NACIONĀLAIS ATTĪSTĪBAS PLĀNS 2020

EIROPAS SAVIENĪBA
Eiropas Sociālais fonds

IEGULDĪJUMS TAVĀ NĀKOTNĒ

Eiropas Savienības fondu darbības programmas "Izaugsme un nodarbinātība" 9.2.3.specifiskā atbalsta mērķa "Atbalstīt prioritāro (sirds un asinsvadu, onkoloģijas, perinatālā un neonatālā perioda un garīgās veselības) veselības jomu veselības tīklu attīstības vadlīniju un kvalitātes nodrošināšanas sistēmas izstrādi un ieviešanu, jo īpaši sociālās atstumtības un nabadzības riskam pakļauto iedzīvotāju veselības uzlabošanai" ietvaros īstenotā projekta Nr.9.2.3.0/15/I/001 "Veselības tīklu attīstības vadlīniju un kvalitātes nodrošināšanas sistēmas izstrāde un ieviešana prioritāro jomu ietvaros" 13.nodevums – **Human Resource Planning**

Human Resources Review[a]

[a] Authors: Edson C. Araujo (Senior Economist, World Bank), Maria Stella Lobo (Professor, Federal University of Rio de Janeiro and Consultant, World Bank), Irina Mozhaeva (Consultant, World Bank), James Buchan (Consultant, World Bank).

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1. Introduction

1. Health workforce challenges are considered among the main bottlenecks for the development of the Latvian health sector. These challenges may include unequal geographical distribution of staff, unbalanced skill mix, low compensation, and an inappropriate incentive structure compounded by high workloads. These health workforce shortcomings likely lead to other challenges faced by the Latvian health system, and the ability to address them will determine the medium and long term success of any health sector reform effort.

2. Possible explanations for the persistent health workforce bottlenecks include workforce aging, lack of career opportunities for young and newly graduates, and low compensation. There is a general perception that health workers' salaries are significantly lower than salaries of similar professions within the Latvian economy and compared to health workers in other European Union (EU) countries. Physician specialists are paid mostly through fee-for-services and, in general, to maintain reasonable level of income they have to take up several jobs in different health care institutions. General Practitioners (GPs) are contracted by the National Health Services (NHS) through a combination of capitation and performance fees, and there is large variation in the number of patient in their list with implications in terms of efficiency and quality of service they deliver.

3. As part of a World Bank Group (WBG) reimbursable advisory services agreement with the Latvian National Health Service (NHS), which aims to provide "Support to Develop a Health System Strategy for Priority Disease Areas in Latvia," this report seeks to identify and measure the critical issues within the Latvia health labor market that may contribute to the increased burden of the four dominant diseases and conditions (cardiovascular diseases, cancers, mental diseases and perinatal and maternal conditions) and that, more broadly, may affect the health system's responsiveness and efficiency. In particular, the study examines:

- What are the regulatory frameworks, contractual arrangements, and governance structures in place that may contribute to the current health workforce bottlenecks in Latvia?
- Is there scope to improve work profile of GPs (enhanced tasks, services, exams/tests, competences) and task shifting especially within primary health level (role, functions, and competences of nurses and medical assistants)?
- What is the association between GP efficiency and different types of primary health care (PHC) providers' organization?
- What is the association between the size of GP practices and GP productivity?

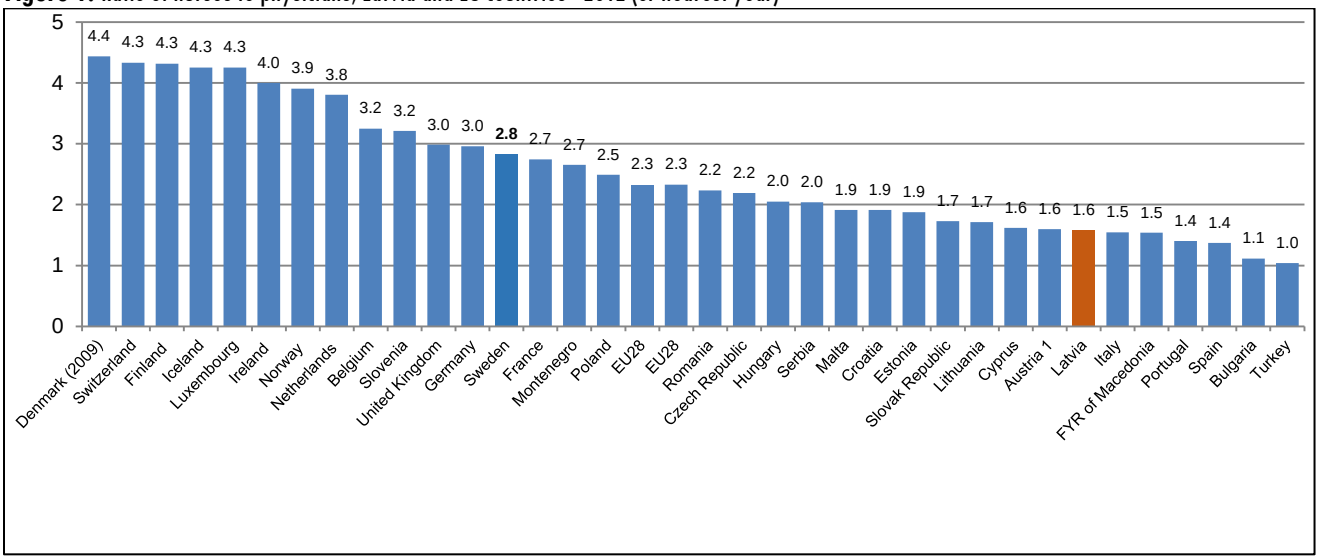
4. This report is structured as follows. The next section presents an overview of the health workers labor market in Latvia. It describes stakeholder perceptions and empirical patterns related the supply of health workers and their compensation. Section 3 presents a review of relevant international experience in dealing with some of the health workforce bottlenecks in Latvia, such as PHC workforce composition, health workforce compensation and incentives, recruitment and retention for rural and remote areas, and the regulation of dual practice. The section also presents a summary of health workforce policy and practices in selected countries (Czech Republic, Estonia, England, Lithuania, and Turkey). Section 4 focuses on the issue of GP practice efficiency. It adopts a frontier analysis perspective to identify how productivity varies across GPs and the main factors associated with observed variation. Section 5 concludes and outlines a set of policy recommendations and actions to tackle the health workforce challenges discussed in the report. This report is complemented by other deliverables focusing on health workforce issues, namely the qualitative report and the Master Plan.

2. Overview of the health worker labor market in Latvia

5. The supply of health workers has changed significantly in Latvia in recent years. A 2012 study found that despite an increase in the number of GPs, the number of physicians has declined between 1990 and 2010 (from 3.54 per thousand inhabitants to 2.91) and there has been evidence of severe shortages in key specialties (e.g., obstetrics, cardiologists).[1] Yet in a more recent mapping of human resources in Latvia and an accompanying needs analysis, there appears to be a national surplus of many physicians - including GPs, cardiologists, and OB-GYN - when compared to international standards and regional surpluses in most regions. While there are certainly important deficits in some specialties in some regions, the shortages perceived by many stakeholders (See Box 1) may really reflect low levels of productivity.

6. Latvia has a low proportion of nurses compared to the European Union (EU) average and other countries in the region (Figure 1). Similarly, the supply of mid-level cadres (physician assistants, nurse assistants, midwives) is very low.

Figure 1: Ratio of nurses to physicians, Latvia and EU countries - 2012 (or nearest year)



SOURCE: OECD Health Statistics 2015, http://dx.doi.org/10.1787/health-data-en.

Box 1: Shortages of health workers: results from the qualitative analysis

Qualitative data analysis showed that there is a common perception among HR managers and health professionals that the number of healthcare personnel is insufficient in Latvia. Accordingly to the report, the shortages affect all groups of health professionals and all levels of care, but the shortage is particularly severe at the hospital level and in the eastern part of Latvia.

HR managers and health professionals identified entry restrictions, unavailability of funded residence positions and low salaries, among the reasons for persistent shortages. They attribute entry restrictions to the requirement stated by the Medical Treatment Law for certification to practice. The regulations (Cabinet of Ministers No.192 issued on 24 February 2009), establishes 42 speciality fields for doctors' certification and 10 fields for nurses. HR managers also argue that the regulation results in entry restrictions and creates a shortage of professionals in theseareas (increasing income of certified professionals and, at the same time, delaying diagnosis and treatments).

HR managers also point to the insufficient number of state funded residency positions in Latvia as an underlying cause of specialist shortages. It was reported that there are approximately 300 doctor graduates per year in Latvia, but only around 200 publicly funded residency positions. As a result, around 100 young doctors per year have to choose between privately paid residency and residency abroad.

Source: A qualitative study on health system bottlenecks in Latvia. World Bank/ Baltic Institute of Social Sciences, 2016.

7. Health professionals often practice in more than one specialty, and the HR mapping found that more than 50 percent of doctors held multiple jobs in different facilities. Box 2 presents findings from the qualitative analysis that describe the views of human resource managers on why multi-practice is so prevalent in Latvia.

8. Interestingly, when it comes to physician compensation, the perceptions of many actors interviewed in the qualitative study are not consistent patterns in the earnings data supplied by the State Revenue Service. The following tables presents average monthly earnings in 2014 for workers identified as "professionals" by the Central Statistical Bureau (CSB) and different physician specialties (among workers with non-zero earnings). In contrast to the qualitative report, GPs do not earn more than other physicians. While they earn less than professionals on average, they do earn nearly 30 percent more than the average earner. Specialists appear to earn considerably more. Cardiologists and cardiac surgeons as group in fact earn more than double what GPs earn, while mental health specialists and oncologists earn 55 and 80 percent more than GPs, respectively.

