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Review of the Benefits Package and Service Delivery Model[1]

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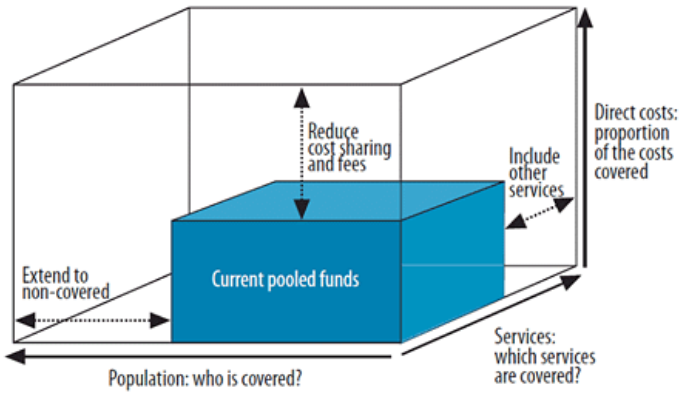
1. Introduction

1. This review examines the current benefits package and service delivery model in Latvia and assesses the extent to which they (i) further the objectives of universal health coverage and (ii) promote an efficient use of scare health care resources. The analysis uses tracer conditions in Latvia's four priority disease areas - namely, cardiovascular disease, cancers, mental health, and maternal health - as a lens to understand the strengths and weaknesses of the current design of the benefits package and the organization of service delivery.

2. Conducted as part of a World Bank Group 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," the analysis draws on document reviews (for example - legislation and guidelines), interviews with various Latvian health sector stakeholders, and original analysis of administrative data shared with the World Bank by the NHS, the Center for Disease Prevention and Control (CDPC), the State Emergency and Medical Services (SEMS), the Central Bureau of Statistics (CSB), and the State Revenue Service (SRS). While originally envisioned as two separate reviews of benefits package design and the service delivery model, the current review integrates analyses from both domains as in Latvia, the organization of service delivery for the most part follows directly from the parameters set by the benefits package.

3. The first part of the review is organized around the conceptual framework of *universal health coverage*, or access to quality health services for all without the risk of adverse financial consequences. In particular, the analysis will focus on the three dimensions of health coverage depicted in Figure 1: service coverage (the depth of the cube), reflecting which services are covered; financial coverage (the height), or the proportion of the costs of services that are covered; and population coverage (the breadth), which specifies who is covered by the benefits package.

Figure 1: The dimensions of universal coverage



Source: World Health Organization

4. The findings suggest that on paper, service coverage appears adequate for three out of the four priority disease areas, as the benefits package includes medically essential services and medicines. Mental health care – in particular, treatment for depression – is a notable exception. An examination of what happens in practice, however, suggests that effective service coverage is much lower than what is implied by de jure coverage. People do not receive the basic services that could prevent debilitating disease and costly hospitalization.

5. While patients' willingness to use health services could explain this gap between what the benefits package offers and what patients eventually receive, the degree of financial coverage is likely an important barrier to effective service coverage as well. Individuals seeking medical attention and treatment in Latvia must pay a relatively high amount out-of-pocket due to copayments for services, low reimbursements rates for medicines, and quotas on services that effectively turn providers contracted by the NHS into private providers once their quotas are met.[2] Together these copayments and off-contract care not only compromise the degree of financial protection afforded by the health system, but likely contribute to foregone care and an inefficient use of costlier services – for example, when uncontrolled hypertension results in a heart attack or when undiagnosed depression leads to self-harm.

6. Although a single payer system should imply full population coverage, this limited financial coverage in Latvia suggests that poorer individuals are getting less medical attention and treatment than they need. Moreover, a number of empirical patterns in the data demonstrate that population coverage varies throughout the year, with maximum coverage when quotas are reset and minimum coverage as facilities run through their quotas. Given other indicators that suggest considerable unmet health care needs in Latvia, this implies that at some points during the year, some of the population – in particular the poorer quintiles - effectively benefit from little to no insurance coverage. These trends also imply that access to timely care depends in part on luck in Latvia – on when a person is in need of care and whether this coincides with the cyclical availability of services.

7. The second part of the review focuses more directly on the quality and efficiency of services by characterizing the service delivery model currently in operation in Latvia. The country's disease profile, in which chronic diseases are the dominant contributors to mortality and morbidity, requires a strong primary care sector that is well integrated with health promotion and specialist care. For some conditions care does appear to be primary-care centered. It does not, however, appear to be well-integrated across levels.

8. The next section outlines the basic features of the benefits package and service delivery model in Latvia. Section 3 outlines the methodologies used in the report's empirical analyses and discusses limitations of the data. Sections 4 through 6 discusses Latvia's performance in meeting the three dimensions of health coverage: service coverage, financial coverage, and population coverage.

[2] Out-of-pocket payments refer to any expenses made by patients that are not reimbursed through health insurance.

Section 7 assesses the current service delivery model, focusing on the role of primary care in the health system and integration of care. Section 8 summarizes the issues uncovered in this analysis and proposes some policy avenues worth exploring further.

2. The benefits package and service delivery model in Latvia

9. The benefits package in Latvia is primarily outlined by Legislation 1529. From the patient side, this document lists services that are not covered and any exemptions for co-payments. The legislation also describes patient rights (for example, the right to choose a family doctor) and expected working times of general practitioners. It lists all services that providers can bill for (the effective benefits package) and conditions when NHS will (not) pay for them, which implicitly specifies a patient's pathway through the health system for certain services. For example, the NHS will pay for a prostate specific antigen (PSA) test only after a referral from certain profiles of physicians, and the NHS will pay for psychotherapy for adults only if it is provided in psychiatric inpatient institutions, in a rehabilitation program, in response to a court-ordered psychological examination, or in response to a psychiatrist's prescription "to prevent criminal offences against child and sexual morals."

10. The benefits package contains few elements of health promotion and prevention aside from annual wellness checks and national screening programs. Promotion services, such as educational programs or smoking cessation activities, are instead funded and organized nationally by the CDPC and locally by municipal governments.

11. Legislation 1529 is a living document that is updated at least once a year and sometimes more frequently when, for example, the Parliament approves an increase in the government's health budget. The NHS purchases the services listed in the regulation through contracts with independent physicians, outpatient clinics, and hospitals. Since February 2012, the NHS reviews approximately 30 outpatient services that are subject to volume limits in their contracts with providers and aims to cover 35 percent of all services for every 100,000 inhabitants. From a separate budget, SEMS provides emergency care, including transports between hospitals, and medical support (telemedicine, consultations, and procedures) to hospitals through the Specialized Medical Center (SMC).

12. Other relevant regulations include the Sexual and Reproductive Health Law, which describes reproductive health services that are covered; the Obstetric Law (Cabinet Regulation Number 611), which lists assistance offered to pregnant women, women during childbirth, and women and babies for 42 days after birth; and the Outpatient Medicinal Products and Medical Devices Reimbursement Law (Cabinet Regulation Number 899), which outlines coverage for different classes of drugs.

13. These regulations must substitute for the lack of any explicit or enforced clinical guidelines or pathways in Latvia. Over the last 5 years, the NHS has officially registered 27 clinical guidelines,

developed through initiatives of pharmaceutical companies and professional associations within Latvia, although these guidelines do not stipulate minimum requirements expected of physicians or other health care staff, nor do they necessarily reflect the services funded through the benefits package (some guidelines in fact recommend services that are currently not covered in the benefits package). Guidelines in the four priority disease areas include acute coronary syndrome, gynecological oncology, cervical cancer, chronic heart failure, colorectal cancer, stroke, breast cancer, and gastric, skin, prostate cancer. These guidelines are long documents, however, that cannot readily be used for teaching or decision support among practicing physicians.

14. The health system in Latvia currently does not use clinical pathways to determine which level of care (for example - primary care, ambulatory specialist care, acute inpatient care) is responsible for which elements of clinical guidelines (or elements of the benefits package) at which times. There are some notable exceptions, however. One exception to this is the case of pregnancy, where Cabinet Regulation Number 611 (*Obstetric Security Arrangements*) effectively embeds pathways for pregnant women, women within 42 days of birth, and newborns, stipulating when care should be delivered; who should be the responsible health care provider; any medical history, risk assessments, clinical investigations, and laboratory screening relevant for that period and the resulting actions that they require; and information or documentation that must be provided to the patient. Stroke patients and patients receiving percutaneous coronary interventions must also be served only in designated hospitals.

15. Although the NHS is set up as a single payer for the health system, the services of the benefits package are funded through a combination of public and private funding. There are user fees for most services (except for exempted categories of patients, such as children under the age of 18, pregnant women, women within 42 days after childbirth, and households with an income below 128 Euros) and for nearly all pharmaceuticals. There is an annual patient payment maximum for contracted services (currently 569.15 Euros). Patients, however, can pay more than this if they encounter waitlists. If a medical facility has a waitlist for a certain procedure, a patient can go to another facility where the waitlist is shorter. If the patient does not want to wait in line, (s)he can choose to pay 100 percent of a facility's fees for the service. Currently, waitlists by facility and specialty are posted on the website of the NHS, with waiting times reported by the facilities themselves. These waitlists partly result from quotas the NHS sets for each contracted facility or provider for certain procedures.

3. Methods

16. The subsequent sections of the report empirically investigate the extent to which the Latvian benefits package promotes universal health coverage and how the prevailing service delivery model encourages or discourages efficiency. They rely on administrative data provided by the NHS (all outpatient and inpatient payment records and fulfilled prescriptions for reimbursable medicines from 2009-2014), the CDPC (death and birth registries and the cancer, diabetes, and mental health registries from 2009-2014), SEMS (all emergency dispatches from 2009-2014), CBS

(the 2011 Census), and the State Revenue Service (all wage and self-employment earnings for 2014). *Stata/MP* version 14.2 was the software used to estimate all counts, proportions, averages, and the ranking of manipulations with respect to frequency.

17. The analysis focuses on a number of tracer conditions or events within the four priority disease areas that can illuminate how well the health system performs on the key functions of promotion and prevention, screening, diagnosis, treatment, follow-up, and overall coordination of care. Table 1 lists these tracer conditions for each priority area.

Table 1: Tracer conditions

Priority area	Tracers
Cardiovascular disease	Hypertension, diabetes
Cancer	Breast, cervical, and colorectal cancer
Mental health	Depression, substance abuse, suicides
Maternal and child health	Pregnancy, high risk pregnancy, high risk birth

18. To construct lists of patients exhibiting a certain tracer condition – for example, all hypertension patients for a given year – we searched all possible databases – namely, the inpatient and outpatient records, the SEMS data sets, the disease-specific registries, and the death registry since it is possible for patients to be diagnosed outside of inpatient or outpatient settings. Patients who had made little contact with health services or remained undiagnosed despite seeking medical attention could be diagnosed with a certain condition for the first time only at death or during an encounter for emergency services. A patient was considered to have a disease in a given year if (s)he appeared in any database that year with the ICD-10 code (or equivalent SEMS code) corresponding to that disease. The NHS cautioned that this strategy for identifying diagnosed patients could yield a number of false positives as physicians could record ICD-10 codes associated with a confirmed diagnosis for suspected cases rather using the separate code that exists for suspected cases.[3] Indeed this is the rationale behind the NHS strategy for identifying hypertension patients, for example, by searching for at least two outpatient instances or one inpatient record corresponding to the hypertension diagnosis code. As the number of cases where a patient appears only once with a diagnosis in a single year is small and as physicians in Latvia do appear to use ICD-10 codes corresponding to suspected cases, the subsequent analysis does not impose the NHS restriction of having at least two outpatient instances or one inpatient record for each tracer.[4] Appendix 1 lists the ICD-10 codes used for each tracer.

19. These lists were then merged with the inpatient and outpatient patient records, including "manipulations" (the term for billable expenses, which can include examinations, diagnostics,

[3] For example, they could use the code C50 meant for confirmed malignancies of the breast even though prior to confirmation, they could use D49.3, N63, D48.6, or Z12.3.

[4] For example, only 4 percent of patients diagnosed with diabetes had only one outpatient record in 2014, only 7 percent of those diagnosed with hypertension, and less than 4 percent for cancers. For depression and substance abuse and depression, these fractions rise to 13 and 22 percent, respectively.

treatments, and procedures), and with a database on all fulfilled prescriptions to assess the extent to which patients with certain diagnoses received certain manipulations and to characterize spending on medicines. All of this information was also merged with the socio-economic data from CSB and SRS to see whether trends differed by income or wealth. Appendix 1 also lists the manipulation codes corresponding to each examination, diagnostic, treatment, and procedure used in the analysis and describes how total spending on medicines and the socio-economic categories were constructed.

20. As the analysis of examinations, diagnostics, treatments, and procedures relies on the payment data of the NHS, it misses when these take place in facilities that are solely privately financed and in contracted facilities that have either exhausted their quotas or have waitlists that some patients want to bypass.[5] Thus, the estimated service and population coverage in this analysis are likely to be lower than what actually prevails in the population of Latvia. The NHS, however, is set up as a single payer, and the implied coverage uncovered in the analysis sheds light on the extent to which it is meeting its obligations to provide a package of essential health services to the entire population. Moreover, if indeed the low take-up of certain services in the NHS payment data can be explained by high coverage in privately financed care, then the health system is more fragmented than what the present results suggest, as this implies patients must switch back and forth between the public and private sectors in order to benefit from key health system functions such as screening, diagnostics, treatment, and follow-up care.

4. Service coverage

21. This section examines the de jure and de facto service coverage of the benefits package in Latvia. It first compares the services articulated in Legislation 1529 to select international standards and to the benefits package in neighboring Estonia. The analysis then estimates take-up of certain essential services and gauges the extent to which the population obtains the elements of the benefits package through NHS contracted providers.

