of procedures are refunded (Brocklehurst et al., 2013; Ciapponi & García Martí, 2009; Jia et al., 2021; OECD et al., 2016).

Under FFS alone, professionals may not be financially incentivised to dedicate their time and efforts to health care **prevention** practices unless they are paid specifically for these services — although clinicians may choose to prioritise these services for altruistic reasons (5). As GPs paid under this scheme are not economically rewarded to interview the patient at length or to give health education; and therefore they may be reluctant about introducing preventive medicine into the fee schedule because of a preoccupation with clinical therapy (14).

A recent review of payment methods that assessed the impact of different payment models on the **quantity and quality of health service** for those health care providers working in outpatient health care settings, found that mixing FFS with an existing payment method may increase the quantity of health services provided compared with an existing payment method (15). However, due to the limited and uncertain nature of the available evidence, their findings were inconclusive regarding the impact of FFS mixed payment on service quality, patient health outcomes, and the outcomes of health care professionals when compared to other payment methods (15).

On the disincentive side, the same review reported that clinicians paid via FFS may see healthier patients than salaried clinicians (low-certainty evidence), possibly implying that more unnecessary services were delivered through FFS (15). This contradicts a widely held belief that FFS encourages fewer selection issues, or “cherry-picking” of patients (5). Primary care clinicians may be deterred by the uncertainty of income related to FFS or activity based funding models (13). Although an evaluation of new funding schemes for Norwegian GPs, who are largely funded by FFS, found that they were uncertain about shifting from FFS to a new payment model due to the uncertainty related to other payment models (21).

Global budget

Global budget is a prospective lump sum payment to health providers (5), meaning that clinicians receive salaries as opposed to incentive-based income. From a **health system perspective**, the financial risk of global budget sits with the provider, as the amount of funding allocated for the service may, or may not, be sufficient for the population that the health provider is expected to cover. This may lead to access problems and long waiting times. The following Table 2 summarises the theoretical positive and negative incentives conveyed by global budget.

Table 2. The theoretical incentives of global budget for preventive care

Positive incentives	Negative incentives
+ cost control (if population is stable) + low transaction costs	- increased activity does not increase income - Rationing of services with increased waiting time - possible skimping of care - may encourage over treatment by providers - possible risk selection (skimping of care, “cherry picking”) by providers - no guarantee for full coverage of actual costs - not directly related to the demographic profile of the population served - Budget allocation may be less transparent
Financial risks sit with the provider	

Sources: (13, 16, 18-20, 22, 23)

From a **health provider perspective**, in the case of health care salaries, health care professionals do not receive any explicit economic incentives to deliver preventive services, in addition to routine care. Some argue that under salary, health care workers have no incentive to provide care efficiently (i.e., prioritising clients with greatest needs, delivering care in ways that allow more clients to be cared for, and in ways that maximise the chances of health gain) (19). That does not mean that health care workers will not work efficiently under salary, but there are no additional economic rewards, compared with colleagues who do not work efficiently. This is also reported in a systematic review,

that primary care clinicians provide a greater quantity of primary care services under fee for service payment compared with capitation and salary, although long-term effects are unclear (20).

A qualitative study that investigated how reimbursement schemes impact on primary, secondary, tertiary, and quaternary prevention, found that the health care provider organisation plays a major part in stimulating prevention at practice-level. This is by making the necessary resources available for professionals to be able to focus their efforts on prevention, such as extending the length of consultations (18). The respondents also reported that they would be open to invest more time in prevention, but the perceived pressure from the provider organisation (reimbursed under FFS) to generate revenue hampered prevention activities (18).

Finally, salary payment is associated with a higher supply of preventive care compared to FFS schemes (5, 24). However, a study by Wranik (2011) found that preventive and health promotion activities are only stimulated by a salary system in contexts where the patients are relatively healthy (22).