Table 1: Average monthly earnings by specialty, 2014

Worker	Average monthly earnings in 2014 (Euros)
Overall average	729
"Professionals" (CSB occupational category)	1,026
GPs	943
Cardiologists and cardiac surgeons	1,963
Oncologists	1,695
Mental health specialists	1,461

Sources: State Revenue Service (2014 earnings), NHS (specialties), and CSB (occupational categories of non-physicians).

Box 2: The determinants of physician specialists multi-practice: results from the qualitative analysis

Qualitative data collection among HR managers identified the main types and determinants of multi-practice, particularly among physician specialists (who normally have two or three workplaces, while nurses and family doctors have fewer). According to the analysis, the main forms of multi-practice are: working in several outpatient care institutions; working more than full-time hours at the same workplace; working in inpatient and outpatient care (within the same hospital or outside); and working in a healthcare institution and engaging in other healthcare-related activities (e.g. clinical studies, training of students, etc.). Often these practices are in public and private institutions, characterizing what the international experience calls *dual practice* (see next section for a review of the international experiences in regulating dual practice).

For multi-practice in several outpatient care institutions, the analysis suggests a role played by the allocation of public service funding (the so called 'quotas') for each institution. The state funding allocated to each provider depends on the rates reimbursed for each type of service provided and the number of patients expected for a given a year. Providers may have limited capacity to hire (limited demand) and physicians need to have several jobs in order to earn an acceptable wage level.

Given current workload and the relatively better off situation in terms of compensation, family doctors seldom have outside work. Some provide related services, for example, working as an occupational health specialist, for medical commissions, at emergency aid services, or at accident and emergency branches at hospitals. Among nurses, mobility is limited. If nurses want to earn more, they need to have several specialties. For instance, nurses who have a hospital specialty usually work 24-hour duties in several hospitals as this type of work is paid more. The nursing specialities with highest demand are those working in surgery, anaesthesia, and intensive therapy.

Source: A qualitative study on health system bottlenecks in Latvia. World Bank/ Baltic Institute of Social Sciences, 2016.

3. Review of international experience

9. This section reviews relevant countries' experiences in contracting and paying for health workers. It places particular attention on the issues around the composition, organization, and compensation of PHC workforce in the Czech Republic, Estonia, England, Lithuania, and Turkey, to draw lessons for the Latvian context. Strengthening primary care and enhancing its role to ensure care integration and coordination are essential for tackling the burden of four priority diseases (cardiovascular diseases, cancers, mental diseases and perinatal and maternal conditions), as screening and often diagnosis and management for many of these conditions should be handled by primary care providers. In addition to these country experiences, the section also reviews the global literature on key health workforce challenges (health workforce supply, geographical distribution, payment and incentives, and dual practice regulation).

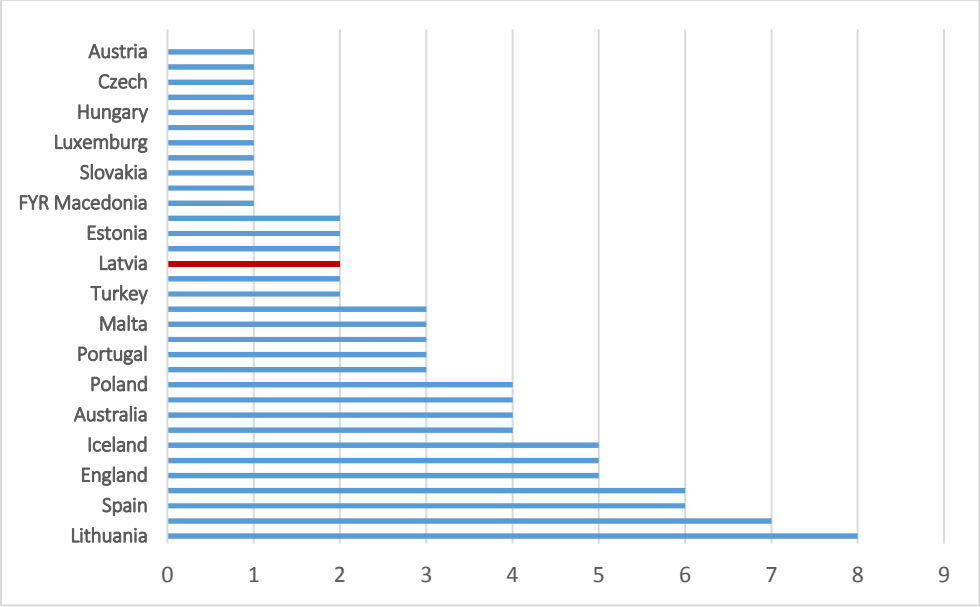
3.1 PHC workforce composition, roles, and skill mix

10. PHC workforce composition varies significantly across countries. Although there is a tendency to organize PHC around GPs, often solo practices, new evidence has shown that the number of allied health professionals and support workers is increasing in many countries.[3,4] Mid-level cadres - such as medical assistants, clinical officers, and licensed practical nurses - have been introduced in many countries to expand access of basic PHC services. Their professional training varies greatly, with a range from no required training (England) to a three-year curriculum at a vocational school (Germany). International experiences demonstrate these cadres can be as efficient as traditional cadres in defined areas of care.[5-7] There is a growing body of evidence on the cost effectiveness of substituting GPs with nurses, nurse practitioners, and physician assistants, but the actual substitution is often limited by regulation on the scope of practice. [4,8-9]

11. The size of a PHC team also varies significantly across countries**.** While there seems to be a consensus that moving towards multidisciplinary PHC teams is necessary, the actual implementation varies greatly across countries. A recent review shows that countries with small size of practices included Belgium, Bulgaria, Czech Republic, Hungary, and Macedonia, while countries with large number of PHC practices organized as teams included Lithuania, Finland, Sweden and England.[4] The same study reported that where there was one extra professional within the practice, this was likely to be either a nurse practitioner (49.2% of the cases) or a receptionist/medical secretary (45%). In Latvia, the same review reports that in 89% of the cases

where an extra professional is available, he or she is a nurse practitioner, but only 17% (37) of the practices in the sample had any extra professional. [b]

Figure 2: Median number of professionals in PHC practice



SOURCE: reference 4; p. 3.

3.2 Health workers' compensation structure and contracts

12. The structure of health workforce compensation greatly influences health workers' behavior and determines key health labor market outcomes. Compensation influences workforce composition to an extent that it makes certain cadres and specialties more or less attractive to prospective health workers. Compensation also influences job satisfaction, retention, attrition, and migration of health workers within and across countries.[10] The way health workers are also paid influences service delivery outcomes, as it results in incentives, intended and unintended, that shape health workers' practice. Fee-for-service payments for GPs, for example, are likely to result in incentives to treat patients within their own practice as much as possible, to avoid referral to other health care providers and specialists, and to focus primarily on the clinical interventions which are best remunerated. On the other hand, salaries and capitation systems can result in incentives to increase referrals to other (often costlier) health care providers.[11]

13. Global experiences in paying GPs have shown that: 1) countries tend to avoid a single payment system; and 2) payment systems have become more complex with the introduction of new mechanisms, such as pay-for-performance (P4P) and integrated care payments. In countries

[b] It is important to note that these figures are not consistent with 2014 NHS data, where 628 PHC practices (or 49 percent of all practices) had an extra medical practitioner.

where the compensation method was primarily fee-for-service, there is now a move to introduce additional or replacement payment elements such as salaries (Canada), capitation fees (Belgium, France), performance fees (France), and fees designed to promote health care integration fees (Belgium and Denmark). In countries where GPs were traditionally salaried, capitation and other additional elements such as fee-for-service are being added on (Sweden, Finland).[11]

14. Rigorous evaluation of the appropriateness and impacts of new payment systems and incentives for health workers in middle to high income countries is limited. Moreover, estimated results are likely to be context specific, in terms of culture, health systems' structure and funding levels, and labor market conditions.[12,13] The Commonwealth Fund assessment of payments systems highlights the importance of a payer's capability to manage contracts and deliver expected outcomes - and argues that these capabilities likely increase as payment systems move from fee-for-service to global capitation.

15. A general trend across several countries is the delivery of team-based primary care through the inclusion of more nurse practitioners, registered nurses, and other health staff working alongside physicians. Incentives within the payment schemes for GPs have been introduced to encourage them to employ nurses to deliver PHC services.[15] In most European countries, GPs are entrepreneurs contracted to the healthcare system, with remuneration often topped up through various pay-for performance incentives.[11] As a result, there is also a trend of general practices' being run as a partnership of several GPs or as private companies.[15]

Table 2: Predominant modes of physician payments and practice

Country	Primary Care Physician Payments	Out-patient specialist payments	In-patient specialist payments	PHC predominant mode of provision/second mode	Specialist Services predominant mode of provision/second mode
Australia	Fee-for service	Fee-for service	Salary	Private group practices	Private group practices/public hospitals
Brazil	Salary	Salary	Salary	Public health centers	Private hospitals
Canada	Fee-for service	Fee-for service	Fee-for service	Private group practices/private solo practices	Public hospital/private group practices
Turkey	Capitation	Pay for Performance and Salary	PFP and Salary	Private group/solo units	Public hospitals

England	Salary/Capitation/ Fee-for service	Salary	Salary	Private group practices	Public hospital

SOURCE: References 16, 17.

3.3 Recruitment and retention in underserved areas

16. Worldwide there is a tendency for the health workforce to be concentrated in affluent urban areas rather than in rural and poorer areas. This challenge is found in nearly every country, regardless of the level of economic development and health system organization.