4.1 Cardiovascular disease

22. Cardiovascular disease – the main cause of death in Latvia – requires interventions at all levels of care, from general health promotion and prevention to primary and specialist care, inpatient care, and rehabilitation. A previous review assessed general health promotion and prevention activities, and this review focuses on how the benefits package serves these functions through primary care. Inadequacies in the management of hypertension and diabetes in primary and specialist care can

[5] Data on privately financed care could not be obtained as initially planned because (i) aside from hospitals, facilities do not record privately financed visits and procedures, diagnostics, and examinations in a standardized way, and most often do not record them in an electronic format, and (ii) obtaining the standardized records from hospitals would have involved more than 40 separate MOUs between each hospital and the World Bank. Surmounting both of these limitations was beyond the scope of the current study.

also affect morbidity and mortality and lead to increased episodes of acute myocardial infarctions (heart attacks), strokes, and congestive heart failure.

23. On paper, coverage for the management of both hypertension and diabetes in Latvia appears adequate (Tables 2 and 3). Even though there is no national guideline for hypertension management in Latvia, covered services are comparable to what is found in the guidelines of the United Kingdom's National Institute for Health Care Excellence (NICE), the European Society of Hypertension and the European Society of Cardiology, and Estonia. One notable exception is the lack of referral criteria specifying when a patient should be sent to a specialist. Similarly, despite the absence of national guidelines on diabetes management, the Latvian benefits package offers comparable services to the recommendations in the NICE guidelines and to what is offered in Estonia.

Table 2: Hypertension management in the benefits package in Latvia

	NICE[6]	ESH/ESC[7]	Estonia	Latvia Benefits Package
Annual Well Visit for HTN Screening	✓	✓	✓	✓ No co-payment when part of Family Physician General health check.
Annual urinalysis for microalbuminuria	✓	✓	✓	✓
Annual random blood glucose	✓	✓	✓	✓
Annual serum electrolytes, creatinine	✓	✓	✓	✓
Annual serum cholesterol	✓	✓	✓	✓
Screening ECG	✓	✓	✓	✓ €1.42 co-payment
Specialist referral if uncontrolled with three medications	✓			
Specialist referral if uncontrolled with two medications			✓	

Table 3: Diabetes management in the benefits package in Latvia

	NICE[8]	Estonia[9]	Latvia Benefits Package
Annual Well Visit for DM Screening	✓	✓	✓ No co-payment when part of Family Physician General health check.
Twice yearly HgA1C	✓	✓	✓ No co-payment if patient has

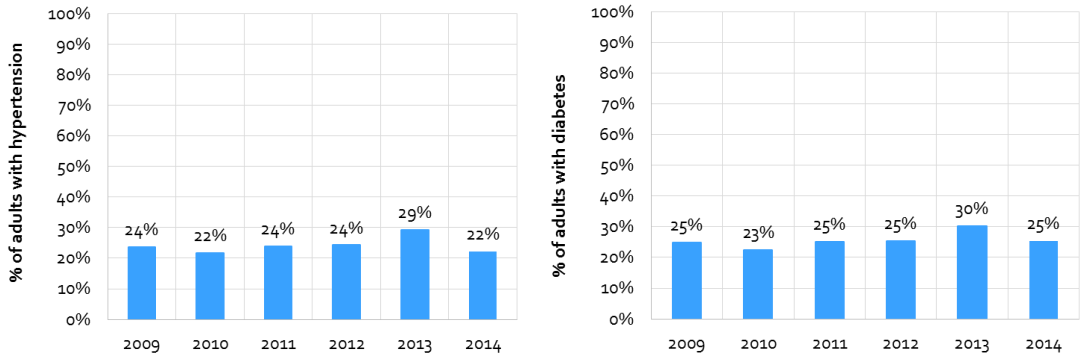
[6] NICE Guideline. Hypertension: Clinical management of primary hypertension in adults. Published August, 2011, reviewed October, 2013.
[7] European Society of Hypertension/European Society of Cardiology. Guidelines for the Management of Arterial Hypertension. 2013.
[8] NICE Guideline. The Management of Type 2 Diabetes. May 2009, reviewed August 2011.
[9] Estonian National treatment Guidelines for Diabetes. 2008.

			appropriate diabetes diagnosis
Annual serum cholesterol	✓	✓	✓
Annual urinalysis for microabluminuria	✓	✓	✓
Annual serum electrolytes, creatinine	✓	✓	✓
Annual eye exam by ophthalmologist	✓	✓	
Specialist referral if complications or need for insulin therapy		✓	

24. Hypertension management and diabetes management as viewed from the NHS payment data, however, suggest much room for improvement when it comes to effective service coverage, or the degree to which the population actually benefits from the covered services. As discussed in the accompanying review of quality assurance mechanisms in Latvia, only 24 percent of GPs achieved the performance target (70-90 percent of patients) based on low-density cholesterol testing among arterial hypertension patients.[10]

25. Figures 2 and 3 present completion rates for all hypertension (diabetes) patients diagnosed in each year - specifically, whether the claims data contains the examination (Figure 2) or diagnostics (Figure 3) within 365 days of the first diagnosis for the year. In all years, less than one third of all hypertension patients and diabetes patients had an annual wellness check (or healthy lifestyle consultation). These low take-up rates are consistent with results from a representative survey published by the CDPC, in which only 7.7 percent of males between the ages of 45 and 54 report going to a free health care checkup.[11]

Figure 2: Percentage of adults receiving annual wellness check among patients with hypertension and diabetes



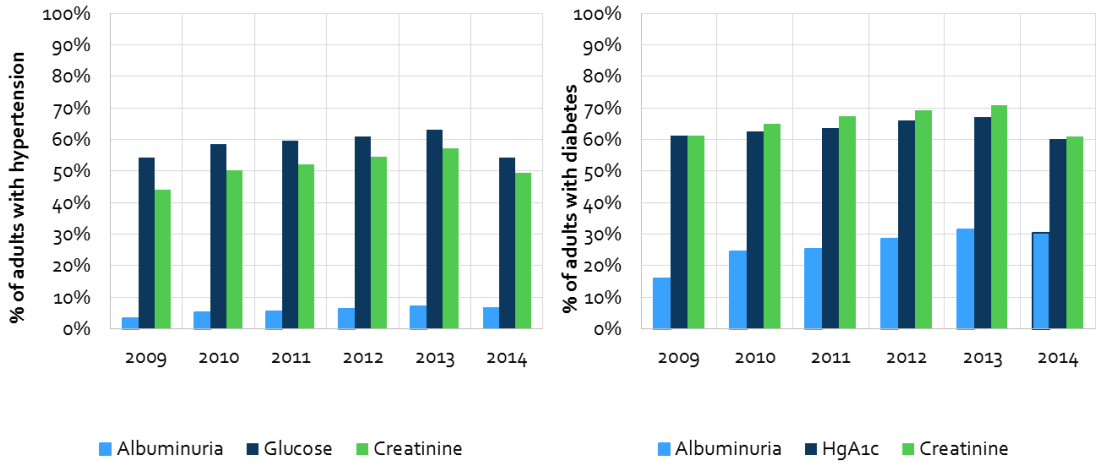
Source: Author calculations from NHS outpatient patient data

26. Similarly, although a part of the benefits package, take-up the tests for microalbuminaria, blood glucose, and creatinine can be improved considerably, particularly annual urinalysis for

[10] The NHS defines a hypertension patient as a patient who has a hypertension diagnosis in at least three outpatient documents in the previous year or one inpatient document in the previous two years.
[11] Health Behaviour Among Latvian Adult Population, 2014, Center for Disease Prevention and Control

microabluminuria, a key test for assessing kidney function. While it might be tempting to blame the patient in these cases and say that they are not following through when their primary care physicians recommends testing, the average patient completion rate for physicians for this indicator (presented in Annex 2 of the Quality Assurance Review) exhibits considerable heterogeneity (unlike for some other indicators, such as colorectal screening or glycated hemoglobin tests among diabetics, which shows a large majority of physicians with completion rates near zero). This variation is consistent with considerable scope for increasing take-up of this examination.

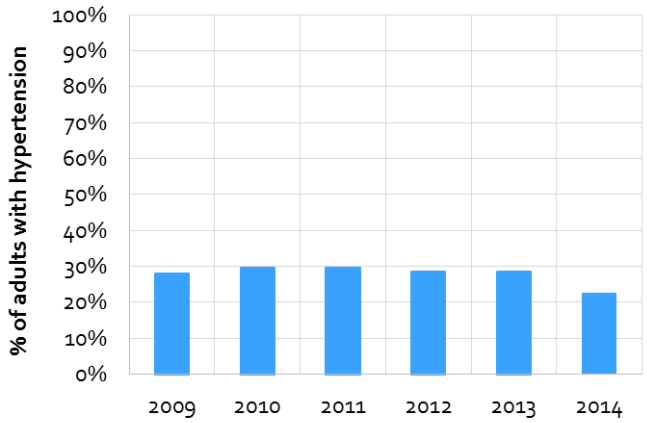
Figure 3: Percentage of hypertension and diabetes patients receiving select annual tests



Source: Author calculations from NHS outpatient patient data

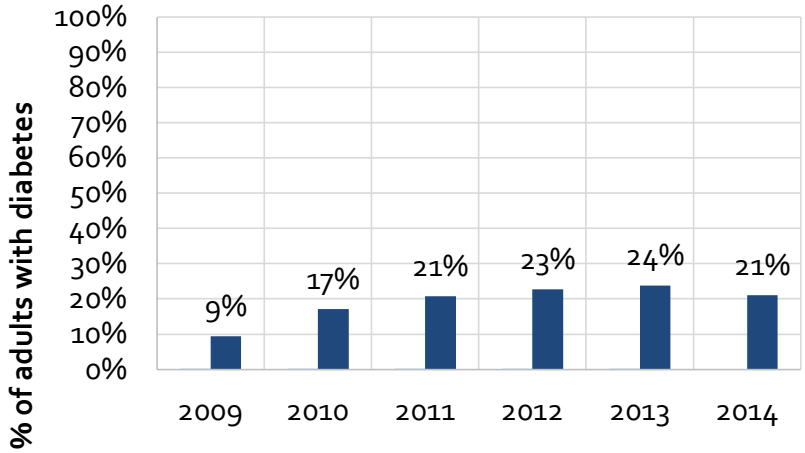
27. Figures 4 and 5 present the completion rates for some of the other annual examinations in the benefits package for patients with hypertension or diabetes. Again less than one third of people diagnosed with hypertension in a given year are getting a screening ECG within 365 days of their diagnoses. For those diagnosed with diabetes , only a minority of diabetic patients are getting the ophthalmic care that the benefits package permits.

Figure 4: Percentage of hypertension patients with annual electrocardiogram (ECG)



Source: Author calculations from NHS outpatient patient data

Figure 5: Percentage of patients with diabetes receiving annual eye examination



Source: Author calculations from NHS outpatient patient data

4.2 Mental health

28. Unlike the cases of hypertension and diabetes, where the benefits package guarantees essential services but utilization falls short, depression is a condition for which the Latvian benefits package lacks essential services. While anti-depressant medication is on the list of reimbursable medicines, the other critical aspect of treatment for depression – namely, psychotherapy – is not covered through the benefits package, even though this type of counselling is considered a standard part of treatment (See Box 1 for the statements related to treatment in the NICE quality standard for depression). According to regulation 1529, however, the state will not pay for psychotherapeutic and psychological assistance unless it takes place in inpatient settings, is for children, is part of a rehabilitation or drug and alcohol addiction program, has been court-ordered, or has been prescribed by a psychiatrist to prevent criminal offenses against children or sex crimes (Paragraphs 11.13.1 to 11.13.5).

Box 1: Treatment statements NICE quality standard for depression

Statement 4. People with persistent subthreshold depressive symptoms or mild to moderate depression receive appropriate low-intensity psychosocial interventions.

Statement 5. People with persistent subthreshold depressive symptoms or mild depression are prescribed antidepressants only when they meet specific clinical criteria in accordance with NICE guidance.

Statement 6. People with moderate or severe depression (and no existing chronic physical health problem) receive a combination of antidepressant medication and either high-intensity cognitive behavioural therapy or interpersonal therapy.

Statement 7. People with moderate depression and a chronic physical health problem receive an appropriate high-intensity psychological intervention.

Statement 8. People with severe depression and a chronic physical health problem receive a combination of antidepressant medication and individual cognitive behavioural therapy.

Statement 9. People with moderate to severe depression and a chronic physical health problem with associated functional impairment, whose symptoms are not responding to initial interventions, receive collaborative care.

Source: https://www.nice.org.uk/guidance/qs8

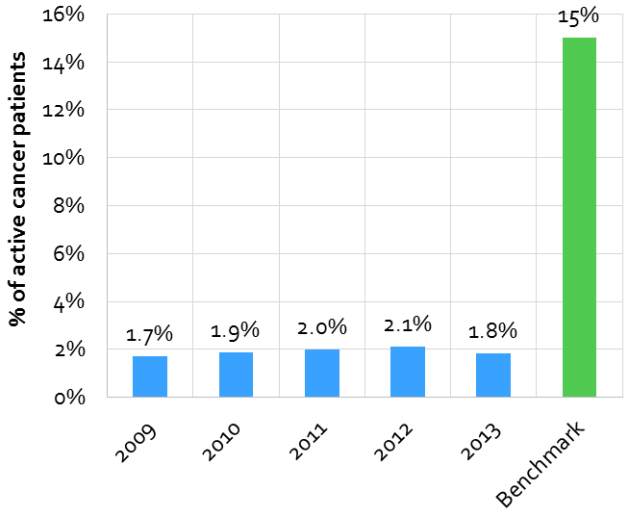
29. The data also suggest that patients with depressive symptoms are unlikely to get a diagnosis in the first place. Less than 1 percent of the population appears in the payment data with a diagnosis of depression in 2011, even though estimates of the incidence of depression range from 3 to 6 percent according to the NICE standard and the WHO Mental Health Surveys suggest that 1 in 20 people suffer from depression.[12] According to the benefits package, a psychological assessment is part of the general wellness exam, but as a large majority of the population does not receive an

[12] Depression prevalence was measured by taking the total number of unique personal identification numbers with a diagnosis of depression in 2011 in the payment data, disease registries, or death registry (numerator) and dividing this by the total number of people in Latvia in the 2011 Census (denominator).

annual check-up, this service should not serve as the health system's main strategy for detecting depression. The WHO posits that "depression is a disorder that can be reliably diagnosed and treated by non-specialists as part of primary health care," but absent a clinical guideline and pathway for depression, there is no guarantee that appropriate screening will happen at the primary care level. Absent an electronic health record, there is also no easy, systematic way to audit clinical records and assess the extent to which general practitioners are screening for depression and other mental health conditions.[13]

30. The data also demonstrate considerable under-diagnosis of depression in the presence of comorbidities. The prevalence of depression is higher among populations with one or more chronic condition (Moussavi et al, 2007), yet Figure 6 indicates that at most 2 percent of patients with active breast, cervical, or colorectal cancer diagnoses have been diagnosed with depression in any given year. While this rate is higher than the average fraction of the population diagnosed with depression in Latvia, it is far below any international benchmarks. For example, the American Cancer Society and the National Cancer Institute in the United States estimate that depression affects approximately 15 to 25% of cancer patients. Similarly, Figure 7 indicates substantial under-diagnosis among post-partum women. Not only is the prevalence in this population far below the international benchmark of 10 to 15 percent (Robertson et al, 2003), but it is also falls below prevalence in the general population. That is, even though post-partum women are a high risk group for depression, estimated prevalence from the NHS payment data suggests that they are less likely to be diagnosed than the general population.