Capitation

The capitation system is argued to have a built-in incentive for preventive medicine (16, 25) (Table 3). This is because, contrary to FFS, health care professionals under a capitation payment model have no additional monetary gain from treatment, thus the intuition follows that they could be more incentivised to prevent people under their care from getting sick (16). Similarly, to Global budget, from a **health system perspective** the financial risk of capitation sits with the provider, as the funding allocation may, or may not, be sufficient to meet the population service coverage needs. The amount of capitation is usually linked to the number of eligible service users registered in an area (5). However, most OECD countries adjust the capitation to take into consideration risk dimensions such as age, gender, health status, utilisation of services, geographic or socioeconomic factors. Of all OECD countries, only Belgium, Denmark, Mexico and Norway do not, and instead complement capitation with another payment model (5).

From a **health provider perspective**, capitation can foster long-lasting relationships between users and primary care providers, which in theory can cultivate preventive services due to consistency and trust between health professionals and service users (23). It has been suggested that comparing salary and capitation systems has revealed that consultations tend to be longer when healthcare providers are compensated through a salary payment (26), although we consider the cross-sectional studies that this finding is based on to be out of date (27, 28). Capitation does not, however, offer any monetary stimulus to deliver more services or to extend the visits with each patient, because this reduces the provider's capacity to see other service users (5, 19). In terms of quality, one study found that the comparison between salaried and capitation systems varied widely in the aspects of service delivery assessed, making it difficult to compare the results (26).

Depending on the context, some capitation models are designed so that patients may not be allowed to freely switch providers, this payment scheme can produce an incentive called 'supervised neglect' (i.e., accepting patients but not providing them with the appropriate levels or types of care). Nonetheless, when patients can choose their provider under a capitated system, an extra incentive to satisfy patients arises because the professional's level of income depends on the size of the population they are responsible for (5, 19). Additionally, with fixed budgets — like global budget and capitation — providers may be incentivised to contain costs (13), although most health systems within the OECD make adjustments to their capitation funding models to discourage skimping or "cherry-picking" (5).

Table 3. The theoretical incentives of capitation for preventive care

Positive incentives	Negative incentives
+ cost control (if population is stable in case of capitation) + low transaction costs + Higher focus on preventive activities + it can promote efficient use of resources and is seen as a promising model to improve care coordination	- increased activity does not increase income - may Increase in number of patients - possible skimping of care (fewer visits per patient and less activity per patient) - may encourage over treatment by providers - possible risk selection by providers - no guarantee for full coverage of actual costs
Financial risks sit with the provider	

Sources: (13, 16, 18-20, 22, 23, 26-28)

To conclude, an examination of evidence available on the effects of changing payment models on provider behaviour for dental services found that capitation has been associated with providers taking more patients, delivering more prevention and delaying the point of intervention in the disease processes (19). This article also stressed two facts; firstly, that professionals do respond to financial incentives, and the second one is that this response is influenced by many factors, such as the preferences of the health provider and the payment model that was implemented before the one that is being studied (19).

Pay for performance

P4P is an add-on payment that is designed to promote evidence-based and preventive services linked to specific targets (5). From a **health system perspective**, the financial risk of P4P is shared between the payer and the provider. P4P initiatives have several primary goals, including enhancing service quality, limiting expenses, promoting efficiency, and ultimately enhancing patient health outcomes. P4P programmes supplement traditional payment models (Figure 2), by offering monetary incentives for complying with predetermined benchmarks for care and cost management (29).

The vast literature on P4P in primary care is inconclusive whether it incentivises quality of care (30-32). P4P programmes may induce positive incentives to increase activity, or achieve better results, and can be more effective in cases where the financial incentive is substantial (33). They can fit well to support the implementation of disease management programmes (34) and can have positive spinoffs, such as improving the quality of data recording (35). In outpatient settings, P4P was found to increase the quantity and slightly improve the quality of service for targeted conditions (15). However, a study of the effect of health provider incentives on chlamydia testing found that audit feedback of contracts and providers was more effective than financial incentives (8). There is a preliminary indication of a favourable effect of P4P programs on performance. However, the evidence regarding the broader impact of P4P on health outcomes and cost savings remains uncertain and inconclusive (5) (Table 4).

There are several negative consequences of P4P programmes, they do not guarantee the full coverage of actual costs, and they are not attributed to changing behaviours in the long run (8, 36), which can contribute to increase medical costs and can potentially contribute to inequity and patient dissatisfaction with continuity of care (34).