17. There are multiple factors influencing a health worker's decision to relocate, stay, or leave a post in rural or remote areas. These are complex and interconnected factors, linked to a health professional's characteristics and preferences; to the organization of a health system; and to the wider social, political, and economic environment.[18] Although these factors are context specific, evidence from different countries suggests a common set of issues that vary in the extent to which they appear together and their degree of intensity. They have been described as pull factors (those that attract health professionals to a rural, remote, or underserved post) and push factors (those that may negatively influence a health worker's decision to take up a post in a remote location or to remain there).

Table 3: Factors influencing recruitment and retention of health workers in rural areas

Pull factors	Push factors
Adequate availability of equipment and supplies	The feeling of "professional isolation."
Opportunities for professional development and practice knowledge acquired while training	Inadequate working conditions (lack of equipment and supplies)
Intrinsic motivation to help the poor and those in underserved areas	Inadequate family support (schools for children and spouse employment opportunities)
Having rural background (origin)	Safety and security
Community appreciation toward health workers	Lack of basic infrastructure (roads, and transport)
Monetary incentives and other incentives, such as opportunities for training and scholarships	

SOURCE: Reference 18.

18. From an economic perspective, the movement of health workers is a function of wages levels. As wages increase, more individuals are likely to enter the health care labor market and a more balanced distribution of health professionals might be achieved in the long run.[19,20] But creating

the demand for more qualified health workers will require economic capacity to purchase these services. There is often a significant gap between the need for qualified health workers and the labor market's capacity to generate sufficient demand for these workers in underserved areas.[18]

19. A variety of interventions have been applied in different contexts and for different types of health workers to address this challenge. These interventions aim to make underserved posts more attractive, either by creating pull factors (for example, introducing incentives) or by addressing some push factors (for example, improving working conditions and family support). The interventions taken by countries to address this problem are usually broadly divided into the following categories: a) education policies; b) incentives (sometimes subdivided as monetary incentives and nonmonetary incentives; c) skill substitution and other regulatory policies, and d) personal/peer support. Table 4 lists some example interventions within each category.

Table 4: Interventions to improve recruitment and retention of health workers in rural areas

Category of Intervention	Examples
A. Education	A1 – Recruitment of students from rural backgrounds
	A2 – Construction of health professional schools outside major cities
	A3 - Clinical rotations in rural areas during studies
	A4 - Curricula that reflect rural issues
	A5 - Continuous professional development for rural health workers
B. Regulation	B1 - Enhanced scope of practice
	B2 - Different types of health workers
	B3 - Compulsory services
	B4 - Subsidized education for return of service
C. Financial Incentives	C1 - Appropriate financial incentives
D. Professional and Personal Support	D1 - Better living conditions
	D2 - Safe and supportive working environment
	D3 - Outreach support (e.g., exchanges between health workers in rural and remote areas with their counterparts in urban settings)
	D4 - Career development programs
	D5 - Professional networks
	D6 - Public recognition measures

SOURCE: Reference 21; p.17.

20. There is a consensus that given the nature and variety of factors influencing the decision to "go rural," any single intervention is unlikely to be successful. Interventions are to be implemented in bundles, combined in different packages according to the country's socio-economic context and characteristics of its health workers (Annex 3 presents a summary of the strength of available evidence on the effectiveness of different strategies for rural recruitment and retention).

3.4 Dual practice regulation

21. Dual practice (DP) refers to the practice of holding more than one job by a health worker. Although characterized in different ways, it usually refers to when a health worker is simultaneously engaged in clinical practice and other health-related activities (teaching, research, or management) or non-health-related activities (business, for example).

22. The evidence assessing the impacts of dual practice is rather limited and inconclusive, although analysts have traditionally gone against it. Those against it argue that dual practice induces health workers' undesirable behavior, such as supplier-induced demand and cream skimming. However, it is unclear whether dual practice only intensifies behavior would happen anyway in a given health system with its extant employment characteristics.[22] Such opponents often describe dual practice as a coping mechanism (especially in low-income settings), categorized alongside corruption, that stems from the gap between professional expectations and what the public sector can offer. But these views tend to oversimplify dual practice, seeing it only through the prism of generating extra income. It has, in fact, to be viewed along a perspective of broader social objectives—access, affordability, and quality of care.[23] A better understanding of the determinants and the impacts of dual practice is the first step to avoid value judgments about the ethics of dual practice.

23. Appropriate regulation of dual practice is one of the major challenges faced in most health systems. From a labor-market standpoint, the debate touches on whether dual practice disturbs the optimal arrangements in the market between employer and employee. Dual practice increases agents' engagement with more than one employer—raising monitoring costs.[22] From a theoretical perspective, dual practice has direct implications for health workers' labor supply and for the quantity and quality of care provided. In short, dual practice has profound implications for the entire health system. Countries adopt a wide variation of actions to regulate it: while some governments fully prohibit it, others regulate or restrict it with different intensities and regulatory instruments.[24] Ultimately, the success of each approach depends on the institutional context, resources, and government ability to enforce regulations.[c]

3.5 Country case studies summary

24. This section summarizes the main features of health workforce policies in selected comparator countries to draw lessons for the Latvian context. The focus is on composition, organization/contracts, and compensation of the PHC workforce. The evidence presented here

[c] Annex 2 summarizes the main policy approaches to regulate dual practice.

was gathered through a review of the literature and augmented by interviews with key informant from each country (countries included were Czech Republic, England, Estonia, Lithuania, and Turkey).

Table 5: Health workforce availability and composition, organization and compensation in select countries

Countries	Availability/Composition	Contractual arrangements	Compensation
Czech Republic	Around 36% of physicians specialized /practiced in one of the following fields (ranked by number physicians): (1) general practical medicine;(2) internal medicine; (3) surgery; (4) gynecology and obstetrics.	In 2012, 25% of all health staff were employed by state run establishments, further 15% of personnel employed by non-state establishments (owned by regions, cities or municipalities). The remaining 60% of personnel worked for private establishments. The national average for the number of patients registered with a GP was 1632 at the end of 2012, varying regionally from 1841 to fewer than 1500.	In 2011, the average total monthly salary of publicly employed physicians and dentists was €2346, 51% of which was premiums and overtime bonuses. The average monthly salary of private sector physicians and dentists (employees) was €2,258, and the average salary of general nurses and midwives was €963. Self-employed physicians or dentists constitute the majority of ambulatory care doctors. They are remunerated according to a blended system of capitation and FFS. In certain geographical areas (with low density of GPs or geographically remote), GPs may receive higher capitation payments if the number of patients registered with them is less than 70% of the national average of a given health insurance fund. GPs receive a bonus if they work particularly long office hours or if patients are able to choose the timing of their appointment In addition, some services provided by GPs (such as preventive examinations and visits to patients' homes) continue to be paid under the fee-for-service system,

			which still accounted for approximately 10–15% of a physician's income in 2012 (authors' estimate). Other GP revenues are user charges and direct payments (for example, for examinations for a driving license).
England	GPs increasingly work in multi-partner practices; a typical practice team consists of 5 or 6 GPs, one nurse practitioner, 2 or 3 practice nurses, and between 6 and 10 administrative staff. This team may also include district nurses, health visitors, midwives, community psychiatric nurses, and allied health professionals and social workers embedded in their team. GP practices are responsible for directing patients to specialist services in hospitals or to community-based professionals.	For GPs, successive changes to the GP contract have resulted in GPs working in partnership with other GPs in small groups rather than in the single or two-person practices that predominated until 1966. GPs in England have typically worked as independent contractors under the terms of a national contract. In the past 15 years, there has been a substantial growth in the number of GPs employed on a salaried basis, usually by fellow GPs who as independent contractors are partners who own their practices. Around 9,000 GPs in England are now salaried, comprising one quarter of all GPs.	In 2004, there was a comprehensive reform to the remuneration system for GPs. Contracts and payments went from being independent GP based to practice-based; and from largely capitation based to ones with a significant proportion of pay-for performance. With the reforms, the number of nurses being employed in primary care increased due to pay-for-performance incentives linked with chronic disease management (use of nurses has been associated with increased quality of care to deliver targets of chronic disease management).
Estonia	The density of doctors per population is comparable to the EU27 level, but the ratio of nurses to physicians is considerably below the EU27 average. Due to high emigration rates and insufficient supply from medical schools and age-structure, the number of doctors working in	All health care professionals and providers now hold individual contracts with hospitals or health centres, although these are sometimes based on general salary agreements for specific groups. The Estonian Medical Association and the Estonian Nurses Union negotiate the levels of minimum hourly wage/salary for their respective professions with the Estonian Hospital Association.	In primary care, family doctors and nurses contracted by the EHIF are paid via a combination of capitation payments and other remuneration types that together make up the budget for each practice. Practices receive monthly pre-payments, which are recalculated twice a year to reflect changes in the patient list (as patients can change family physicians). Family physicians can receive separate additional fee-for-service payments up to a maximum of 37% of their total capitation payment if they participate in the