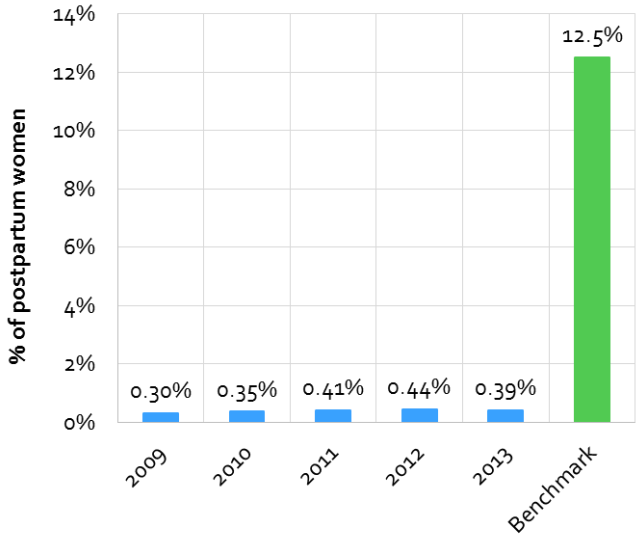
Figure 6: Percentage of patients with active breast, cervical, or colorectal cancer diagnosis with a depression diagnosis



Source: Author calculations from NHS outpatient patient data

[13] The Ministry of Health or NHS could, however, organize an audit with unannounced standardized patients to immediately test the adequacy of primary care to identify routine cases of depression (Rethans, 2007).

Figure 7: Percentage of postpartum patients who had a depression diagnosis within 12 months after birth



Source: Author calculations from NHS outpatient patient data

31. Additional evidence of under-diagnosis comes from the outpatient records of individuals who committed suicide in the 2009-2014 period, which show little indication that these individuals had been diagnosed with mental health issues aside from very obvious cases. When submitting data to the NHS, physicians can list up to 31 diagnoses per patient per episode. If we restrict our attention to the first three diagnosis fields listed in the records, the five most frequently occurring diagnoses do not include a mental health diagnosis (Table 4).[14] The most common is hypertension, followed by issues related to the prostate. The diagnoses ranked third and fourth suggest that these patients are making contact with the health system but their physicians are unable to detect symptoms indicative of a mental health problem. Schizophrenia ranks sixth, with 309 diagnoses in the 12 months prior to death among all individuals who committed suicide in the 2009-2014 period. Thus, while schizophrenic patients are indeed a high risk group for suicide, comorbidities related to other non-communicable diseases dominate the profile of individuals' taking their own life in Latvia.

[14] After the first three diagnoses, the number of diagnoses listed in the other fields is negligible, often in the single digits.

Table 4: The most frequent outpatient diagnoses in 12 months preceding a suicide, 2009-2014

Rank	Diagnosis	Frequency
1	Hypertension [I10]	1290
2	Enlarged prostate [N40] or neoplasm of prostate [C61]	624
3	Medical observation for suspected diseases and conditions ruled out [Z03 and Z03.8]	618
4	Spondylosis [M47] and other spondylosis with radiculopathy [M47.2]	436
5	General exam without complaint, suspected or reported diagnosis [Z00.0]	369

Source: Author calculations from NHS outpatient patient data

4.3 Cancers

32. The benefits package in Latvia appears in line with international standards for the tracer cancers, but effective service coverage deviates from what regulation would imply. Table 5 compares the screening examinations paid through the NHS with guidelines from the United States and the European Union. Latvia's screening package follows EU screening guidelines, with in fact a laxer age restriction for cervical cancer. Guidelines in the US start screening earlier and impose no age cut-off to stop screening, reflecting the different weight that the US and the EU tend to place on evidence from cost-effectiveness studies when drafting clinical guidelines.

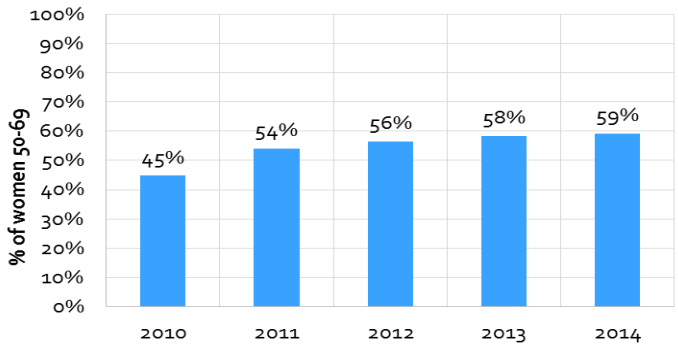
Table 5: Cancer screening in the benefits package in Latvia

	USA[15]	EU Screening Guideline[16]	Latvia Benefits Package
Cervical cancer			
Pap every 3 years for women age 25 to age 70			✓
Pap every 3-5 years for women starting age 20-30 up until age 60		✓	
Pap every 3 years starting age 21 up until age 65, also intermittent HPV screening	✓		
Colon Cancer			
Annual FOBT for patients age 50 to age 74		✓	✓
Annual FOBT starting at age 50 and colonoscopy every 10 years	✓		
Breast Cancer			
Mammogram every 2 years for women age 50 to age 69		✓	✓
Annual mammogram starting at age 40	✓		

[15] American Council for Colposcopy and Cervical Pathology. Screening Guidelines for the Prevention and Early Detection of Cervical Cancer. Journal of Lower Genital Tract Disease. Vol 16, Number 3, 2012.
[16] International Agency for Research on Cancer. European Guidelines for Quality Assurance in Cervical Cancer Screening. 2008; European Guidelines for Quality Assurance in Colorectal Cancer Screening and Diagnosis. 2012; European Guidelines for Quality Assurance in Breast Cancer Screening and Diagnosis. 2006.

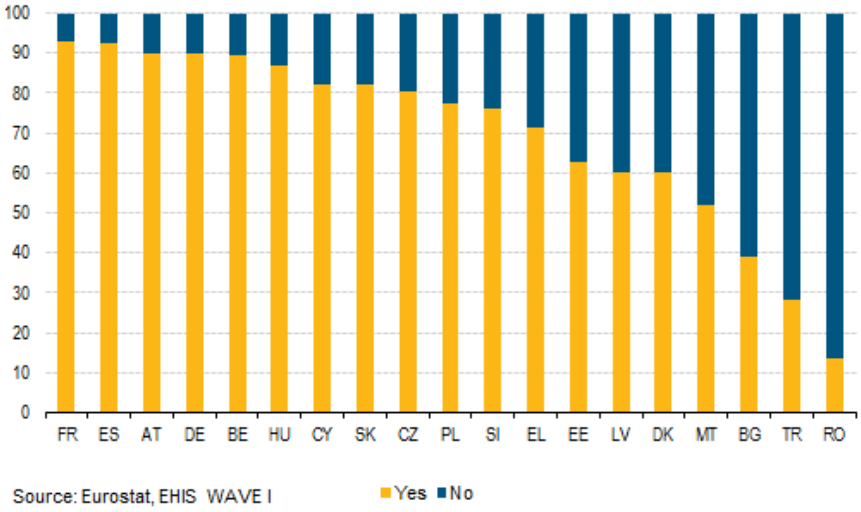
33. For breast cancer screening, less than 60 percent of the target group of women between the ages of 50 and 69 have had a mammogram every two years through NHS contracted services (Figure 8). Some of the remaining women could undergo screening through privately financed care (for example, through gynecologists without NHS contracts or through contracted gynecologists with long waitlists), but as screening mammograms are not limited by any quotas, we should not expect that close to 40 percent of women receive privately financed mammograms. A EuroStat survey from 2008, although prior to the present period of analysis, suggests that a sizeable fraction of this target population – in fact, close to 40 percent - has never had a mammogram (Figure 9).

Figure 8: Percentage of women aged 50-69 with a mammogram every two years, 2010-2014



Source: Author calculations from NHS outpatient patient data

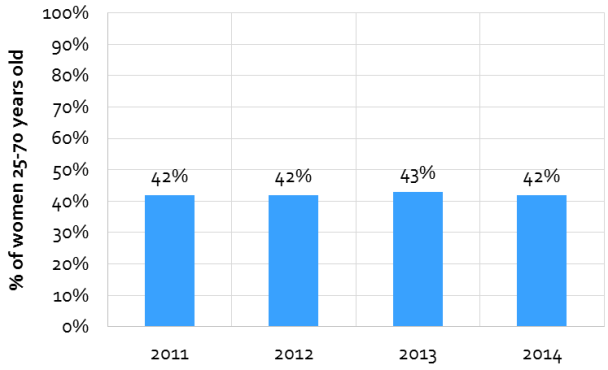
Figure 9: Fraction of women aged 50-69 years who have been screening for breast cancer at least once in life, 2008



34. Similarly, less than half of women receive a Pap smear (or cervical cancer screening) every three years (Figure 10). Again, as the NHS pays for the laboratory services of Pap smears conducted through the national screening program, even when done in private facilities, it might not be

realistic to expect that the remaining 58 percent of women receive screening that is privately financed.

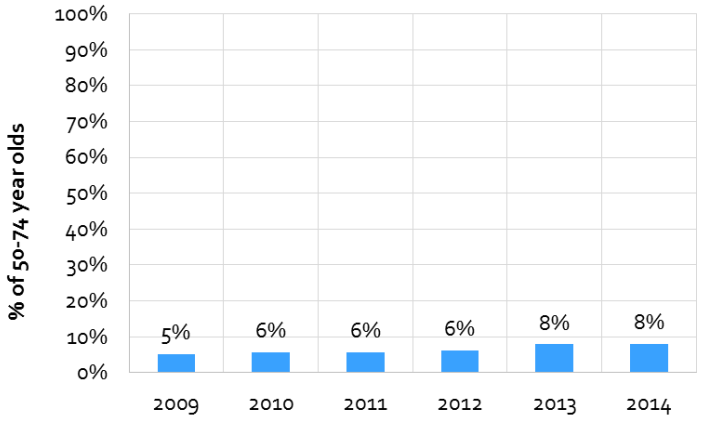
Figure 10: Percentage of women aged 25-70 with a Pap smear every three years, 2010-2014



Source: Author calculations from NHS outpatient patient data

35. Take-up for colorectal cancer screening is even lower. Figure 11 shows that less than 10 percent of the target group undergoes an annual fecal occult blood test (FOBT), which checks for hidden blood in three consecutive stool samples. This examination requires patients to collect the samples themselves in their own homes and return them to their doctor or directly to a lab. This additional required agency on the part of patients could perhaps explain the markedly low take-up of this exam, as well as the method of screening, which currently is opportunistic, unlike the cases of breast cancer and cervical cancer, for which the NHS invites patients for screening with individual letters.

Figure 11: Percentage of 50-74 year olds receiving a FOBT within the last year, 2009-2014



Source: Author calculations from NHS outpatient patient data

36. When it comes to treatment, the benefits package currently contains all of the essential cancer medications contained in the World Health Organization's 2015 Model List of Essential Medicines.

While the benefits package does contain palliative care for cancer patients, interviews with representatives from the Ministry of Health and focus group discussions conducted by the Baltic Institute of Social Science (2015) suggest that palliative care is still underdeveloped in Latvia and that many patients in need of this type of care find themselves in acute care settings under the care of staff who lack the training to administer appropriate medication.

4.4 Maternal and infant health

37. The Latvian benefits package provides adequate service coverage for prenatal care. Table 6 below compares the prenatal care standards outlined in the health legislation describing the benefits package and compares them with NICE and US guidelines.