Table 4. The theoretical incentives of pay for performance for preventive care

Positive incentives	Negative incentives
+ increased activity / better results increase income + large financial incentives + disease management	- does not guarantee full coverage of actual costs - not recommended for long-term behaviour change - potentially contributes to inequity, patient dissatisfaction contributes to medical cost
Financial risk is shared between the payer and the provider	

Sources: (5, 15, 29-42)

As recommended by OECD, different payment mechanisms can be combined with P4P to further incentivise prevention (5). P4P is commonly used with the aim of incentivising the provision of preventive services, and they are generally complementary to other payment systems. Usually, P4P is a bonus which represents between 2% and 4% of professionals' income; but in some cases, such as the Quality and Outcome Framework (QOF) in England, it can represent up to 25% of their annual income.

In one study, for example, when P4P was combined with FFS and capitation, the introduction of bonuses was found to increase the provision of some preventive services such as screening and immunisations (41). Nevertheless, one author suggests the design of the scheme is crucial, and that bonus magnitude, required effort and type of indicator are important components in a P4P scheme (42). For example, adding too many indicators simultaneously may decrease the likelihood of clinician's response to any of them (40); and if the size of the bonus is not significant enough, it may not induce professionals to change their behaviour. Additionally, P4P schemes can come with the additional costs of improving and documenting its indicators — such as the need of new Information Technology systems, or more personnel to manage the administrative burden (38) — and have to be carefully designed based on evidence (38, 43).

Lastly, similar to other payment schemes, P4P may encourage the perverse incentive of focusing providers' attention to what is being measured, and as a result, may marginalise other quality criteria that are not being rewarded (37). For instance, a review of the framework on the quality of primary medical care in the United Kingdom found that the quality of care indicators of mortality and hospital admissions improved the first year at expense of non-incentivized conditions (35).

Despite the well documented shortcomings of P4P, many countries in Europe have designed and implemented P4P schemes in primary care: Belgium, Czech Republic, Estonia, France, Germany, Luxembourg, Netherlands, Poland, Portugal, Spain, Sweden, and the United Kingdom (5).

Case examples of paying for preventive health care services by prevention level

This section offers examples of payment models related to the four levels of health care prevention: primary, secondary, tertiary and quaternary prevention.

Primary prevention

Primary prevention can be fostered by economic incentives addressed to health providers or directly to citizens. For instance, in Germany, some insurance funds offer bonuses to insured citizens for participating in health promotion, screening and check-up programmes. Bonuses may be provided in cash, reductions of insurance contributions, or in kind (sports equipment, etc) (44).

Reducing financial barriers to access primary health care, or encouraging health providers to invest more time with preventive activity will increase the use of health services due to the likelihood of identifying more patients and then their referral to further treatment (5). The Irish health care system remunerates GPs through a mixed public-private system. While patients covered by private health insurance pay at the point of contact, professionals are paid a *per capita* fee for each public patient. A study examined the effect of care fees have on childhood consultations in Ireland and concluded that children eligible for free care make a more frequent use of the health services provided by the GPs (45).

Payment schemes based on capitation are more likely to increase preventive services than FFS. Capitation has been found to be optimal when the objective is to increase the delivery of preventive services, particularly those services that are difficult to reward on a piecemeal basis, such as nutritional counselling or smoking cessation advice (22). In Scotland, a study comparing FFS and capitation as payment method for primary care dentists showed increased preventive activities of those clinicians under capitation, whereas those under FFS were leaned to more clinical activity (46).

Pay-for-performance can pinpoint specific primary prevention targets. In the case of QOF in England, smoking targets for the GPs were included in the framework since 2010, nevertheless, the first version of the indicator was not valid because it was vulnerable to misinterpretation by providers (47). After revising the indicators in 2012, GPs were required to offer ‘support and treatment’ to smokers — every 15 months for patients with chronic conditions— and to offer support and treatment every 27 months to everyone who smokes. This refinement of the QOF Smoking Targets is associated with an increase in recording of advice and referring patients to behavioural support to stop smoking (48), suggesting that continual refinement of indicators are necessary to incentivise the correct outcomes.