	Estonia is estimated to decrease at a rate of 1–2% per year, and that of nurses twice as fast.		Quality Bonus Scheme (QBS) and perform well according to the QBS standard. The average revenue that family physicians receive from the EHIF was €80 800 (which does not include QBS) per year in 2011. The maximum quality bonus payment for all three domains is €3835, which would form 4.5% of a family physician's total annual revenues. The development of QBS over the years is presented in Table 3.10. The family physician's actual income is determined by these revenues minus their own practice costs, although some are salaried in larger group practices.
Lithuania	Overall, the health workforce has decreased by approximately 18%: from 65 000 in 1990 to 47 000 in 2010, mostly through a large decrease in nursing personnel. Unequal distribution of medical personnel throughout the country presents a serious problem. Countrywide in 2010, the density of practicing physicians ranged from 906 to 54 per 100 000 population, but even within regions the density varies by up to a factor of 7; a similar situation is found for nurses and midwives. Forecasts indicate that 40–60% of medical professionals currently	Physicians and nurses employed in public hospitals and polyclinics are paid on a salaried basis. Many public health specialists are civil servants and, therefore, their wages are set according to the regulations of the civil service. In the period between 2004-2008, the average monthly wage of nurses increased from €256 to €641, the average wage of physicians increased from €410 to €1,075, and the average wage of healthcare institution staff changed from €276 to €683.	A combination of payment methods exists for publicly funded health services: - Primary care is financed predominantly through capitation, with a smaller share from fee-for-service and performance-related payments; - Outpatient care is financed mainly through case payment, and through fee for service for diagnostic tests; - Inpatient care is financed mainly through case payment (diagnosis-related groups (DRGs), introduced in 2012) and historical budgets; - Public health is mainly financed through historical budgets

	working will exit the health workforce before 2025 because of their age.		
Turkey	Turkey has both a low ratio of physicians per 100 000 population and the lowest ratio of nurses in the WHO Europe region. A World Bank study (2009) states that Turkey has two types of skill mix distribution imbalances – those between specialists and general practitioners and those between nurses and physicians. This imbalance in the nurse/physician ratio has been attributed to the lack of effective human resources planning and management, which has tended to prioritize physicians over nurses and to neglect the gaps in nursing and other health care personnel	Under the health reforms in Turkey, arrangements for compulsory medical service for newly qualified doctors and the employment of contracted personnel, substitute nurses, and midwives have reportedly ensured a significant improvement in the geographical distribution of health care personnel. The duration of compulsory medical service for physicians after graduation depends on the particular branch of medical residency and the region and takes about one to two years. Under these arrangements, Turkey's regions are classified under the National Development Index. After their six-year medical education and also after completion of specialist training, physicians pick a region on the list and serve in relatively deprived areas of the country.	Turkey adopted a mixed payment system for health care personnel. Family doctors are paid by capitation, which is the only payment method for these practitioners. According to the payment model, individuals register on a family practitioner's list. Specific coefficients are determined for specific population groups.

SOURCE: References 25 and 17.

4. Efficiency Analysis of GP Practices

25. Efficiency analysis is a valuable tool assess policy options for designing incentives to improve quality and quantity of service delivery. This section ranks GP practices within Latvia by assessing their use of multiple inputs and/or the production of multiple outputs helps to identify best practices as well as areas for improvement.

26. In Latvia, almost all inhabitants are registered with a GP practice. The GP practices act as the main point of entry into the health care system and often serve as the gatekeeper to secondary ambulatory and hospital care for some health care conditions. Among other activities, GP practices have to ensure prevention, diagnostics, and treatment of patients according to disease burden (population health care needs) and normative legislation. Having such a key role within the Latvian health system, the analysis of GP practice productivity is key to assessing the productivity of the entire Latvian health system.

27. Moreover, as the human resource mapping of the Master Plan demonstrated, there are current surpluses of GPs in all regions, relative to the estimated needs of the population (adjusted for age and gender) and international standards on the availability of GPs for a given population. At the same time, findings from the accompanying review of the benefits package suggest that many patients are not getting the primary care services essential for their disease profile. This combination of a current surplus of physicians and low uptake of services suggests that there is considerable room for improvement in GP productivity.

4.1 Data Envelopment Analysis (DEA)

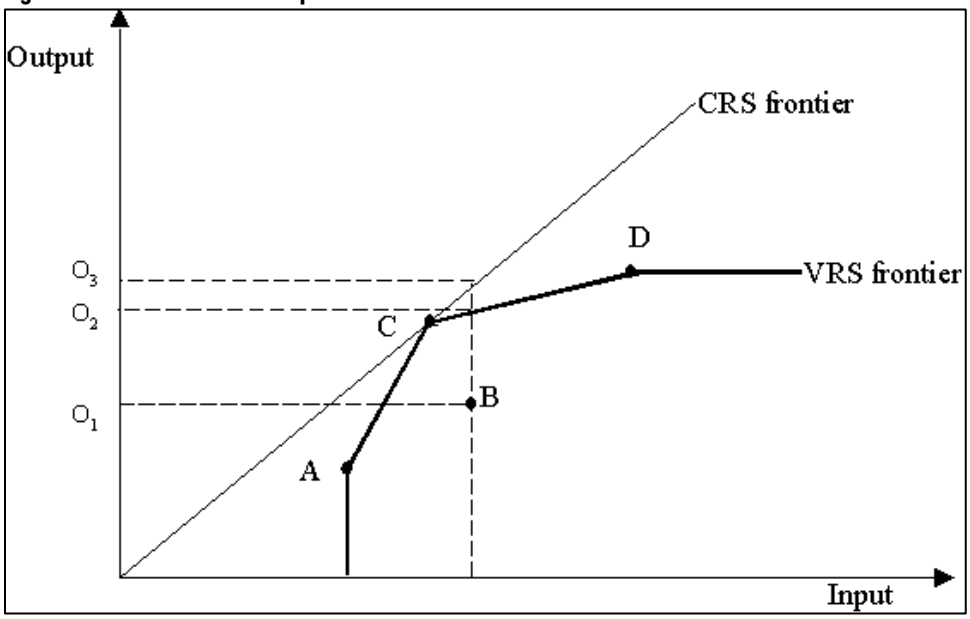
28. Efficiency analysis of public health spending is usually based on the estimation of a 'production function.' This approach measures how health care resources (inputs) are being used to produce observed outputs and to identify the efficient (or inefficient) units of production (for example, providers or regions). Production functions can be estimated using non-parametric methods (data envelopment analysis – DEA) and more parametric approaches (stochastic frontier analysis – SFA).[d] DEA has been widely applied in health care efficiency measurement, as its non-parametric feature enables a data driven assessment of the transformation of inputs into outputs without making strong assumptions about the transformation process.[26]

[d] SFA estimates the production using a regression model with specific functional form and distributional assumptions (for a review of both methods, see Wagstaff A and Wang LC (2011). A hybrid approach to efficiency measurement with empirical illustration from education and health. Policy Research Working Paper 5751, World Bank, Washington, DC.).

29. DEA uses linear programming (LP) tools to construct a frontier that includes the most efficient observations, which "envelop" the others. By comparing similar units, one Decision Making Unit (DMU) will be efficient if it shows, relative to others, higher production for fixed amounts of resources (output-oriented model) and/or if it uses fewer resources to generate a fixed amount of products (input-oriented model). To see this geometrically, consider Figure 8, where efficient units (best practices) are located on the frontier and are indexed to 1 (100%). The inefficiencies represent the degree of deviance from this frontier. This productivity measure is known as technical efficiency, and the spatial projection of the inefficient units onto the facets of the frontier is delimited by a reference group of efficient units which are next to it (the vertices of the facets where they are projected, hence, the term benchmark). To be fully efficient, a unit should also be located only in Pareto-efficient portions of the frontier, that is, a place where it is not possible to reduce any input or increase any output, without having to also increase another input or reduce another output simultaneously.

30. Figure 7 provides a graphic illustration of the DEA frontier for a one input–one output model. In the first frontier (diagonal line or constant return scale - CRS), only the unit C is efficient and in the second (U-shaped line or variable return to scale - VRS), units A, B, C, D and E are efficient. Unit F is inefficient in both models. Based on this geometric perspective, it is possible to define not only the inefficient units but also the necessary values so that the inefficient ones can reach the best practice frontier (100% efficiency).

Figure 3: DEA frontiers example



Source: Reference 31.

31. Efficiency analysis in health care can be undertaken across several levels (hospitals, clinics, physicians), across geographical locations (rural, urban, regions, states and countries), or across specific programs (HIV, immunization, etc.).[27] Recent reviews have shown that such analyses are increasingly important in the context of growing costs and limited fiscal capacity. Comparability of results across studies, however, is not possible given the wide variation of variables (inputs and outputs), level of analysis, and epidemiological and clinical settings.[27,28]

32. In health sector applications, a DEA approach helps to understand how resources available (staff, materials, technology) are transformed into health intermediate outputs (consultations and treatments) or outcomes (mortality or morbidity rates). In the PHC scenario, for example, physicians are typically responsible for performing preventive measures, such as immunization, check-ups, screening for chronic diseases and for requesting exams and treatments, according to established clinical guidelines and epidemiological needs.[29] It is important to note that their capacity to prevent and solve health problems is negatively associated with the need for emergency room (ER) visits and/or referrals and/or hospitalization (these latter are considered undesirable outputs), within a certain range of severity.

4.2 DEA Model

33. In the present application, GPs are the decision making units to be assessed. The objective of the analysis is to compare GPs based on their efficiency across geographic areas (rural and urban), practice size, and different contractual arrangements (individual practice or group practices with other specialists). The DEA approach produces a composite efficiency indicator by dividing a weighted sum of outputs by a weighted sum of inputs. A GP practice should cover a designated population (inserted in the model as denominators for the output indicators and as input indicators) and is supposed to produce preventive and treatment activities (numerators for traditional indicators or outputs). DEA models may control for certain characteristics of the patients, like age or severity of disease, which may influence the volume of resources needed and provide a measure of case-mix.[27]

34. Two DEA models were applied to measure GP efficiency in Latvia. The first model, the quantitative model (QT), includes only indicators of the quantity of services performed by each GP as outputs. More specifically it uses the number of visits for different population groups (considering different age groups helps take the effects of case mix into account). Likewise, the inputs included take into account the quantity of patients registered across different age groups. Other inputs are the number of referrals and hospitalizations after emergency room (ER) visits with certain diagnoses.[e] These are actually undesirable outputs, which means situations that an

[e] Namely: (i) hypertension and related renal and cardiac complications; (ii) respiratory infections; and (iii) spondylosis.

efficient GP would avoid, and adding them as inputs helps to show the ability of a given GP to minimize them.