Table 6: Prenatal care in the benefits package in Latvia

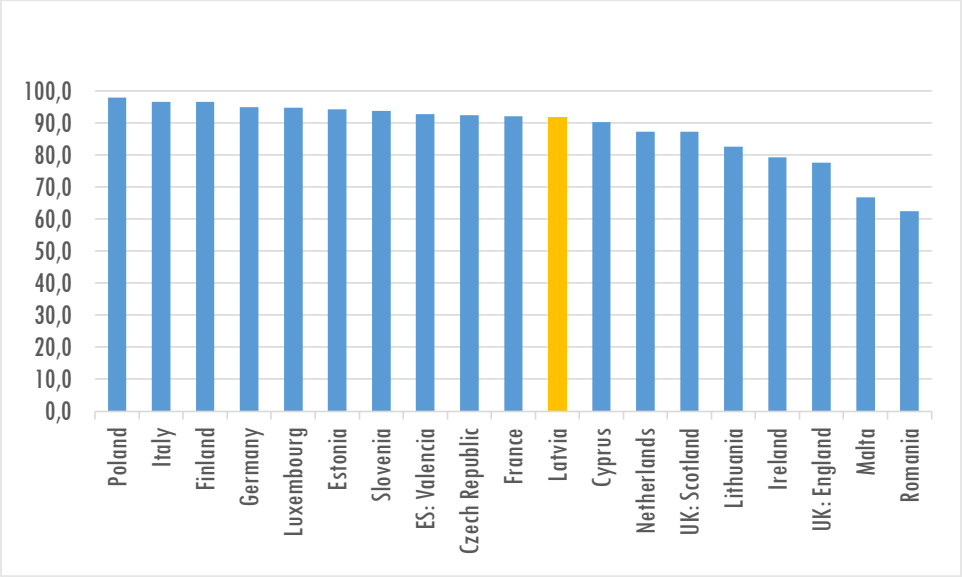
	NICE[17]	AAFP[18]	Latvia Benefits Package[19]
10-13 Week ultrasound	✓	✓	✓
18-20 Week ultrasound for fetal anomalies	✓	✓	✓
Down's Syndrome Screen	✓	✓	✓
Urinalysis in early pregnancy for asymptomatic bacteriuria	✓	✓	✓
Hepatitis B Serologic Screening	✓	✓	✓
HIV screen in early pregnancy	✓	✓	✓
Rubella screen in early pregnancy	✓	✓	✓
Syphilis screen in early pregnancy	✓	✓	✓
Screening for gestational diabetes	(Only if risk factors present)	X (OGTT 24-28 weeks)	(only if risk factors)
Urinalysis for proteinuria at each visit	✓	✓	✓
Blood group and Rhesus D status test in early pregnancy	✓	✓	✓
Anemia screening early pregnancy and at 28 weeks	✓	✓	✓
Group B Streptococcus screen between 35 and 37 weeks		✓	✓
Chlamydia screen in early pregnancy		✓	✓

38. Although there are no nationally approved guidelines for prenatal or perinatal care, a large majority start their prenatal care on time (prior to the twelfth gestational week) and complete the essential consultations, examinations, and diagnostics of the prenatal period.[20] According to the newborn registry of the CDPC, the fraction of the pregnant population delaying care fell between 6

[17] NICE. Antenatal Care. Published March 2008, reviewed February 2014.
[18] American Academy for Family Practice. Update on Prenatal Care. Am Fam Physician. 2014 Feb 1;89(3):199-208..
[19] Obstetric Procedures. Cabinet Regulations #611.
[20] The Latvian Society of Obstetricians has published guidelines on post-partum hemorrhage, pregnancy induced hypertension and pre-eclampsia, and c-sections. The Society of Neonatology has published a guideline on neonatal resuscitation.

and 8 percent each year during the 2009-2014 period, while the fraction not completing prenatal care was between 9 and 10 percent. To put these numbers in perspective, Figure 12 graphs the fraction of women that start prenatal care within the first trimester, using data from the Euro-Peristat initiative. While other countries in Europe have managed to bring the percentage of women starting on time closer to 100, Latvia's performance in this dimension of prenatal care does appear to be particularly low.

Figure 12: Fraction of the population staring prenatal care in the first trimester, 2010



Source: EURO-PERISTAT, 2010

5. Financial coverage

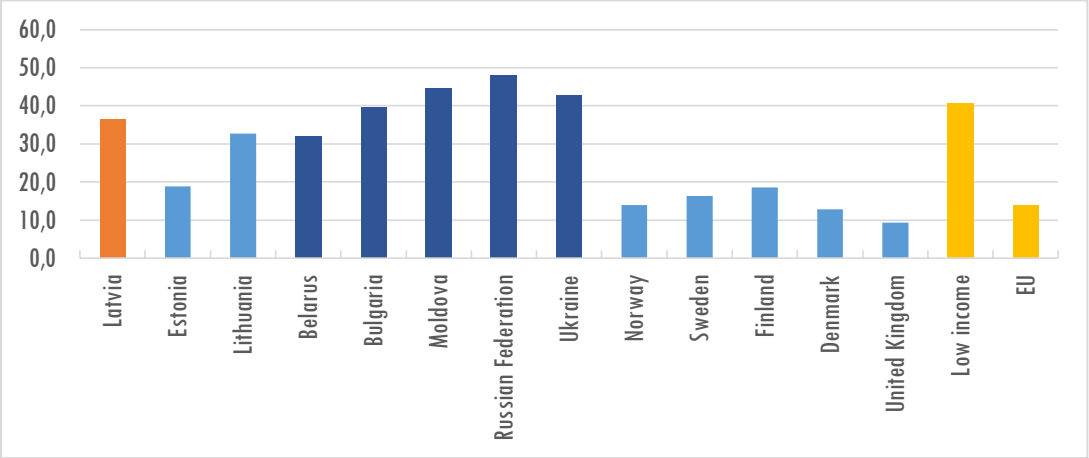
39. While de jure service coverage for the most part is adequate in Latvia, financial coverage – or the proportion of health care costs covered by the payer - remains an enormous challenge. Patients must pay for a large share of the costs of medication or fully out of pocket to access care once facilities' quotas are exhausted or if a certain physician has a long waitlist.

40. The first way to gauge the extent of financial coverage offered by Latvia's benefits package is to examine the composition of health expenditures – in particular, the fraction of health expenditures that come from out-of-pocket payments – that is, patients' expenses for health care that are not reimbursed. In Latvia, out-of-pocket payments accounted for 36.5 percent of total health expenditures in 2013. To put this in perspective, the World Health Organization considers a system in which out-of-pocket payments represent more than 20 percent of total expenditure incapable of protecting people from falling into poverty due to unexpected high health costs.

41. Moreover, as Figure 13 shows, Latvia's reliance on out-of-pocket payments contrasts with what other countries have been able to achieve. In Estonia, for example, the out-of-pocket share of total

health expenditures falls below the WHO's threshold, and high income countries exhibit out-of-pocket shares that are half of Latvia's, or even smaller. In fact, when it comes to out-of-pocket payments, Latvia more resembles countries that are classified by the World Bank as low-income (average 40.7 percent) when it comes to out-of-pocket payments than its counterparts in the European Union (13.9 percent).

Figure 13: Out-of-pocket payments as a share of total health expenditure, 2013

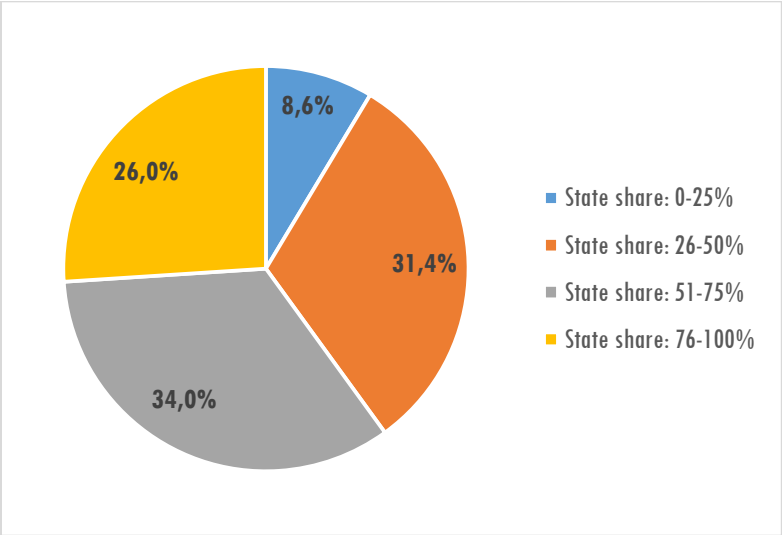


Source: World Development Indicators, 2013

42. Reimbursement rates for medicines can partly account for these out-of-pocket payments. In 2014, the average person picking up a prescription spent 3.85% of household income per capita on prescription medication.[21] While the NHS reimburses medication at rates of 100, 75, 50, and 0 percent, data on the state contribution and patient contribution for each prescription suggests that patients also face rates that fall in between these thresholds. While the average reimbursement rate was 60 percent in 2014, Figure 14 presents the share of prescriptions in each reimbursement range and shows that full coverage occurs for only 26 percent of prescriptions.

[21] Household income per capita was estimated from the earnings data provided by the State Revenue Service. Thus, spending for households with no income earners – for example, households with only pensioners residing in them – are not included in this calculation.

Figure 14: The share of total filled prescription by reimbursement rate category, 2014



Source: NHS reimbursement medicines data

43. Moreover, these NHS reimbursement categories (100, 75, and 50 percent) are not based on any thresholds of medical need, such as the proportion of days covered (PDC). The PDC threshold is the level above which the medication has a reasonable likelihood of achieving the most clinical benefit according to evidence-based guidelines. For example, in the United States, statins typically have a threshold of 80 percent, while some anti-retroviral therapies could have a threshold of 90 percent.[22] This means that if a person does not consume at least 80 percent of the prescribed dosage of the drug, then the effect of treatment will likely be compromised. Medications for hypertension, angina, acute myocardial infarctions, chronic ischemic heart disease, heart failure, atrial fibrillation, and cardiomyopathy are reimbursed at 75 percent, while treatments for diabetes and cancers are reimbursed at 100 percent.[23] Anti-depressants are reimbursed at 50 percent.

44. Whether current schedule of reimbursement rates effectively achieves appropriate PDC thresholds for essential medications like statins and anti-depressants is an open question. Recent scholarship in the field of behavioral economics also suggests that the schedule of co-payments can create incentives for more efficient treatment decisions once "behavioral hazard" is taken in account (Baicker et al., 2015). Co-payments are typically applied to prevent over-use due to a concern related to "moral hazard": because the insured pay less for care than it costs, they may overuse it. But for some conditions – for example, hypertension, diabetes, cholesterol management – underuse could be a problem independently of the cost of medicines because certain behavioral biases may also play a large role in drug adherence. For example, if patients are present-biased (they place more importance on the present relative to future), costs which are immediate, such as making a trip to the pharmacist, may weigh too heavily in their decision to take medicine if the

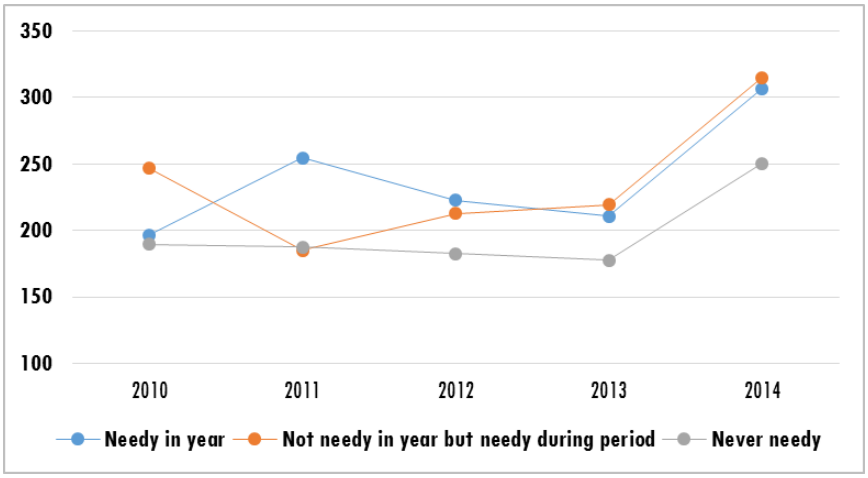
[22] In the United States, for example, these thresholds have been recommended by the non-profit Pharmacy Quality Alliance, the Agency for Health Care Research and Quality, and the Centers for Medicare and Medicaid Services.
[23] As a comparison, Estonia similarly reimburses 75 percent of the cost of anti-hypertension medications, although this rate rises to 90 percent for the disabled and retirees.

benefits of treatment are in the distant future. Similarly, symptom salience may also play a role as it may be easy to undervalue the health benefits of a medication if its benefits accumulate imperceptibly over time (in contract to something like pain medication, where its effect may be more obvious immediately). For these reasons, co-payments could depress adherence even for individuals whose incomes would suggest little need for financial protection.

45. Evidence that this kind of behavioral hazard is empirically relevant comes from both increases and decreases in co-payments among the insured in the United States. For example, among the Medicare population (which receives state-paid health insurance), imposing an annual cap ($1,000) on prescriptions that would be reimbursed led to an approximately 30 percent increase in non-adherence to anti-hypertensives, statins, and diabetes drugs (Hsu et al., 2006). The revenue gains from an increase in copayments for medicines (from $1 to $8) was offset by a 6 percent increase in hospitalization (Chandra et al, 2010). Conversely, in an experimental trial with a large private insurance company in the U.S., the elimination of copayments for medications for patients discharged after myocardial infarction led to a 4 to 6 percentage point increase in drug adherence, a 1.8 percentage point decline in major vascular events, and a 1.1 percentage point decline in heart attacks (Choudhury et al., 2011). Because of these health gains, total spending on these patients did not increase relative to a comparison group that faced standard coverage of post-operative medication, despite the increase in spending required to fully cover all medications.

46. There is evidence from Latvia that drug copayments decrease drug adherence from an examination of trends in filled prescriptions of patients classified as "needy," who are from households with incomes below €128 per family member and who are exempted from any user charges. Figure 15 graphs the average total value of medications (total state contribution plus total patient contribution) over time for three groups of patients: (i) those who are classified as needy in a particular year, (ii) those who have been classified as needy during the 2010-2014 period but not in that particular year, and (iii) those have never been classified as needy during the 2010-2014 period. Needy status appears to increase patients' drug consumption and protect it from downturns that other groups face. In 2011, for example, needy patients consumed medication worth an average of €254, which was 36 percent higher than those who had never been needy and 37 percent higher than those were classified as needy at some point during the 2010-2014 period but were not classified as needy in 2011. While it might be tempting to treat this positive difference between needy and non-needy patients as evidence of moral hazard, it is important to note that needy patients are picking up medication for chronic diseases that typically require continuous medication, rather than conditions for which treatment could be at a doctor's discretion or prescribed only once, such as sedatives or antibiotics (Table 7).