Box 1. Immunisation and cancer screening campaigns

Financial incentives may be operationalised to promote participation to enhance immunisation programmes. Applied to immunisations, financial incentives improved the vaccination rate (49). In Flanders, Belgium, a free Human Papilloma Virus (HPV) vaccination programme for cisgender girls in the first year of secondary school was put into place in the schools in 2010. Before that, a non-school-based, co-payment vaccination for cisgender girls between twelve and eighteen years old was in place. A study exploring the effects of the implementation of the programme concluded that it increased both the rates of vaccination initiation and completion and decreased the age at vaccination, at the same time it lowered socio-economic inequalities (50).

For cancer screening campaigns, financial incentives seem to be more functional in participation-based schemes rather than target-based, which reinforces its use for screening programmes (30). Applied to cancer screening programmes, it showed partial or no effects, except for colorectal cancer (51). In Germany, a study of people who take part in counselling sessions on the advantages and disadvantages of certain cancer screenings, and do not refuse treatment, should they later

suffer one of the cancers, pay 1% instead of 2% of gross annual household income in co-payments (44).

FFS may incentivise increased production of preventive services such as immunizations, screenings and eye exams (15, 18), particularly for child immunization, where there is moderate certainty of evidence that a higher FFS payment increases immunisation rates (15).

Secondary and tertiary prevention

A study that explored how reimbursement schemes specifically impact on primary, secondary, tertiary, and quaternary prevention found that FFS offers less incentive for chronic disease management, or preventive activities that are not easily reimbursable through a fee, for instance patient education (18). Referring to the case of oral health, Birch (2015) claims that as providers' income working under FFS relies on the number of treatments they perform, they have a disincentive to provide effective prevention given that reducing oral disease in the population reduces the size of the future market for treatment (19). This author goes as far as to say that under this payment model there is no reward for working efficiently because the remuneration is linked to the services performed, no matter which patients receive it, or the quality of the service provided. Moreover, Birch adds that under FFS *"delivering fewer services but of a higher quality will be associated with a lower level of income"* (19).

In Germany, insurance funds incentivise participation in personalised care plans such as integrated healthcare or disease management programmes, which are assumed to reduce morbidity through quality assured care schemes (44).

In Norway, in 2006 an annual check-up for Type 2 diabetic patients was introduced, and clinicians were compensated for every assessment they made through a fee-for-check-up scheme. A study showed that the level of adoption by clinicians was relatively low, assuming that the fee may have not been significant enough. Furthermore, in 2013 an education assistance programme was also introduced in two Norwegian counties, which had a positive effect on the level of adoption (52).

For tertiary prevention it has been observed that rewarding professionals for process indicators (e.g., control visits, cholesterol or glucose testing) led to no difference in the number of visits nor tests performed. In those cases, the inclusion of outcome indicators rewarding improvement in clinical levels (e.g., cholesterol levels) could be considered for P4P. However, it is essential to not lose sight of the fact that achieving the targets does not always translate to better health. For example, in a P4P programme which financially rewarded providers for conducting all recommended diabetes management actions, although patients of GPs claiming the bonus received more glucose tests per year and had consequently better GP follow-up, this was ultimately not translated into lower glucose levels for those patients relative to the comparison group (39).

Quaternary prevention

As primary care clinicians have a longitudinal perspective of patients' diagnostics and treatments, economic incentives may have an impact on the level of medicalisation and therefore, they must be aligned with the objectives to avoid over-diagnosis and over-treatment. Medical overuse has been observed in all reimbursement categories in Germany - statutory health insurance, private insurance and individual health services under out-of-pocket payment (53).

Explicit incentives to quaternary prevention are found in the quality and outcomes framework used in some countries like England and Spain. For instance, in Catalonia, primary care clinicians monitor the improper use of prostate-specific antigen as part of the quality indicators that can be incentivised under the P4P programme.

Beyond economic incentives, the encouragement of doctor-patient relationships, patient education and the promotion of person-centred care are also relevant to reduce overdiagnosis and overtreatment (54).