35. The second model, the qualitative model (QL), assesses the performance of each GP based on the thirteen (13) different quality indicators used in the NHS pay-for-performance (P4P) scheme for GPs. In the model, there is a pool of enrolled patients, adults, and children, or carriers of locally prevalent diseases (diabetes mellitus type II, hypertension, asthma) as resource inputs for whom the GP has to perform medical care (outputs) according to clinical knowledge, guidelines, and legislation[f]. The DEA efficiency score will reflect how efficient the GPs in are terms of all P4P indicators. Assuming that a GP, when compared to his peers, can perform better in one indicator, and worse in the other, the simultaneous analysis of all indicators together may bring some insights to the P4P scheme as a whole.

36. Both models were based on a constant return to scale (CRS) output-oriented specification. Under a CRS assumption, GP practices are homogenous; there is no great variation in the number of patients or their quantitative and qualitative results. The CRS model measures technical efficiency and assumes that GPs are supposed to work at an optimal scale size. The output-orientation of the model means that the analysis is gauges the potential increase of outputs to the projection in the frontier (maximization or the maximum success of the GP activities with respect to quantity or quality), given a fixed amount of resources. For this model we use NHS administrative data for 2014 on GP practices' fixed and performance based payments, registered patients with different diagnoses, and the number of patient visits, as well as Health Inspectorate data on health care service providers and their staff. In the analysis, we only include GP practices with a contract with the NHS (since the NHS does not have all the necessary information on those GP practices without a contract) and those that received quality payments.[g] Table 6 lists the inputs and outputs used for the QT and QL models as described above.

[f] Instead of NHS indicators´ percentages, the model considered the absolute values for the number of visits and accomplishment of guidelines as outputs (numerators of percentages), and the registered patients (denominators of percentages) as inputs, along with hospitalization after ER visit with certain diagnoses (undesirable output, also a numerator for P4P payment criteria).

[g] GPs who didn't work during the entire year 2014, have changed their place of practice without keeping their patients, or who were transferred or replaced by another GP are not included into the analysis.

Table 6: Inputs and outputs of Model 1 and Model 2 of the data envelope analysis

	MODEL 1 - Quantitative Model CRS-O	MODEL 2 - Qualitative Model CRS-O
Inputs	Total Registered Adult Patients	Total Registered Adult Patients (except those with a chronic disease)
	Total Registered Child Patients	Total Registered Child Patients
	Number of Referrals	Number of Hypertensive Patients Registered
	Number of SEMS visits to patients with definite diagnosis, if patient has not been hospitalized*	Number of Patients with Type II Diabetes Registered
		Number of Asthmatic Patients Registered
		Number of SEMS visits to patients with definite diagnosis, if patient has not been hospitalized*
Outputs	Number of institutional visits below 65	Number of new patients with routine health check-up within 3 months of registration
	Number of institutional visits above 65	Number of adult patients who have had check-up
	Number of home visits below 65	Number of patients who have had check-up, age 2-18 years
	Number of home visits above 65	Number of children vaccinated according to calendar
		Number of patients who have had breast cancer and cervical cancer screening
		Number of patients who have had colorectal cancer screening (ages 50-74)
		Number of patients with type II diabetes with measured glycated hemoglobin
		Number of patients with type II diabetes who have had micro-albuminuria testing
		Number of cardiovascular risk assessments
		Number of arterial hypertension patients who have had a low-density cholesterol test
		Number of asthma patients who have had measurement of peak expiratory flow
		Number of manipulations and services provided by GPs

Note: * Diagnostics for ICD I10-I15, J06 or M47. Data sources include NHS payment records, the GP quality bonus payment database, and the registry of patients assigned to GPs.

4.3 DEA Results

37. Table 7 presents the descriptive statistics for variables (inputs and outputs) included in both models. Among the GP practices used in the analysis, 76% had between 1,000-2,000 registered adults, with an average of 1,287 patients. The low number and great variance of registered children may indicate that many of them are seen by pediatricians (not GPs).

Table 7: Descriptive statistics - inputs and outputs

		Variable	Mean	SD
QT Model	Inputs	*Total Registered Adult Patients*	1,287	443.28
		Total Registered Child Patients	230	254.85
		Number of Referrals	3,453	1,515.92
		Number of SEMS visits to patients with definite diagnosis, if patient has not been hospitalized	32	24.91
	Outputs	*Number of institutional visits beneath 65*	3,241	1,780.79
		Number of institutional visits above 65	97	172.43
		Number of home visits beneath 65	1,011	760.09
		Number of home visits above 65	86	150.93
QL Model	Inputs	*Total Registered Adult Patients (except chronic disease)*	1,055	357.20
		Total Registered Child Patients	230	254.85
		Number of Hypertensive Patients Registered	53	40.50
		Number of Patients with Type II Diabetes Registered	164	118.64
		Number of Asthmatic Patients Registered	16	10.26
		Number of SEMS visits to patients with definite diagnosis, if patient has not been hospitalized	32	24.91
	Outputs	*Number of new patients with routine health check-up within 3 months of registration*	67	76.27
		Number of adult patients who have had check-up	790	332.51
		Number of patients who have had check-up, age 2-18 years	10	13.35
		Number of children vaccinated according to calendar	192	215.76
		Number of patients who have had breast cancer and cervical cancer screening	73	42.99
		Number of patients who have had colorectal cancer screening (50-74 y o)	56	88.15
		Number of patients with type II diabetes with measured glycated hemoglobin	23	29.51
		Number of patients with type II diabetes who have had micro-albuminuria testing	23	26.52
		Number of cardiovascular risk assessment		

			12	20.19
		Number arterial hypertension patients who have had a low-density cholesterol test	102	82.39
		Number of asthma patients who have had measurement of peak expiratory flow	7	8.02
		Number of manipulations and services provided by GPs	13	8.27

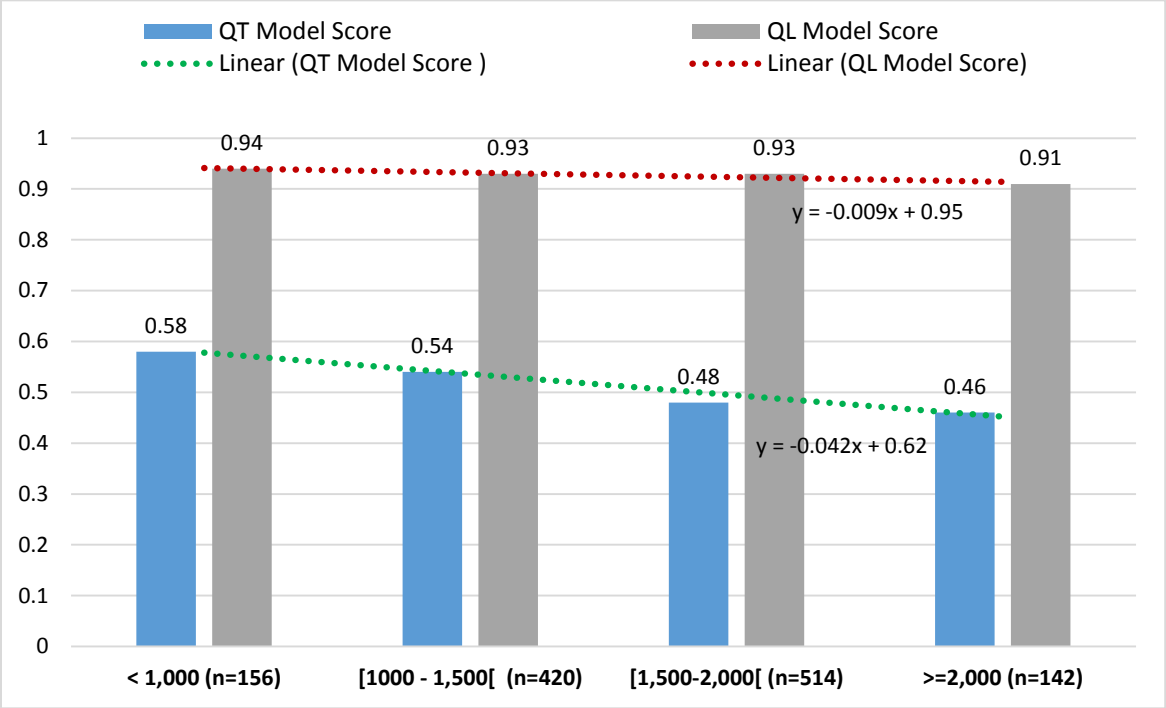
SOURCE: Authors' calculations using Health Inspectorate data.

38. The analysis included 1,232 GPs for whom all indicators were available (out of 1,302, 94.6%).[h] GPs were much more efficient in the QL model than in the QT model. The mean efficiency score for the QT model was 0.51, while mean efficiency score for the QL model was 0.93. Additionally, the percentage of efficient GPs in the QL model was higher (42.6%) than in the QT model (3.4%). The correlation between scores from both models was 0.35. Figure 9 contains a summary of the results for both models and the efficiency scores across different groups of GPs.

39. The correlation coefficient between the size of GP practice (taken by the number of registered patients) and GP efficiency scores was negative. It was -0.21 in QT model and -0.10 in the QL model, meaning that the larger the GP practice (more patients registered), the less efficient the GP practice is. One possible interpretation of this pattern is that a large number of patients results in high workload and, consequently, affects GP productivity. Figure 8 shows a clear gradient for the QT model, where the lowest efficiency scores occur with GPs with more than 2,000 patients. At this point, efficiency scores from the QL model also begin to decrease, although the relationship between efficiency and size under this model is much more attenuated.