Figure 15: Total value of filled prescriptions, by year



Source: NHS reimbursement medicines data

Table 7: Most frequent diagnoses of individuals classified as needy

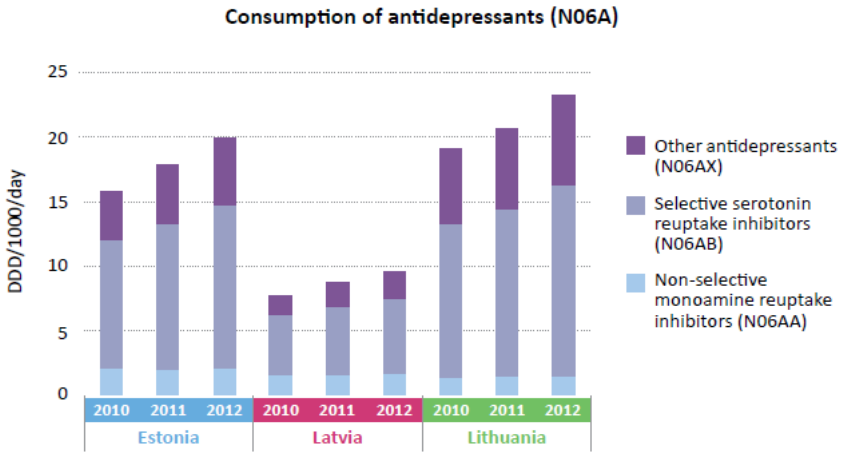
Essential primary hypertension	194653	25.37%
Mixed asthma	37017	4.82%
Asthma	32005	4.17%
Heart failure	30762	4.01%
Hypertensive heart disease without heart failure	25007	3.26%
Hypertensive heart disease	24105	3.14%
Type 2 diabetes mellitus without complications	20389	2.66%
Schizophrenia	20305	2.65%
Heart failure	19959	2.60%
Secondary hypertension, unspecified	17810	2.32%

Source: NHS reimbursement medicines data

47. Further evidence consistent with reduced drug consumption of medicines with low reimbursement rates comes from the State Agency of Medicines and their estimates of drug consumption. Recall that only 50 percent of the cost of medication for depression is reimbursed. While the severe under-diagnosis of depression presented earlier could diminish the consumption of anti-depressants, this reimbursement rate for appropriate medications likely contributes as well. Figure 16 presents the defined daily dose per thousand inhabitants per day for anti-depressants for Estonia, Latvia, and Lithuania. Consumption of anti-depressants is less than half of what is observed

in the other two Baltic countries. While not shown here, the same data indicate no marked under-consumption of anti-psychotics, which have reimbursement rates of 100 percent.

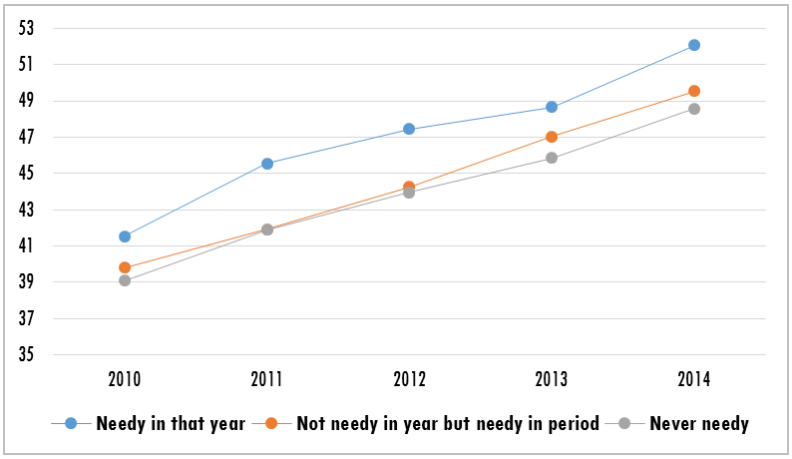
Figure 16: Defined daily dose per thousand habitants per day for anti-depressants by country, 2010-2012



Source: Baltic Statistics on Medicines 2010-2012

48. Evidence from the NHS payment data during this period also suggests that copayments for outpatient visits reduce access to care, even if they are just nominal payments. Figure 17 plots the average number of manipulations of the needy and non-needy populations. While we might expect the health-seeking behavior of the needy population to differ from what can observed among those who have never been needy, we should expect the needy in a particular year and those needy during the period but not in that particular year to be more similar. Throughout the period, however, the average needy person has more manipulations than those have never been needy and those who have been needy but not that particular year.

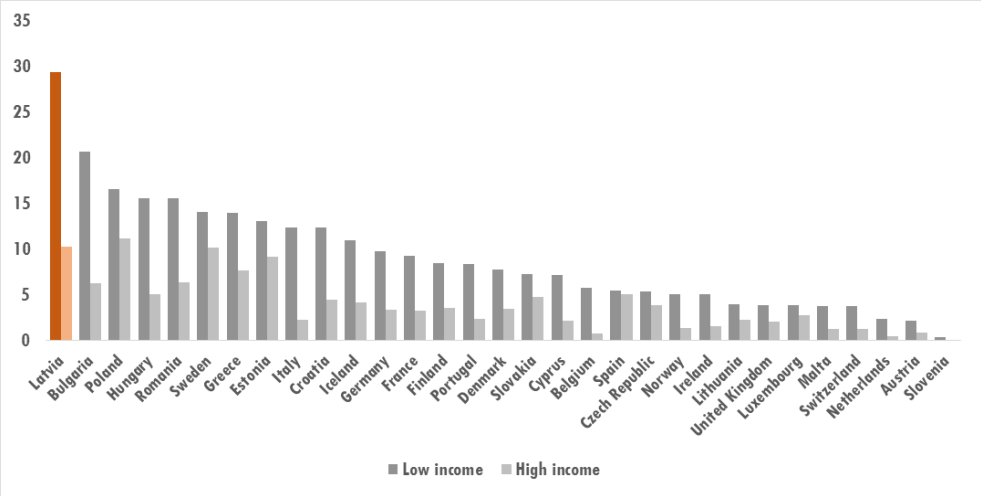
Figure 17: Average outpatient manipulations per person, by year



Source: NHS outpatient records and reimbursement medicines

49. Survey evidence is also consistent with a substantial extent of foregone care in Latvia (that is, situations in which individuals do not even seek medical attention when they require it). Self-reported data from the 2012 EU-SILC survey, in which Latvia reports the highest extent of unmet care for both low and high income households in Europe (Figure 18), suggests that nearly 30 percent of individuals in the lowest quintile had to forgo care in the previous 12 months. Even the reported rate of 10 percent among households in the highest quintile ranks among the highest for that group.

Figure 18: Self-reported unmet need among the top and bottom quintiles, 2012



Source: EU-SILC, 2012

Notes: Low income refers to the bottom quintile, while high income refers to the top quintile

50. Missing in this analysis is the role of informal payments – payments for care beyond NHS copayments – or corruption more broadly in the waitlist process. Interviews among physicians and the qualitative report submitted as part of the World Bank's advisory services alluded to these types of issues, particularly in cancer care, where patients may be expected to make additional payments to physicians and where services within a provider's quota may be reserved for physicians or patients with personal connections to the provider. The implications of these two practices for the prices faced by an average patient are unknown, and it is worth investigating further in future research.

51. This section has presented evidence from a variety of sources that suggests that Latvian residents benefit from limited financial protection from health expenditures. This not only makes Latvia's level of out-of-pocket payments stand out internationally but also may be leading to foregone care and inadequate population coverage, which the next section discusses. The current schedule of copayments could also encourage inefficiencies in the take-up of services and implicitly define a service delivery model in which patients cannot access sufficient services at the right levels of care (which is discussed in Section 7).

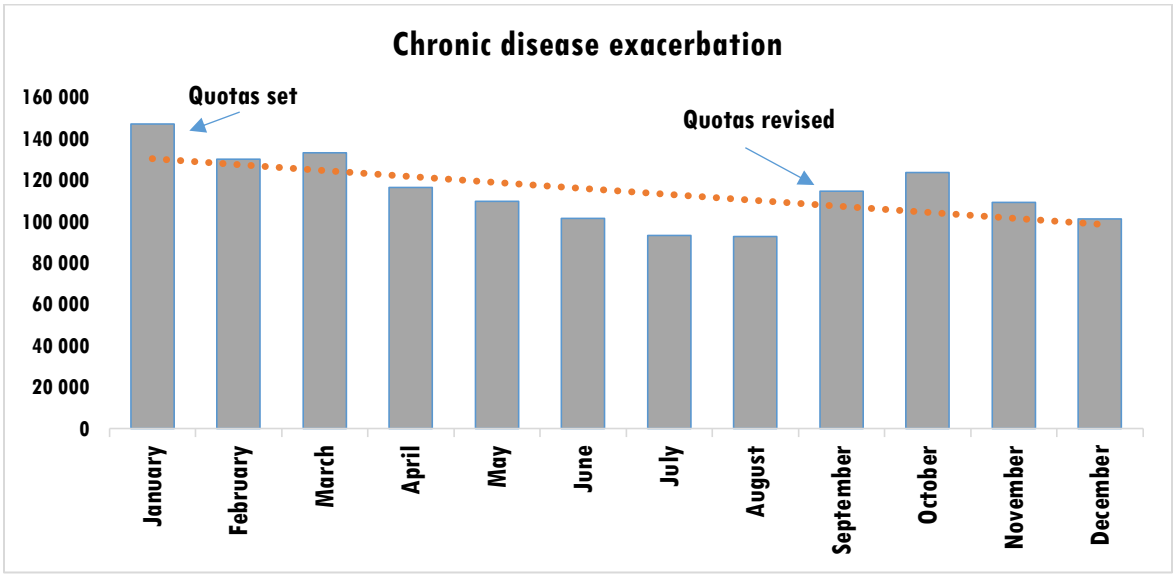
6. Population coverage

52. Population coverage refers to who is covered by health insurance. According to Latvia's Medical Treatment Law, the NHS pays for services for the entire resident population of Latvia.[24] The previous section on financial coverage has demonstrated that limited financial coverage likely interferes with effective population coverage. The poorer population as well as those suffering from depression likely have to forgo essential medicines, examinations, diagnostics, and procedures because they cannot afford them.

53. Patterns in the payment data also suggest that quotas directly affect coverage and generate cyclical variation in access to services. Figures 19-25 present the number of outpatient manipulations (examinations, diagnostics, and procedures) by month in 2014. While the demand for health services could independently exhibit a seasonal pattern, the declines in manipulations observed in some of these figures do appear to coincide with NHS's schedule for setting quotas. Take outpatient records classified as "chronic disease exacerbation" in the payment data. Patients cannot choose when their illness flares up, nor should they go without care if it does. Nevertheless, cases spike in January when quotas are renewed and reach a low point during the months of June through August when facilities have reached their volume caps before increasing again in September when institutions typically request more money and the NHS receives additional budget to fund more services. Figure 19 suggests that there are 45 percent more manipulations related to chronic disease exacerbation in January than in June.

[24] This includes citizens of Latvia; non-citizens of Latvia; citizens of the member countries of the European Union, the member countries of the European Economic Area, and citizens of the Switzerland Confederation, who stay or dwell on the territory of Latvia due to employment or as self-employed persons, as well as members of their families; foreigners, who have obtained a permit on permanent residence in Latvia; fugitives and persons, who have been assigned an alternative status; and detainees, those persons who have been put under arrest, as well as those persons who have been sentenced to imprisonment. Non-citizens of Latvia are individuals who are not citizens of Latvia or any other country but, who, in accordance with the Latvian law have the right to a non-citizen passport issued by the Latvian government as well as other specific rights.

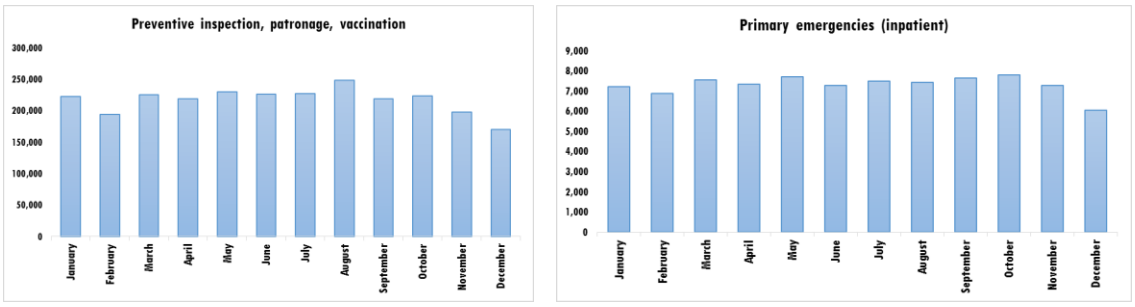
Figure 19: The number of outpatient manipulations for chronic disease exacerbation in 2014, by month



Source: NHS outpatient records.

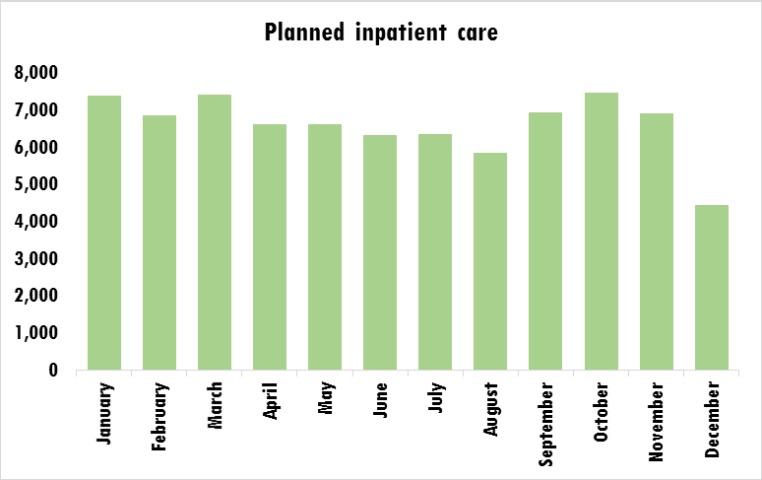
54. Manipulations that are not limited by quotas, on the other hand, do not exhibit this cyclical pattern. In Figure 20, manipulations for preventive inspection, patronage, and vaccination and primary emergencies in inpatient settings do not steadily decline from January to August with an upswing in September. In contrast, planned inpatient care shows a cyclical pattern consistent with quota-driven access to services (Figure 21).