Considerations for implementing payment system reforms

For successful reform, it is crucial to have policy coherence which involves aligning policy measures within the financing system and ensuring alignment with the broader health system. Relying solely on isolated approaches or "magic bullets" like social health insurance, user fee changes, P4P, or other payment models, without considering the bigger picture, can be insufficient and potentially detrimental rather than beneficial (55). In this section we describe review findings that offer possible considerations for health payers who are considering health payment model reform.

Contracting

All payment models require sufficient monitoring and evaluation of health system outcomes. Contracting is a pillar of purchasing, therefore, including economic principles to incentivise health provider behaviour can support the desired health outcomes. Table 4 offers guiding principles for the development of these contracts, encompassing key aspects such as, 'informativeness', 'incentive', 'monitoring' and 'equal compensation' (10).

Table 5. Economic principles for optimal incentive contracts

Principle	Definition	Implications for purchasers
The informativeness principle	Factor in performance measures that allow agent effort to be estimated more precisely and exclude performance measures that chiefly reflect factors outside of the agent's control.	Commissioners may require agents to report activity data, e.g., on efforts to follow-up and support non-attenders at weight loss clinics; routine feedback on smoking status of those offered advice to quit.
The incentive-intensity principle	The strength of incentives should reflect the marginal returns to task, the accuracy with which performance is measured, the responsiveness of the agent's efforts to incentives and the agent's risk tolerance.	Sometimes, the most difficult to reach populations are those with greatest capacity to benefit. Additional payments could be made for reaching these populations with public health interventions.
The monitoring intensity principle	Monitoring is a costly activity. More resources should be spent monitoring when it is desirable to give strong incentives, e.g. there is substantial variation in performance or performance is uniformly poor.	If benchmarking data suggest that a PCT is performing significantly below national average standards in some area (e.g. smoking cessation rates), commissioners may wish to monitor provider performance more intensively to signal the importance of changing behaviour.
The equal compensation principle	If principals cannot monitor an agent's allocation of time, incentives should ensure that the marginal returns earned by the agent are equal for all tasks the agent undertakes. Providing strong incentives for only some activities can cause agents to reduce effort in other activities.	For example, in England, if local public health indicators are added to the Quality Outcomes Framework, care should be taken to ensure that targets are broadly aligned with commissioner objectives; if equity issues are a concern, payments could be adjusted to reflect this (e.g. thresholds for triggering maximum payments could be raised if unmet need is concentrated in lower socioeconomic groups).

Sources: (10)

Key factors to consider before health payment model reform

Our review also identified these six factors that are key for health payers to consider when analysing what aspects of the funding system are appropriate to be adapted (17).

1. **Relationship:** Who is the payer? Who is the provider? Will the state, the municipality or the patient pay? E.g., the municipality may pay directly to the individual clinician, or to the health care business. The state may be paying directly to the municipality.
2. **Distribution of different types of payments:** Will there be one payment method throughout? Or several forms of payment as part of the whole? What is the percentage distribution between components. E.g., pure framework financing vs. mixed framework and activity-based financing. Impact from equalization payments.
3. **Arrangement of individual payment methods:** What is the arrangement of and characteristics of the different the forms of payment? What are the considerations behind the different payment forms? E.g., Fixed grants vs capitation. Types of risk adjustment. Level of detail of activity and performance-based financing
4. **The payment system:** How the funds are transferred in practice? Which actors/providers accounts are involved?
5. **Regulation:** How are the payments regulated? How are changes carried out and price adjusted? E.g., There are differences between whether prices are statutes (law and regulation) or can be modified through contract negotiation.
6. **Control mechanisms:** Which mechanisms are included to ensure that the payments will be in line with preconditions? Balancing between trust and control. E.g., Different forms of payment entail different types of risk which must be handled separately.

These six aspects outlined above are unique to every health system and will influence the feasibility to implement a payment model and the possible implications of a new model.

Conclusions

The key insight from the empirical evidence on the effectiveness of different payment methods is that **no single payment method is perfect**. Each payment model carries advantages and disadvantages. Many countries have therefore moved towards a blended payment system, which combines elements of multiple payment methods, in part to maximise the beneficial incentives and minimise the perverse incentives of each option.