[h] It is important to note that these are not all GPs in Latvia, but only those who have been contracted by NHS and who have participated in the GP pay-for-performance scheme.

Figure 4: Mean efficiency score according to the number of registered patients



SOURCE: Authors' calculations using data from the Health Inspectorate and the National Health Service.

40. Table 8 presents the distribution of practice size for the efficient GPs in both models. Again the observed association between size and efficiency can be seen in the Table, with mean registered patients among efficient GPs just below 1,500 patients, consistent with Figure 9 above.

Table 8: Practice size among efficient GP practices

Descriptive	*Efficient GPs (QT)*	Efficient GPs (QL)	Efficient GPs (QT & QL)
Mean	1,272	1,434	1,328
Standard Error	63	18	61
Median	1,316	1,478	1,322
Mode	781	1,391	781
Standard Deviation	406	418	370
Range	1,799	2,666	1,563
Minimum	277	355	513
Maximum	2,076	3,021	2,076
Count (Number of GPs)	42	515	37

SOURCE: Authors' calculations using data from the Health Inspectorate and National Health Service.

41. GPs in rural areas were, on average, more efficient than GPs in urban areas. The mean efficiency scores among the rural GPs were 3 and 2 percentage points higher compared to those in urban areas in the QT and QL, respectively (Table 9). Similarly, those working in group practice were found to be slightly more efficient than those working individually, a finding that is more evident in QT model (where is a 5 percentage point difference) and that is consistent with other evidence that shows that group practice associated with improvements in the quality of clinical practice in primary health care. [30] The number of nurses working with GPs did not significantly influence efficiency scores.

Table 9: Comparative results for quantitative and qualitative models

	Quantitative Model	Qualitative Model
All GPs (1,232)		
Mean Score	**0.51**	**0.93**
Maximum Score	**1.00**	**1.00**
Minimum Score	**0.01**	**0.45**
Number of efficient GPs		
Number of GPs with maximum efficiency score (1.0)	**44 (3.4%)**	**515 (41.8%)**
Number of GPs with efficiency score between 0.75 - 0.99	**111 (9%)**	**667 (54.14%)**
Number of GPs with efficiency score between 0.50 - 0.74	**431(35%)**	**49 (3.98%)**
Number of GPs with efficiency score between 0.25 - 0.49	**557 (45.2%)**	**1 (0.08%)**
Number of GPs with efficiency score below 0.25	**91 (7.4%)**	**0 (0.0%)**
Location	**Mean score**	
Rural (504)	**0.53**	**0.94**
Urban (728)	**0.50**	**0.92**
Type of practice	**Mean score**	
Individual practice (1128)	**0.51**	**0.93**
Group practice (104)	**0.56 ***	**0.93 ***
Number of nurses working in the practice	**Mean score**	
0 - 1 (616) ***	**0.52**	**0.92**
2 (616)	**0.51**	**0.93**

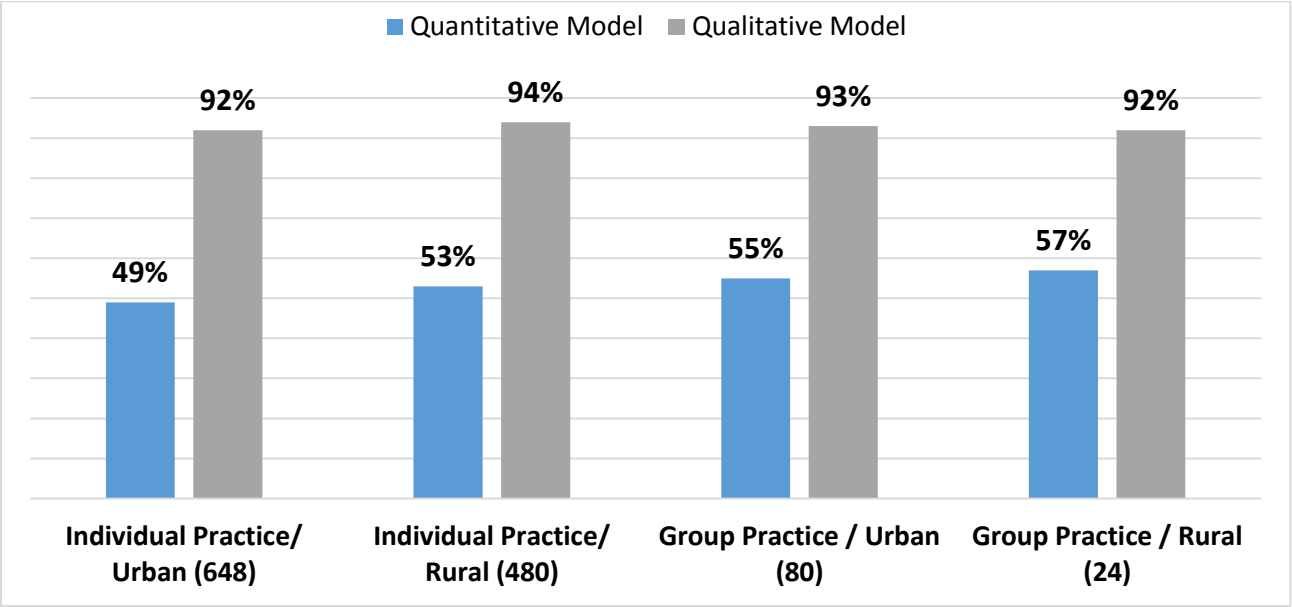
SOURCE: Authors' calculations using data from the Health Inspectorate and National Health Service.

* For 62 GP practices that work with more than 9 other specialties, mean efficiency= 0.57 and 0.91 for the quantitative and qualitative models, respectively.

** Only 3 GP practices work without nurses.

42. Figure 9 presents the distribution of GPs' efficiency scores according to geographical location and type of employment. As discussed above, there is a clear tendency for the least efficient GPs to be located in urban areas and to practice individually.

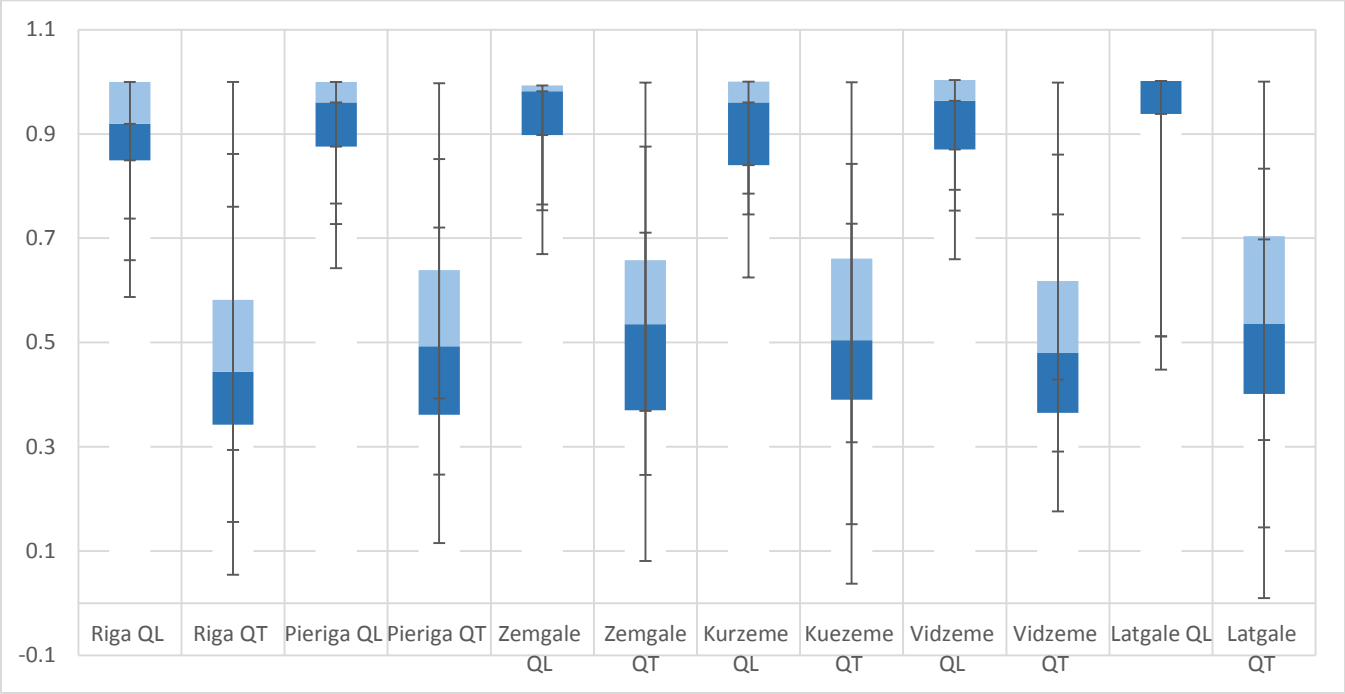
Figure 5: GP Performance across location and type of practice



SOURCE: Authors' calculations using data from the Health Inspectorate and National Health Service.

43. Figure 10 presents the distribution of performance scores for the GP practices across regions. The lowest average scores for the QT and QL models were found in Riga and Vidzeme. Only 37 GPs were efficient in both models. In the efficient group, 20 are rural and 30 self-employed. The lowest efficiency score (0.01 in QT Model and 0.45 in QL Model) was found in Latgale (Daugavpils).