Figure 20: The number of outpatient manipulations for conditions without quotas in 2014, by month



Source: NHS outpatient records

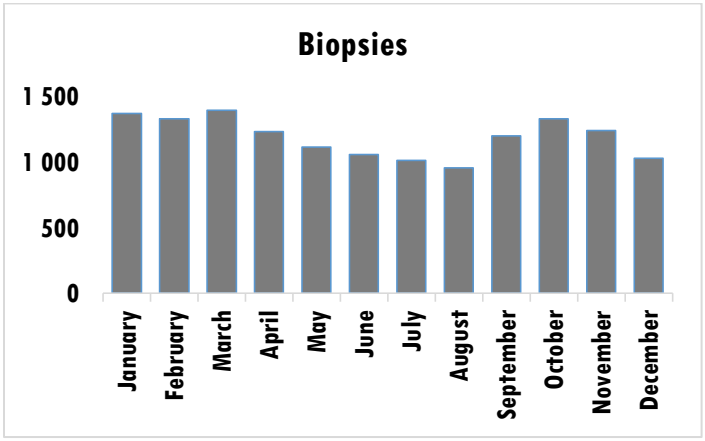
Figure 21: The number of manipulations in planned inpatient care in 2014, by month



Source: NHS outpatient data

55. The implied delays in care could have devastating consequences for patients' health. In Figure 22, the number of biopsies performed each month is also limited by quotas, which is consistent with interviews among general practitioners who spoke of patients waiting four to five months for biopsies. During this waiting period, a cancer can spread and become harder to treat successfully. Thus, a person unlucky enough to be suspected of cancer in May will have to wait longer for a confirmed diagnosis and thus the onset of treatment than a person exhibiting similar symptoms in January.

Figure 22: The number of outpatient biopsies in 2014, by month

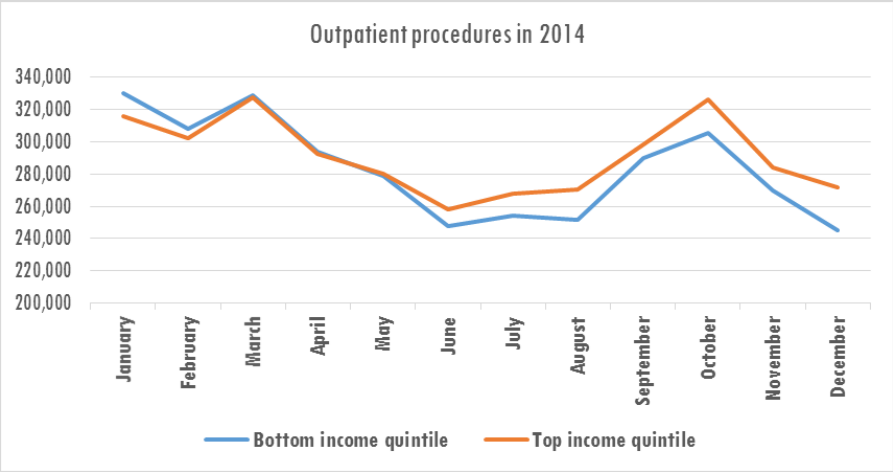


Source: NHS outpatient records

56. If a facility reaches its quota, patients pay fully out of pocket to access care. Thus, we might expect that quotas limit accessibility more for poorer individuals than for the more affluent. Figure 23 presents evidence consistent with this, graphing outpatient manipulations for the bottom and top quintiles of earned income, as reported by the State Revenue Service. During the high quota

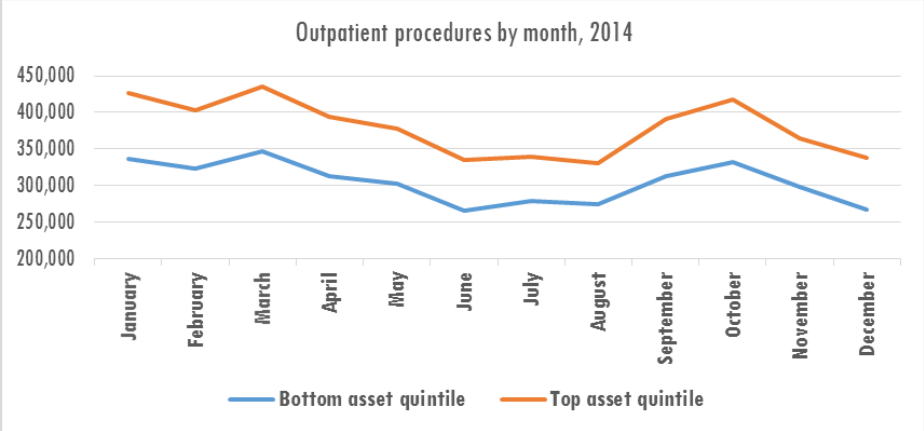
period, the top and bottom quintiles receive the same number of manipulations. As the quotas start to bind, however, poorer individuals receive fewer manipulations. In December, for example, they receive 90 percent of what more affluent individuals receive.

Figure 23: Total outpatient procedures in 2014, by month and income quintile



Source: NHS outpatient records and SRS earnings data

Figure 24: Total outpatient procedures in 2014, by month and asset quintile



Source: NHS outpatient records and 2011 Census data

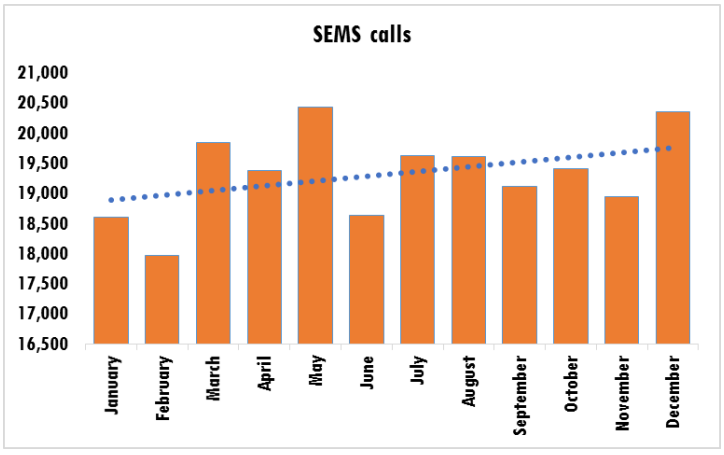
57. Socio-economic data from the 2011 Census paint a slightly different picture but still suggest that poorer individuals receive less care than the more affluent (Figure 24). When assets measured in the 2011 Census, instead of income, are used to divide the 2014 population into quintiles, the bottom quintile consistently receives less care throughout the year. In January, for example, the bottom quintile receives nearly 30 percent fewer manipulations than the top quintile.

7. Service delivery model

58. This section assesses the extent to which care is delivered in the right setting in Latvia and whether it is integrated sufficiently to deal with Latvia's current disease profile, focusing on cardiovascular health and mental health.[25] The features of the benefits package discussed earlier – service, financial, and population coverage – can directly shape or distort how service delivery is organized. If, for example, the benefits package does not provide sufficient service or financial coverage, patients may forgo essential primary care services or medication and instead enter the health system in need of more expensive acute care. A country's service delivery model can also be characterized by clinical guidelines and clinical pathways, as these define what kind of history-taking, examinations, and diagnostics a patient presenting with certain symptoms should receive and under what conditions patients should make contact with different levels of care (primary, ambulatory specialist, emergency, inpatient, and rehabilitation). Latvia has currently not developed clinical guidelines or clinical pathways that have been endorsed by the NHS, and thus observed patient pathways through the health system are likely governed by the prices faced by both patients and providers.

59. Data provided by SEMS suggests that quotas shift care into emergency services. Figures 25 exhibits the converse pattern observed in earlier graphs that examined the cyclical pattern of services. In 2014, emergency calls were lower during the high quota periods and higher when facilities have exhausted their quotas. In the earlier figures, we observed an increase in NHS services in September when quotas are typically reset, followed by a decline into December. In Figure 25, we can see the opposite pattern: emergency calls decrease when quotas are reset and steadily increase into December. This pattern is consistent with interviews among SEMS staff and hospital administrators who explained that patients often appear as emergency cases to receive the diagnostics and specialist care that they would have to wait months to receive through contracted services.

Figure 25: The number of SEMS calls in 2014, by month



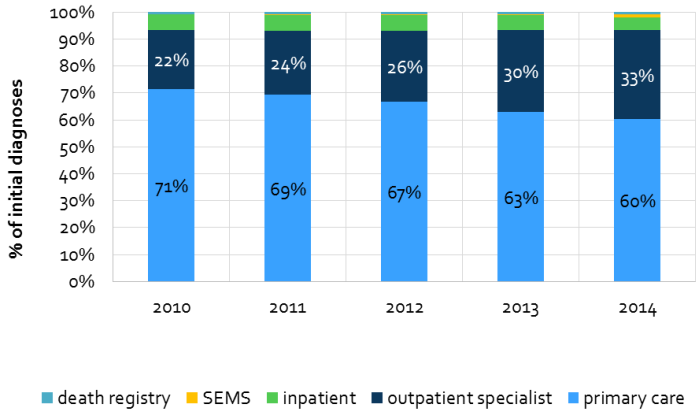
Source: SEMS emergency call data

[25] Another deliverable – the hospital-volume study – analyzes the levels of care for cancer surgeries and deliveries.

7.1 Cardiovascular disease

60. A disease profile dominated by chronic conditions such as cardiovascular disease, as in Latvia, requires a primary-care centered model of care in which primary care providers should be able to prevent, diagnosis, treat, and manage conditions like hypertension and diabetes. An examination of the payment data suggests that this is happening to a large extent for hypertension (Figure 26). A patient's initial diagnosis of hypertension occurs in the primary care setting for a majority of cases, and situations that should be avoided – diagnoses made during an autopsy, in an emergency situation, and in inpatient settings – account for a small minority of initial diagnoses in any given year. Outpatient specialists, however, still make one third of initial diagnoses.

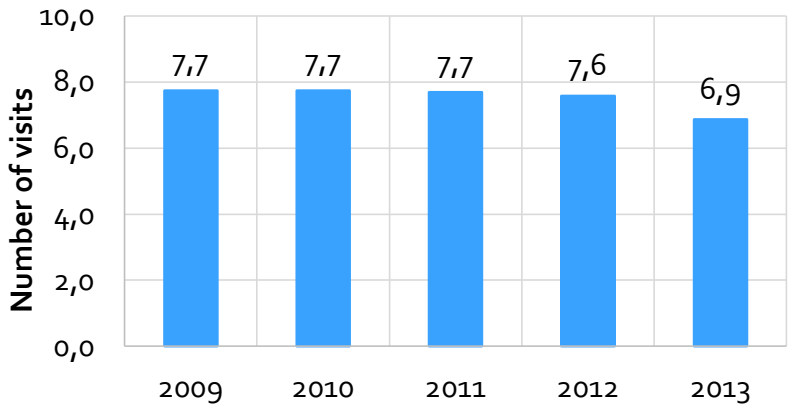
Figure 26: Location of initial diagnosis for hypertension, by year



Source: NHS inpatient and outpatient records, the death registry, and SEMS data

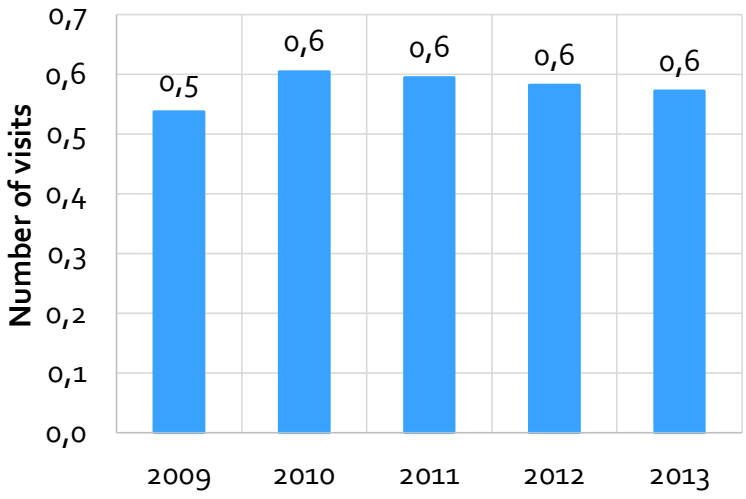
61. Hypertension patients also appear to access primary care services quite frequently throughout the year, making close to 8 visits in the twelve months following their first visit with a hypertension diagnosis in a given year during the 2009-2013 period, while visiting a cardio-specialist less than once on average (Figures 27 and 28).

Figure 27: Average number of GP visits for patients diagnosed with hypertension, by year



Source: NHS outpatient records

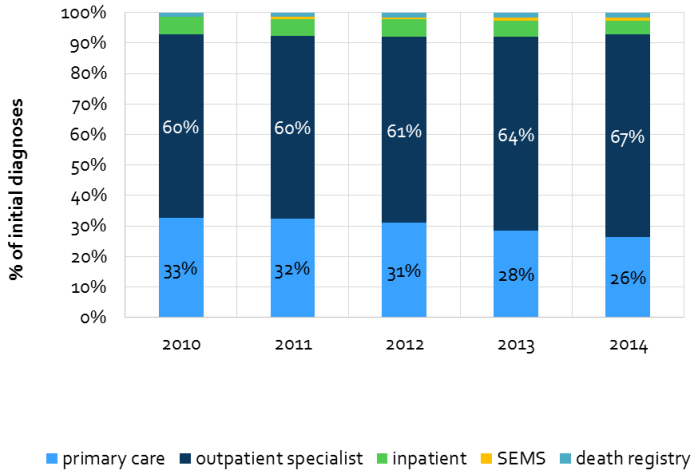
Figure 28: Average number of specialist visits for patients diagnosed with hypertension, by year



Source: NHS outpatient records.