This review described and provided empirical evidence on types of payment models (retrospective vs prospective, and variable vs fixed) for contracting and paying for preventive services in primary health care in Europe. Investment in preventive services may generate greater demand on health services, which could increase health system costs, especially in the short-term.

In many countries, the way health care providers are paid can work against the objectives of primary health care. In systems that pay providers under FFS, they typically set higher payment rates for specialty services, giving providers a financial incentive to prioritise curative, rather than preventive care. Hence, FFS is used to reward more clinical activity and may produce adverse selection of patients. However, it can also incentivise more prevention if providers are specifically rewarding preventive activities.

Unlike FFS, global budget and capitation payment systems have no explicit incentives but are associated with higher supply of preventive services. Specifically, capitation induce providers to adopt a population health management approach, taking more patients and delivering more prevention.

Regarding the impact of P4P on behaviour of primary health care clinicians and patient outcomes, the evidence is inconclusive and depends largely on the design of the financial incentive programme and the complementarity with existing payment systems. P4P schemes may help to improve quality of care in some cases (e.g., disease management), but is also associated with increased costs. Blended payment models that include capitation and P4P (add on payments) are widely used by many health services.

When health professionals are rewarded by salary, it is critical to analyse the level of incentives alignment between health organizations and health professionals.

To stimulate primary prevention, capitation performs better than FFS and can be improved by introducing specific P4P targets. For secondary and tertiary prevention, FFS incentivise less prevention of chronic patients if preventive activities are not objectively addressed. P4P is commonly used to introduce incentives for chronic care management in addition to the underlying payment model, occasionally including incentives to quaternary prevention.

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Annexes

Annex 1 – Search strategy

Romania - Epistemonikos final search January 5 2023

A combination of **payment AND preventive services** – searched in Title/Abstract

Three individual strategies as Epistemonikos cannot handle all three at once, - with possible huge overlap between the three.

1.

"incentive plan" OR "incentive plans" OR "reimbursement incentive" OR "reimbursement incentives" OR "fee for service" OR "fee for services" OR "fee-for-service" OR "fee-for-services" OR "capitation fee" OR "capitation fees" OR "capitated payment" OR "capitated payments" OR "out of pocket" OR "pay for performance" OR "paying for performance" OR "payment for performance" OR "payments for performance" OR p4p OR "financial incentive" OR "financial incentives" OR "financial motivation" OR "economic incentive" OR "economic incentives" OR "economic motivation" OR "monetary incentive" OR "monetary incentives" OR "monetary motivation" OR "payment incentive" OR "payment incentives" OR "payment motivation" OR "payment method" OR "payment methods" OR "payment model" OR "payment models" OR "financial method" OR "financial methods" OR "financial model" OR "financial models" OR "health financing" OR "health care financing" OR "healthcare financing" OR "health-care financing" OR "financing health" OR "financing healthcare" OR "financing health-care" OR "government financing"

AND

"primary prevention" OR "preventive health" OR "preventive healthcare" OR "preventive health-care" OR "preventive service" OR "preventive services" OR "early prevention" OR "early detection" OR "early diagnosis" OR "diagnostic service" OR "diagnostic services" OR screening OR mammography OR (surveillance AND population*) OR (monitor* AND population*)

RESULTS: 76 Systematic reviews, 3 Structured Summaries, 10 Broad Synthesis

2.

"incentive plan" OR "incentive plans" OR "reimbursement incentive" OR "reimbursement incentives" OR "fee for service" OR "fee for services" OR "fee-for-service" OR "fee-for-services" OR "capitation fee" OR "capitation fees" OR "capitated payment" OR "capitated payments" OR "out of pocket" OR "pay for performance" OR "paying for performance" OR "payment for performance" OR "payments for performance" OR p4p OR "financial incentive" OR "financial incentives" OR "financial motivation" OR "economic incentive" OR "economic incentives" OR "economic motivation" OR "monetary incentive" OR "monetary incentives" OR "monetary motivation" OR "payment incentive" OR "payment incentives" OR "payment motivation" OR "payment method" OR "payment methods" OR "payment model" OR "payment models" OR "financial method" OR "financial methods" OR "financial model" OR "financial models" OR "health financing" OR "health care financing" OR "healthcare financing" OR "health-care financing" OR "financing health" OR "financing healthcare" OR "financing health-care" OR "government financing"