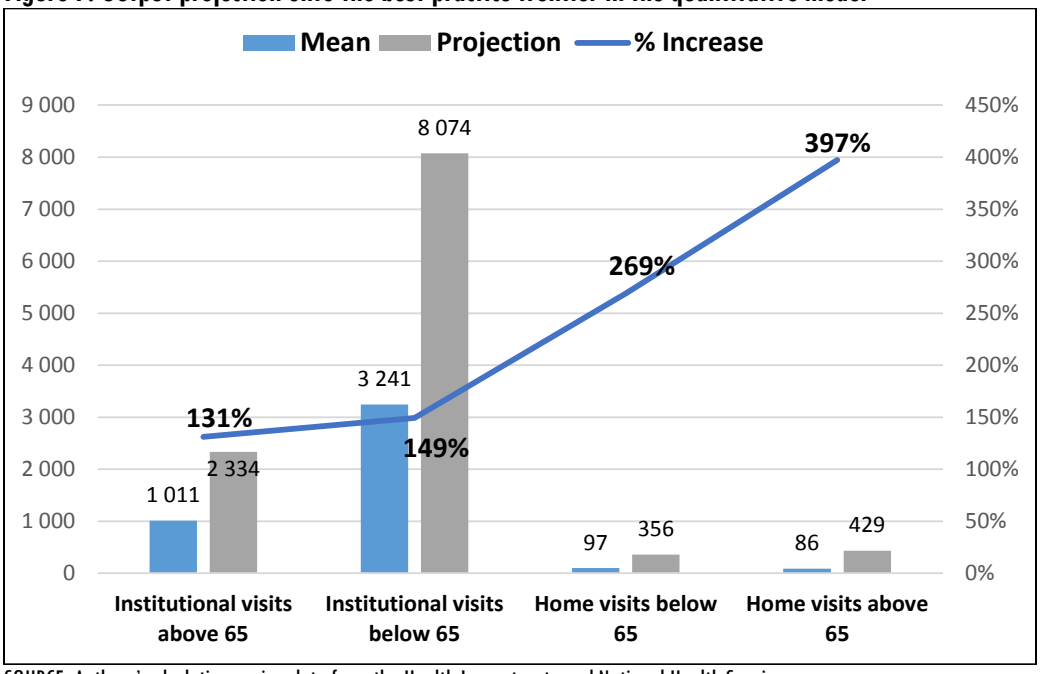
Figure 6: GP practice efficiency across regions



SOURCE: Authors' calculations using Health Inspectorate data.

44. DEA allows the estimation of necessary changes in output that would make all GP practices efficient. This is done by estimating how much a given output should increase to achieve the maximum output level possible given the inputs consumed. Figures 11 and 12 show this necessary output increases that would make all GP practices reach the best practice frontier. For example, the average total outpatient visits for patients below 65 years old was 3,241 in 2014. According to the QT model, if all GPs were to be efficient, the total number of outpatient visits should be 8,074 instead. There is a scope to increase the number of outpatient and home visits for the population below 65 years-old by 149% and 269%, respectively. Likewise, for the population older than 65 years, outpatient and home visits should increase by 131% and 397%, respectively, for all GPs to reach the efficiency frontier in the QT model.

Figure 7: Output projection onto the best practice frontier in the quantitative model

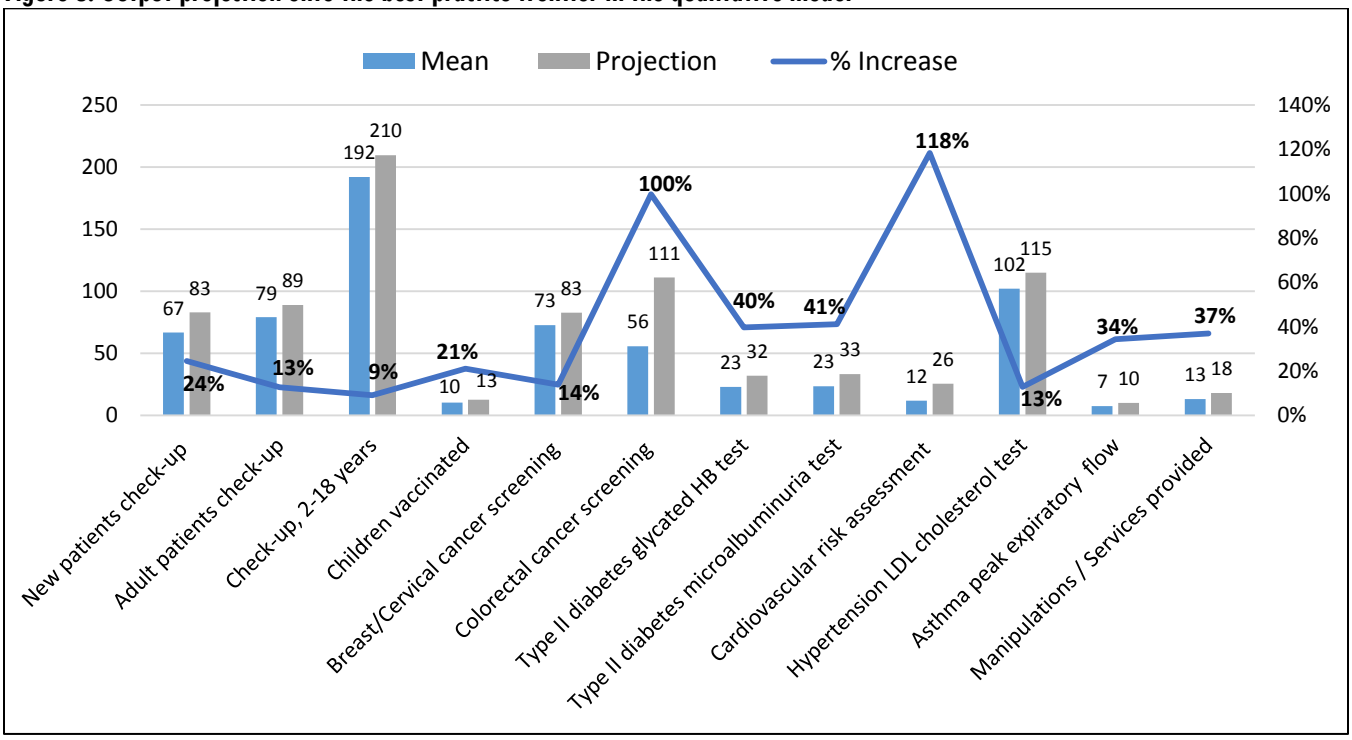


SOURCE: Authors' calculations using data from the Health Inspectorate and National Health Service.

45. In the QL model, the necessary output changes to achieve the efficient frontier are much smaller. The largest necessary increases were observed for cardiovascular risk assessment of hypertensive patients (118%) and for colorectal cancer screening (100% increase), which are both associated with conditions that are important contributors to the burden of disease in the country. Additionally, the first activity is also incentivized within the fixed capitation payment. Overall, the relatively low necessary increase projections of the outputs indicate homogeneity among GPs in adherence for the P4P scheme.[i]

[i] Individual projection of output needs increase, based on both DEA QT and QL models, for each GP practice to reach the efficiency frontier is available on demand.

Figure 8: Output projection onto the best practice frontier in the qualitative model



SOURCE: Authors' calculations using data from the Health Inspectorate and National Health Service

46. The NHS uses specific weights for each performance indicator to calculate the GP practice performance parameter used for P4P payment. With these weights, the mean of the performance indicator was 31.7% in 2014. The correlation coefficient between the NHS performance scores and DEA QL scores was 0.51. Although not low, one would expect this to be much higher as the GP practices had high performance scores. A possible explanation is that the weights applied by the NHS formulae do not capture GP practice efforts, or they give more importance to activities (indicators) that GP practices do not prioritize. The 93% mean efficiency score in QL model indicates that GP practices had adhered at least to a certain group of quality indicators of the P4P scheme. If only a few GP practices had adhered to the scheme, the differences in the scores across GP practices would be much larger.

47. It is also important to check whether or not there is a link between total compensation and productivity. Table 10 presents average fixed and P4P payments along the distribution of DEA efficiency scores.[j] As discussed above, the P4P rewards represent, on average, 1.25% of GP practice revenue (maximum observed is 3.52%). As expected, there is a positive gradient between P4P payment and observed productivity level in both models. In the QT model, the least efficient GP practices receive 67% of the average GP practice P4P payment (541.58). On the other hand, the most efficient GP practices receive 99% of the average P4P payment. When considering the QL

[j] Annex 4 describes the P4P payment formulae.

model, this gradient is much stronger, where the least efficient group receives 22% of the mean P4P payment and the most efficient group of GP practice receives 120% of the average P4P payment. Fixed payments do not correspond well to efficiency scores from both models, and there is actually a negative gradient in the data – that is, as efficiency scores increase, the amount of fixed payments received by a GP practice decreases.