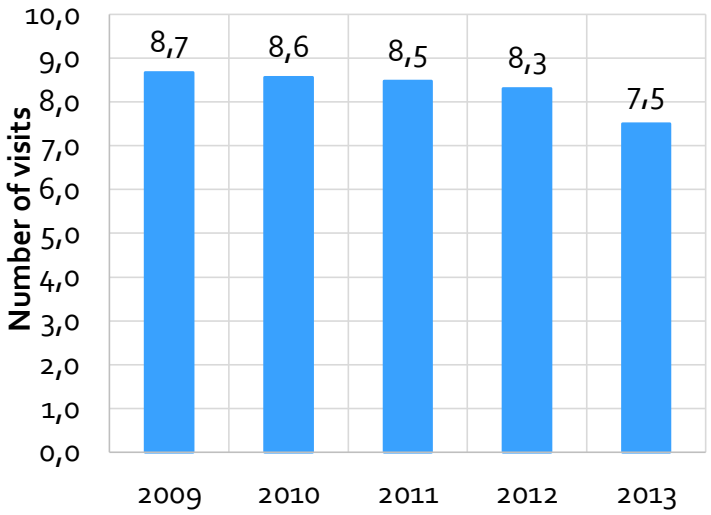
62. Diabetic patients, on the other hand, are initially diagnosed in the ambulatory specialist setting, as nearly two-thirds of initial diagnoses are made by specialists (Figure 29). Like hypertension patients, they frequently access primary care services (Figure 30), while visiting an endocrinologist an average of 1.3 times in the twelve months following an initial diagnosis made in a particular year (Figure 31).

Figure 29: Location of initial diagnoses for diabetes, by year



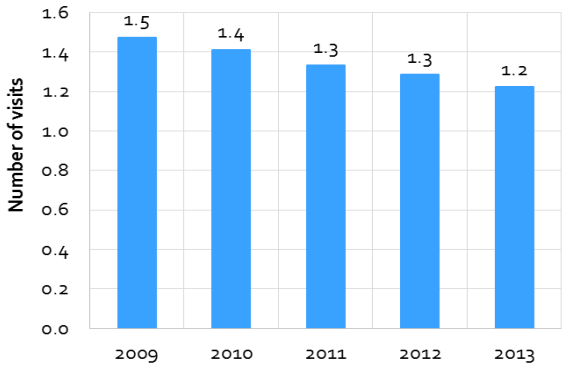
Source: NHS outpatient and inpatient records, SEMS emergency call data, death registry

Figure 30: Average number of GP visits for patients diagnosed with diabetes, by year



Source: NHS outpatient records

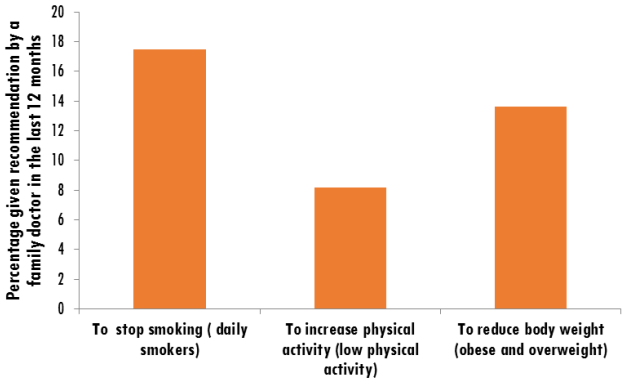
Figure 31: Average number of specialist visits for patients diagnosed with diabetes, by year



Source: NHS outpatient records

63. While these patients with cardiovascular related issues make multiple contacts with primary care providers, data from the CDPC's 2014 nationally representative survey suggest that very little prevention activities are occurring during these visits (Figure 32). Less than 20 percent of male daily smokers between the ages of 45 and 54 reported that their family doctor had advised them to quit smoking in the previous 12 months. Similarly, only 12.3 percent reporting low physical activity and 21 percent who were obese or overweight reported receiving counseling to increase their physical activity or reduce their body weight.

Figure 32: Health promotion advice offered by family doctors to males (age 45-54), 2014



Source: Health Behaviour Among Latvian Adult Population, 2014, Center for Disease Prevention and Control

7.2 Mental health

64. For mental health conditions, the data largely suggest an over-reliance on inpatient care and a lack of care integration to address comorbidities. As discussed earlier, the current benefits package

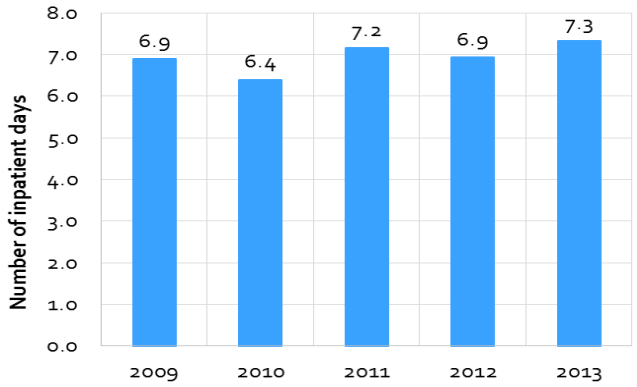
does not offer psychotherapy for adults in outpatient settings except for extreme situations, such as a court order or predictions of violent criminal activity. Thus, patients with depression in need of psychotherapy may need to be hospitalized to receive treatment that could be offered in outpatient settings and it should therefore not be surprising that Latvia has considerably more psychiatric beds per 100,000 inhabitants than comparator countries or the European Union as a whole (Table 8). Patients diagnosed with depression on average spend a week per year in inpatient settings (Figure 33).

Table 8: Psychiatric beds per 100,000 inhabitants, 2013

	Beds/100,000
Estonia	55.61
Hungary	89.75
Lithuania	109.41
Latvia	125.41
EU	66.99

Source: Health for All, World Health Organization

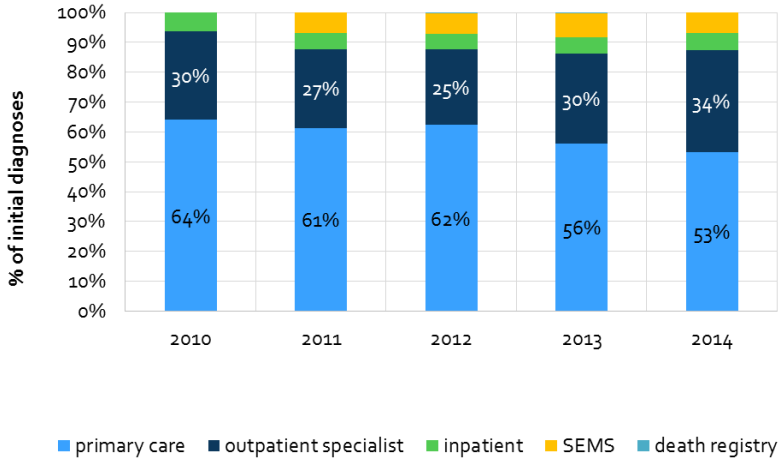
Figure 33: Average number of inpatient days among patients diagnosed with depression, by year



Source: NHS inpatient records

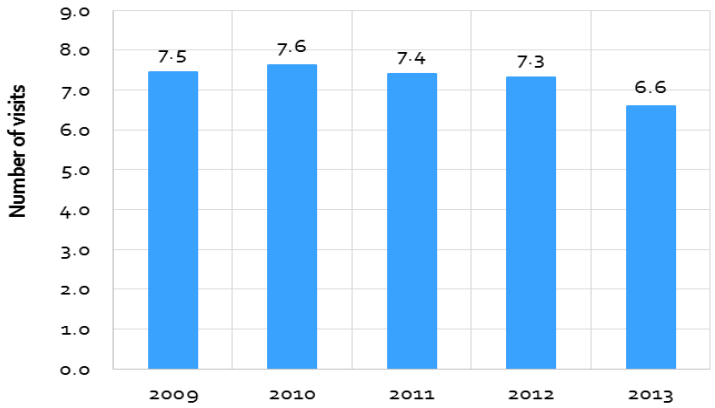
65. Despite the under-diagnosis discussed earlier and extended treatment in inpatient settings, the majority of diagnoses that do occur in a given year take place in primary care settings. (Figure 34). Patients diagnosed with depression have numerous contacts with both primary care providers and mental health specialists in the twelve months following the first diagnosis in a year (Figures 35 and 36). Moreover, opportunities for follow-up care after a hospitalization appear to be high, as a majority of patients hospitalized for depression visit a provider within 30 days after discharge (Figure 37). By 90 days post-discharge, more than 70 percent of these patients have made another visit.

Figure 34: Location of initial diagnoses of depression, by year



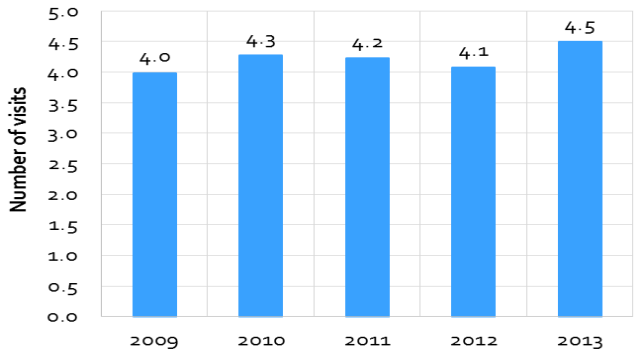
Source: NHS outpatient and inpatient records, SEMS emergency call data, death registry

Figure 35: Average number of GP visits for patients diagnosed with depression, by year



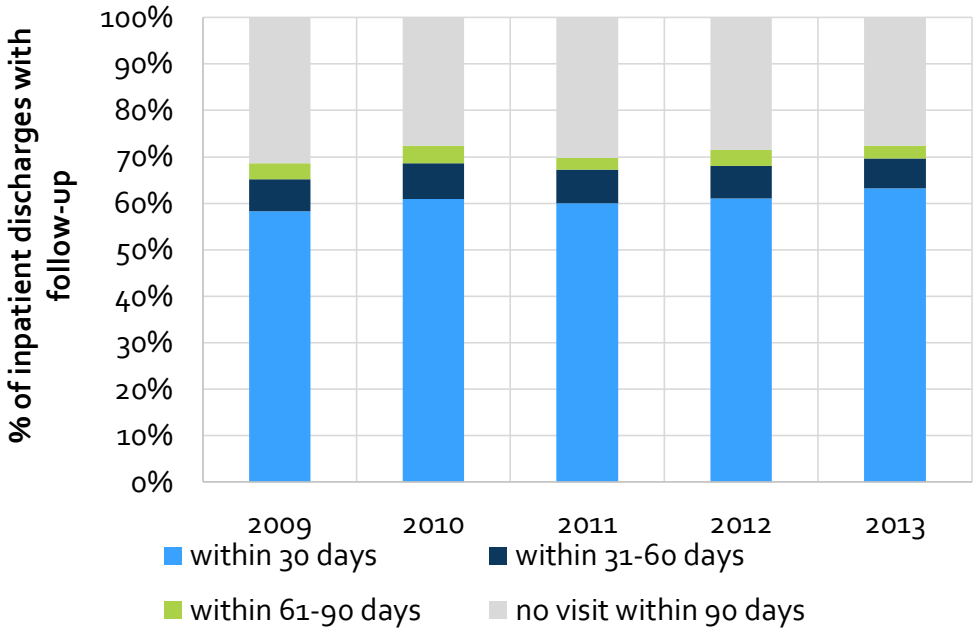
Source: NHS outpatient records

Figure 36: Average number of specialist visits among patients diagnosed with depression, by year



Source: NHS outpatient records

Figure 37: Percentage of inpatient depression discharges with follow-up care, by year



Source: NHS outpatient records

66. Further analysis of these primary care visits, however, suggests a profile very different from what might be expected of a depression patient. Table 9 lists the top ten most frequent manipulations for patients who had been diagnosed with depression at any time in 2014. This is the profile of either a diabetic or a women suspected or diagnosed with breast cancer. Thus, diagnosed depression in Latvia can be largely characterized as a comorbidity with other chronic ailments. As shown previously in Box 1, international best practice would require depression treatment plans that differ for patients with other chronic illnesses.

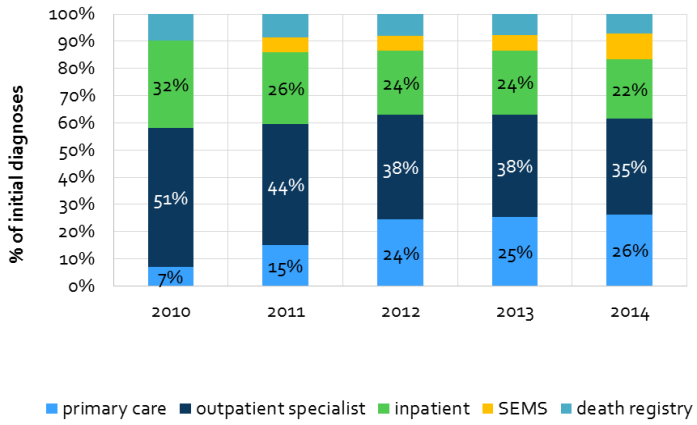
Table 9: Ten most frequent manipulations of patients diagnosed with depression in 2014

Manipulation	Manipulation code	Number of manipulations	Percent of all manipulations
Glucose in the blood	41095	16,682	4.21
Erythrocyte sedimentation rate, using a special sampling kit	40016	14,484	3.66
ALT - Alanine aminotransferase	41022	14,002	3.53
Creatinine	41006	13,915	3.51
Blood analysis with 5 parts discriminatory blood analyzer	40041	13,277	3.35
Suspected neoplasm of breast: digital technologies for X-ray examinations	50105	11,587	2.92
AST - aspartate	41023	11,143	2.81
Urine analysis with test strip (9-10 parameters)	40148	10,297	2.6
Thyroid-stimulating hormone (TSH)	41142	9,283	2.34
CRO quantitatively	41127	9,190	2.32

Source: NHS outpatient data

67. Patients diagnosed with substance abuse have substantially less contact with the health care system, and the data suggest that they are not being diagnosed or managed in primary care settings. Figure 38 shows that only a quarter of all diagnoses in 2014, for instance, first took place in a primary care setting, while non-trivial fractions appeared for the first time with a substance abuse diagnosis in the death registry (7 percent), in emergency services (10 percent), and inpatient settings (22 percent).