AND

"primary care" OR "primary health" OR "primary healthcare" OR "primary health-care" OR "primary service" OR "primary services" OR "community health" OR "community healthcare" OR "community health-care" OR "community services" OR outpatient* OR "out patient" OR "out patients" OR out-patient OR out-patients

RESULTS: 100 Systematic reviews, 4 Structured Summaries, 9 Broad Synthesis

3.

"incentive plan" OR "incentive plans" OR "reimbursement incentive" OR "reimbursement incentives" OR "fee for service" OR "fee for services" OR "fee-for-service" OR "fee-for-services" OR "capitation fee" OR "capitation fees" OR "capitated payment" OR "capitated payments" OR "out of pocket" OR "pay for performance" OR "paying for performance" OR "payment for performance" OR "payments for performance" OR p4p OR "financial incentive" OR "financial incentives" OR "financial motivation" OR "economic incentive" OR "economic incentives" OR "economic motivation" OR "monetary incentive" OR "monetary incentives" OR "monetary motivation" OR "payment incentive" OR "payment incentives" OR "payment motivation" OR "payment method" OR "payment methods" OR "payment model" OR "payment models" OR "financial method" OR "financial methods" OR "financial model" OR "financial models" OR "health financing" OR "health care financing" OR "healthcare financing" OR "health-care financing" OR "financing health" OR "financing healthcare" OR "financing health-care" OR "government financing"

AND

"general practice" OR "general practitioner" OR "general practitioners" OR "family practitioner" OR "family practitioners" OR "family physician" OR "family physicians" OR "family doctor" OR "family doctors" OR "public health" OR "public healthcare" OR "public health-care" OR consultation* OR "house call" OR "house calls" OR "home visit" OR "home visits" OR "family planning service" OR "family planning services" OR vaccination OR immunization OR immunization

RESULTS: 71 Systematic reviews, 2 Structured Summaries, 12 Broad Synthesis

Annex 2 — 10 targeted preventative services in primary care as prioritised by the Romanian Institute of Public Health

1. The **service for detecting contagious diseases** with epidemic, potential, delivered at the office or remotely, it is settled by CAS with the value of 5.5 points / consultation (plus an increase related to the professional doctor degree and in the specific conditions area (remote, underserved, etc) of the area ;4 lei the value point in 2022; it is settled one consultation per person for every detected and confirmed disease with epidemic potential inclusive for the new TB patient found by the family doctor.

2. **Consultation for taking over in the register the pregnant women in the first quarter of pregnancy;** monthly consultations for pregnancy surveillance, from the 3rd month to in the 7th month, two monthly pregnancy surveillance consultations, from the 7th month to in the 9th month inclusive are settled by the health insurance house (HIH); the value is 5.5 points / consultation plus an increase related to the professional doctor degree and in the specific conditions area (remote, underserved, etc); 4 lei the value point in 2022);

3. **Follow - up consultation of the mother upon discharge from the maternity at home** ; Follow - up consultation at 4 weeks after birth - at home ; it settles for a consultation at home the equivalent of 15 points / consultation (plus an increase related to the professional doctor degree and in the specific conditions area (remote, underserved, etc); 4 lei the value point in 2022;

4. **Consultations family planning services** - it is settled two consultations per calendar year; payment on service with the equivalent of 5.5 points / consultation (plus an increase related to the professional doctor degree and in the specific conditions area (remote, underserved, etc; 4 lei the value point in 2022;

5. **Initial evaluation for integrated management of cardiovascular risk factors** - hypertension, dyslipidaemia and type 2 diabetes of the case new detected; initial evaluation of disease management respiratory chronic - asthma and disease chronicle respiratory obstructive – COPD the case new detected; management of chronic kidney disease new detected - it is settled for a consultation the counter value - 6 points / consultation at the office, respectively 16 points / consultation at home (plus an increase related to the professional doctor degree and in the specific conditions area (remote, underserved, etc; 4 lei the value point in 2022); it settles two consultations scheduled at an interval of no more than 90 days ;