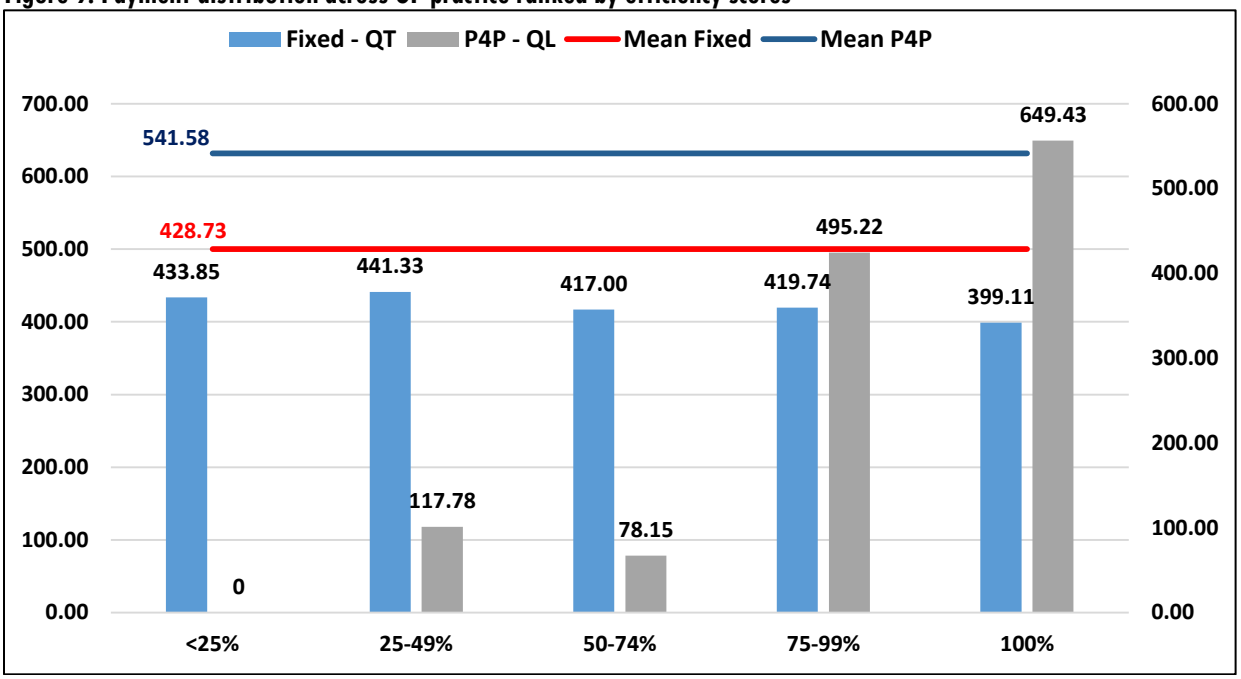
Table 10: Mean fixed and P4P payments by efficiency score

Percentile of efficiency score	QT Model				QL Model			
	Fixed/100	% Mean	P4P	% Mean	Fixed/100	% Mean	P4P	% Mean
<25%	433.85	101%	361.43	67%	-	-	-	-
25-49%	441.33	103%	559.67	103%	512.41	120%	117.78	22%
50-74%	417.00	97%	555.56	103%	395.19	92%	78.15	14%
75-99%	419.74	98%	556.38	103%	442.71	103%	495.22	91%
100%	399.11	93%	535.45	99%	414.40	97%	649.43	120%
All GP Practice	**428.73**	-	**541.58**	-	**428.73**	-	**541.58**	-

SOURCE: Authors' calculations using data from the Health Inspectorate and National Health Service.

48. Figure 13 displays the mean value of each type of payment across the distribution of efficiency scores, restricting payments to the P4P portion within the QL model and to the fixed portion within the QT model. From the figure it is evident that as efficiency score increases, fixed payments (QT model) decreases and P4P payments (QL model) increases.

Figure 9: Payment distribution across GP practice ranked by efficiency scores



SOURCE: Authors' calculations using data from the Health Inspectorate and National Health Service.
Note: payment values are divided by 100.

5 Policy Recommendations

49. This sections provides some preliminary strategic directions to address the health workforce challenges in Latvia. These recommendations are based on the quantitative analysis (DEA), the review of the international experiences and the summary of the relevant country case studies. These findings are to be complemented with the results from the other analytical work being conducted under the World Bank-Latvian government agreement, namely the qualitative study and the HR Maps.

Table 11: Health workforce challenges, policy recommendations, and implementation pathways

Challenge	Potential policy solutions	Enabling actions
Health Workforce Composition	- Move toward the implementation of multidisciplinary PHC teams; - Increase the supply of mid and lower level cadres (for example, medical assistants and nurse assistants) to support management of patients/conditions; -	- Extend training capacity to mid-level cadres, including quality control mechanisms (for licensing and certification) and develop career paths for these categories of professionals; - Expand residency opportunities and/or targeting funded opportunities to students who are willing to move to rural and remote areas; - Introduce payment mechanisms to incentivize the absorption of alternative cadres within PHC teams (task shifting and delegation).
Health Workforce Compensation and Contracts	- Improve compensation of physician specialists (particularly for new entrants in the labor market); - Reform GPs compensation structure (currently P4P covers a small portion of GPs revenue);	- P4P scheme seems to be a promising strategy to incentive quality practices among GPs. Even if individual percentages of achievement have been low, the composite indicator (QL DEA model) showed high adherence of GPs; - Increasing the proportion of P4P payments to

	- Regulate health professionals' dual/multi-practice.	incentivize GPs performance; - Review compensation structure to avoid the inclusion of the same criteria in the basket of fixed and P4P payments (e.g., payments for colorectal cancer screening); - Reform providers' payment system to enhance care coordination and management of care at PHC level.
Recruitment and retention in underserved areas	- Introduce a system of monetary and non-monetary incentives to attract doctors and nurses to rural and remote areas (or just outside Riga – see annex 3 for alternatives; - Introduce a system of targeted recruitment of students and young health professionals.	- Provide career development and education opportunities to rural and remote area practitioners (for example, postgraduate training, re-certification points for each year practicing in rural areas); - Review process of recruitment to health professional education to enable targeted recruitment of students from rural areas; - Enhance professional support systems for those practicing in rural and remote areas (for example, telemedicine, use of ICTs).

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ANNEXES

Annex 1: Interventions to manage dual practice – evidence, rationale, and challenges

Dual practice policy	Country examples	Rationale	Challenges
Complete ban	China, Greece (1983-2002), Portugal (before 1993) some states in India	Avoids adverse effects of dual practice	• Difficult to enforce • Increase in informal payments to health workers in public hospitals • Brain drain of qualified/senior physicians to the private sector or other countries • Extra cost to monitor activities • Increase in waiting time for treatment
Licensure restrictions	Kenya, some states in India, Indonesia, Zambia, Zimbabwe,		• Difficult to monitor • Violation of policy
Restrictions on physicians' earnings	France, United Kingdom	Reduces profit maximization intention of physicians	• Only practical in countries with efficient systems to monitor private sector activity • Physicians might quit public practice if private sector revenue is very high
Exclusive contracts and perks in public sector **Increased public sector salaries**	Spain, Portugal, Italy, Thailand, some Indian states Studies in Norway and Bangladesh	Discourage physicians from private practice	• Only works when dual practice is for financial purpose and if the increase compensates for revenue loss from non-practice in private sector • Governments in low income countries cannot offer wages that compensate for loss of private sector earning • Offering such contracts only to physicians creates resentment across other health workers
Private practice allowed in public hospitals	France, Germany, Ireland, Austria Experimented in Spain, Portugal, Ethiopia Bahrain, Nepal, Ghana	Efficient regulation and monitoring of private health provision Synergies between public and private sector Adds revenue to the public sector Prevents physician brain-drain to private sector	• Appropriate policies must exist to avoid misuse of public resources and determine the types of private practice interventions to be allowed • Conflict of interest for physicians is a possibility • The difference in price and possibly treatment options in the same hospital can be seen as socially discriminatory
Limitations on types of services offered in private sector	Canada	Discourage people from using the private sector for services available in public hospitals	• Only works in countries with universal health coverage and efficient financial monitoring systems
Self-regulation	United Kingdom	Ensure high quality of care and discourage ill effects of dual practice	• Does not work in developing countries with low salary, low morale and weak or absent monitoring systems and not as empowered professional bodies and civil society

SOURCE: Araujo et al. (2013). Managing Dual Job Holding among Health Workers: A Guidance Note. World Bank.

Annex 2: Strategies for Rural Recruitment and Retention and Evidence Available to Support Implementation

Status of evidence on policy effectiveness	Relatively strong evidence	Moderate evidence	Weak evidence
Interventions	• Student selection policies by: rural origin, career intent, gender • Post vocational fellowships • Developing more medical/nursing schools in rural areas or establishing satellite rural campuses	• Rural exposure during training • Scholarships with rural service agreements • Rural outreach and support • Financial compensation (combined with other incentives)	• Selection on the basis of ethnicity • Coercive policies - community service for newly graduated, prerequisite for specialization • Provision of continuous professional development • Time-off (having back-up during holidays and weekends) • Foreign recruitment

Source: Reference 18.

Annex 3: GP practice P4P Payment Formulae

Total performance of quality parameters (in %) is a composite indicator computed using thirteen GP quality indicators and applying weights to each of these indicators as indicated in the Table 7.

GP performance indicators and fulfillment criteria

Parameter	Interval	Quality parameter is fulfilled if	Full sum is paid if	Weight in the total performance parameter
1. Percentage of new patients with routine health check-up within 3 months of registration	75-90	>= 75	>= 90	5
2. Percentage of adult patients who have had check-up per annum	65-75	>= 65	>= 75	9
3. Percentage of children who have been vaccinated according to vaccination calendar	92-98	>= 92	>= 98	10
4.Percentage of patients who have had check-up per annum, age 2-18 years	75-95	>= 75	>= 95	9
5.Percentage of patients who have had breast cancer screening and cervical cancer screening check-up	36-50	>= 36	>= 50	11
6.Percentage of patients who have had colorectal cancer screening check-up, age 50 - 74	8-25.	>= 8	>= 25	11
7.Percentage of patients with type II diabetes who have had measured glycated hemoglobin tests	75-90	>= 75	>= 90	8
8.Percentage of patients with type II diabetes who have had a record of micro-albuminuria testing	50-75	>= 50	>= 75	6
9.Cardiovascular disease risk assessment	60-90	>= 60	>= 90	7
10. Percentage of arterial hypertension patients who have had a low-density cholesterol test	70-90	>= 70	>= 90	8
11.Percentage of asthma patients who have had at least one measurement of peak expiratory	75-90	>= 75	>= 90	4
12.Number of SEMS visits to patients with definite diagnosis, if patient has not hospitalized	110-100	<= 110	<= 100	4
13.GP provides various range of manipulations and services	25-50	>= 25	>= 50	8