6. **Active monitoring of the patient with cardiovascular risk** - hypertension, dyslipidaemia and diabetes, diseases respiratory chronic diseases, chronic kidney disease; other chronic diseases included in the case management: payment: on medical service - 6 points / office consultation or 16 points at home (plus an increase related to the professional doctor degree and in the specific conditions area (remote, underserved, etc; 4 lei the value point in 2022); it settles two consultations scheduled at an interval of no more than 90 days ;

7. **Preventive consultations of the child:** consultations at discharge from maternity and after one month - at home: it is settled for a consultation at home the equivalent of 15 points / consultation (plus an increase related to the professional doctor degree and in the specific conditions area (remote, underserved, etc; 4 lei the value point in 2022). annual consultations at the age of 2, 4, 6, 9, 12, 15, 18, 24 months - at the office: it is settled for a consultation at the office the value of 5.5 points / consultation (plus an increase related to the professional doctor degree and in the specific conditions area (remote, underserved, etc; 4 lei the value point in 2022). annual consultation for the child with age between 2 years and 17 years, inclusive: it is settled for a consultation at the office the value of

5.5 points / consultation (plus an increase related to the professional doctor degree and in the specific conditions area (remote, underserved, etc; 4 lei the value point in 2022)).

8. Preventive consultations for the assessment of individual risk in adults asymptomatic with age between 18 and 39 years - 5.5 points / consultation (plus an increase related to the professional doctor degree and in the specific conditions area (remote, underserved, etc; 4 lei the value point in 2022)). Two consultations are settled out at three years calendars; the second one consultation is granted within a maximum of 90 days from the first consultation

9. Preventive consultation for the assessment of individual risk in adults asymptomatic aged > 40 years - 1 - 3 consultations / insured person /services prevention package are granted annually. The prevention package includes a maximum of 3 consultations: initial evaluation consultation - 5.5 points, consultation for intervention for risks modification - 5.5 points, and consultation for monitoring / control - 10 points (plus an increase related to the professional doctor degree and in the specific conditions area (remote, underserved, etc; 4 lei the value point in 2022)); the consultations are granted in an interval of maximum 6 consecutive months.

10. Diagnoses and therapeutics services: Spirometry - 10 points / service; measuring the arterial blood pressure with holter; measuring the pressure index ankle - arm - 10 points / service ; ECG - 10 points / service; rectal touch check - 10 points / service; test monofilament - 10 points / service ; Peakflowmetry - 10 points / service , (4 lei counter value point in 2022); the price includes the specific materials and consumables.

Annex 3 – Primary study search using the relevant Medical Subject Headings (MeSH) terms

Using a list of 10 targeted preventative services in primary care as prioritised by the Romanian Institute of Public Health, we linked the Preventive Health Service payment terms with the relevant MeSH terms; limited to the last 10 years; and North American and Europe.

1. MeSH HEADING: **POPULATION SURVEILLANCE** AND MeSH HEADING: **COMMUNICABLE DISEASES**
2. MeSH HEADING: **REFERRAL AND CONSULTATION** AND MeSH HEADING: **PREGNANCY TRIMESTER, FIRST**
3. MeSH HEADING: **HOUSE CALLS**
4. MeSH HEADING: **FAMILY PLANNING SERVICES**
5. MeSH HEADING: **Mass Screening** AND MeSH HEADING: **CARDIOVASCULAR DISEASES**
6. MeSH HEADING: **MONITORING, PHYSIOLOGIC** AND MeSH HEADING: **CARDIOVASCULAR DISEASES**
7. MeSH HEADING: **REFERRAL AND CONSULTATION** AND MeSH HEADING: **Child**
8. MeSH HEADING: **REFERRAL AND CONSULTATION** AND ...
9. MeSH HEADING: **REFERRAL AND CONSULTATION** AND ...
10. MeSH HEADING: **DIAGNOSTIC SERVICES** OR MeSH HEADING: **THERAPEUTICS**

235 records were identified