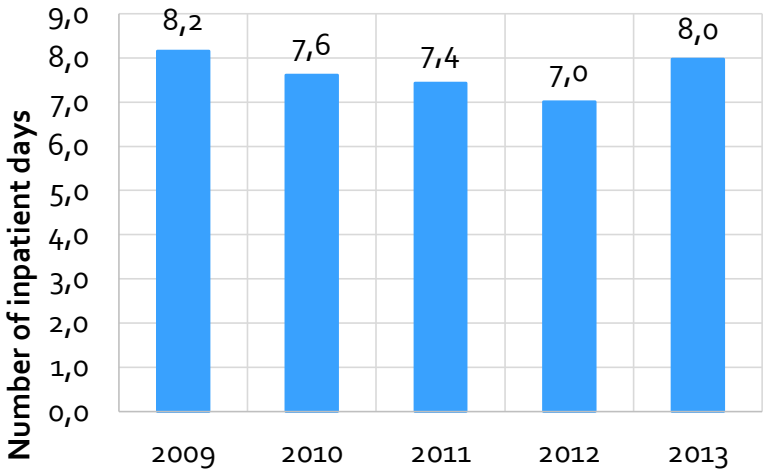
Figure 38: Location of initial diagnoses of substance abuse, by year



Source: NHS outpatient and inpatient records, SEMS emergency call data, death registry

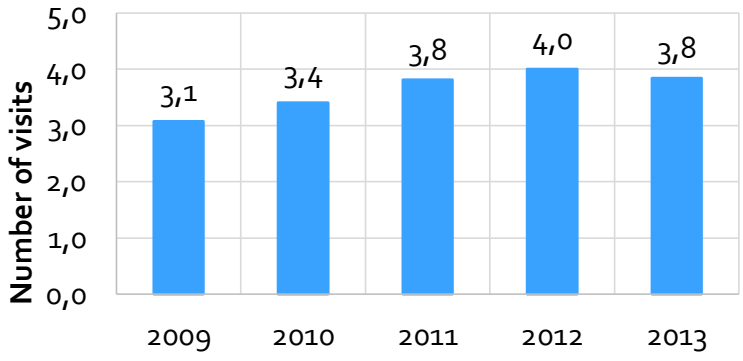
68. Patients diagnosed with substance abuse problems spend a similar amount of time in inpatient settings as patients diagnosed with depression, as shown in Figure 39. They also make much fewer primary care and specialist visits (Figures 40 and 41), and there appears to be very little opportunity for follow-up care. Only around 30 percent of those diagnosed with substance abuse issues make contact with a primary care or specialist provider within 30 days after a hospitalization, and only around 40 percent within 90 days (Figure 42).

Figure 39: Average number of inpatient days among patients diagnosed with substance abuse, by year



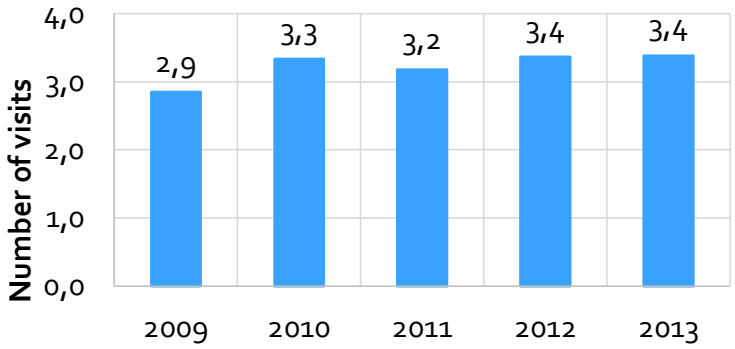
Source: NHS inpatient records

Figure 40: Average number of GP visits among those diagnosed with substance abuse, by year



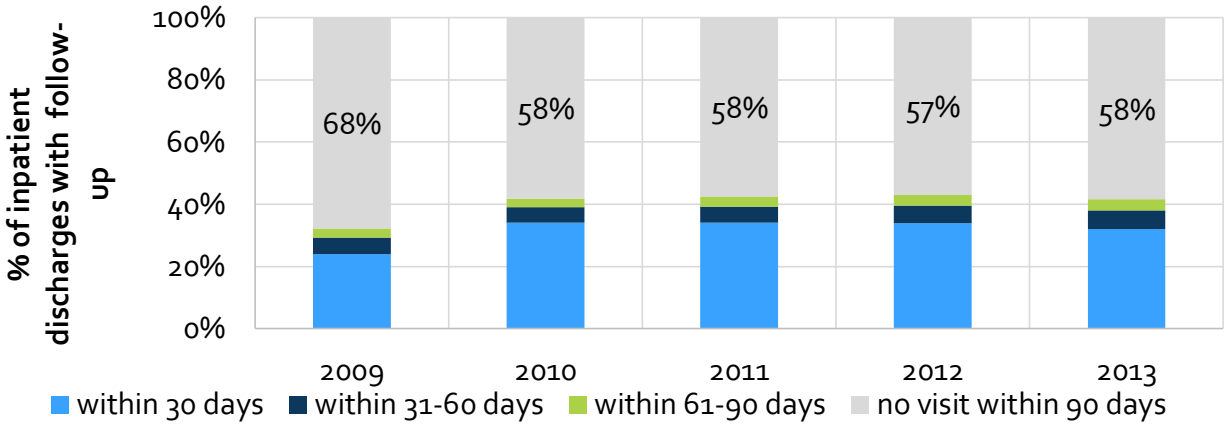
Source: NHS outpatient records

Figure 41: Average number of specialist visits among those diagnosed with substance abuse, by year



Source: NHS outpatient records

Figure 42: Percentage of substance abuse discharges with follow-up care, by year



Source: NHS outpatient records

69. An analysis of the outpatient visits that they do make suggests that substance abuse patients have a very similar profile to those diagnosed with depression. That is, the top ten most frequent manipulations among these patients suggest that they are diabetics or women suspected or diagnosed with breast cancer, which again highlights the importance of comorbidities for mental health in Latvia (Table 10).

Table 10: Top ten outpatient manipulations for patients with a substance abuse diagnosis in 2014

Manipulation	Manipulation code	Number of manipulations	Percent of all manipulations
Glucose in the blood	41095	16,493	3.93
Suspected neoplasm of breast: digital technologies for X-ray examinations	50105	16,490	3.93
ALT - Alanine aminotransferase	41022	16,285	3.88
Creatinine	41006	15,029	3.58
Blood analysis with 5 parts discriminatory blood analyzer	40041	13,973	3.33
Erythrocyte sedimentation rate, using a special sampling kit	40016	13,345	3.18
AST - aspartate	41023	13,069	3.11
CRO quantitatively	41127	10,871	2.59
Radiography examinations in two projections	50013	9,226	2.2
Urine analysis with test strip (9-10 parameters)	40148	8,696	2.07

8. Moving forward

70. Table 11 summarizes the challenges Latvia faces with respect to its benefits package and the way service delivery is currently organized. Many of the proposed solutions require developing clinical guidelines and clinical pathways, increasing the number of services that the NHS purchases, and further analyses to identify appropriate prices, quotas, or other cost-containment strategies that do not jeopardize patients' access to essential services and medicines.

Table 1: Summary of challenges, potential solutions, and enabling actions

Issue	Challenges	Potential solutions	Enabling actions
Service coverage	1. A majority of hypertension and diabetic patients do not receive services that are in the benefits package in priority disease areas	Clinical guidelines and clinical pathways that specify which examinations, diagnostics, and treatment patients should receive at different levels of care.	Adaptation of clinical guidelines and clinical pathways for Latvia from international experience (e.g. NICE in the United Kingdom), starting with priority diseases, and inclusion of guideline elements in the benefits package. Experimental pilots among GPs, specialists, and hospitals to (i) test impact of guidelines and pathways and compare modalities of implementation and (ii) troubleshoot implementation problems prior to scale up.
	2. The benefits package does not include essential treatment for depression.	Psychotherapy in outpatient settings in the benefits package.	

	3. Depression is underdiagnosed.	Clinical guidelines for diagnosing, treating, and managing depression at the primary care level	
Financial coverage	4. Out-of-pocket payments in Latvia are high, and their share in total health expenditures puts Latvia at par with low-income countries	Increase funding going towards paying for health services and medicines by increasing public health expenditures and identifying low-value care.	Identification of low-value care in Latvia.
	5. Current reimbursement rates for medicines may be reducing drug adherence to levels that are not medically effective.	Set medicine reimbursement rates that take into account required drug adherence for medical effectiveness	Experimental pilots with drug reimbursement rates to identify prices that sustain sufficient drug adherence for medical effectiveness.
Population coverage	6. There is cyclical variation in access to services that coincides with temporal variation in quotas. Patients are not getting care when they need it.	Set quotas that reflect medical need. Eliminate quotas for services for which delays jeopardize a patient's health, such as biopsies. Implement partial reimbursement for services offered above a quota.	Compile data on all services provided through the NHS and those provided for a fee to accurately estimate medical need. Identify services for which quotas interfere with timely access to essential services.
	7. The poor have lower access to services.	Increase income threshold for copayment exemptions Separate quotas for services provided to poor patients.	Experimental pilots among patients and providers to test impact of expanding copayment exemptions and setting separate quotas for poorer patients.
Service delivery model	8. There is little health promotion occurring in primary care settings	Clinical guidelines that include health promotion	
	9. Patients with substance abuse diagnoses are rarely identified in primary care settings and they make relatively little contact with the health system.	Clinical guidelines and clinical pathways for diagnosing substance abuse and directing patients to appropriate care at appropriate levels.	

71. As argued in the accompanying review of provider payments in Latvia, the development of clinical guidelines and clinical pathways and a method for linking them to provider payments should be considered one of the highest priorities for the health sector in Latvia. These guidelines and pathways would not only be a crucial component of quality assurance but they would also help anchor the benefits package and service delivery model to medical need, rather than the vagaries of a budget determined outside the health sector. Linking them to provider payments would help ensure their implementation. Given that the development of clinical guidelines has been relatively decentralized so far and that the NHS does not endorse the guidelines that have been developed nor commit to fund any of their elements, acting on this recommendation would likely require an entirely new effort with a multidisciplinary team with a mandate to consult various stakeholders within Latvia, adapt guidelines and pathways in use elsewhere (for example, the NICE guidelines from the United Kingdom) for use in Latvia, and identify indicators from the NHS payment

databases that would trigger payments. This process, along with pilots to make refinements prior to nationwide scale-up, could easily require a time allocation of 2 years.

72. A second major priority should be an increase in the number of services purchased by the NHS so that quotas do not dictate when patients receive essential care. This increase in services would ideally be accomplished in two ways: an increase in health sector funding and more efficient use of existing funding. The health system is currently underfunded. Table 12 presents health expenditures across a number of comparator countries, and as with out-of-pocket payments, the fraction of GDP that Latvia spends on health puts it in league with countries with much lower income.

73. It is important to note that increasing the total budget envelope for health itself could also eliminate some of the efficiencies that have been observed. For example, greater access to services in the primary and ambulatory specialist settings could reduce consultations and diagnostics that occur through emergency services.

Table 11: The composition of health expenditure in 2013, by country

	(1) Public expenditure on health (% of GDP)	(2) Per-capita expenditure on health (Current US$)	(3) Public share of total health expenditure	(4) Out-of-pocket share of private expenditure
Latvia	3.54	874.28	61.91	95.71
Estonia	4.46	1071.61	77.87	85.36
Lithuania	4.15	965.56	66.57	97.62
Norway	8.18	9714.79	85.46	95.95
Sweden	7.91	5680.33	81.48	88.13
Finland	7.08	4449.13	75.28	74.99
Denmark	9.07	6269.54	85.36	87.35
United Kingdom	7.62	3597.92	83.54	56.44
High income: OECD	7.78	5401.01	61.44	35.28
High income: non OECD	2.89	984.76	54.91	84.60
Upper middle income	3.51	465.89	55.98	72.43
Lower middle income	1.59	82.21	37.37	86.98
Low income	2.64	37.38	41.49	69.53
EU	7.82	3459.94	77.31	61.20

Source: World Development Indicators, 2013

74. There are likely additional opportunities for increasing the efficiency of existing health resources. Identification of low value care, for example, could help identify services that are currently covered under the benefits package that may provide little medical benefit. The *Choosing Wisely* initiative of the American Board of Internal Medicine in the United States, for example, works through numerous medical societies to identify current medical practices that provide little medical value. Table 12 presents a number of recommendations that may be relevant for Latvia. Solutions from the domain of e-Health, such as an electronic health record, could also help prevent duplication of tests.

Table 12: Low-value care

Diagnostic/treatment	Recommendations	Reasoning	Source
Induction/C-section	Don't schedule elective, non-medically indicated inductions of labor or Cesarean deliveries before 39 weeks, 0 days gestational age.	Delivery prior to 39 weeks, 0 days has been shown to be associated with an increased risk of learning disabilities and a potential increase in morbidity and mortality. There are clear medical indications for delivery prior to 39 weeks and 0 days based on maternal and/or fetal conditions. A mature fetal lung test, in the absence of appropriate clinical criteria, is not an indication for delivery.	American Academy of Family Physicians
PSA testing	Don't routinely screen for prostate cancer using a prostate-specific antigen (PSA) test or digital rectal exam.	There is convincing evidence that PSA-based screening leads to substantial over-diagnosis of prostate tumors. Many tumors will not harm patients, while the risks of treatment are significant. Physicians should not offer or order PSA screening unless they are prepared to engage in shared decision making that enables an informed choice by patients.	American Academy of Family Physicians
MRI for lower back pain	Avoid imaging studies (MRI, CT or X-rays) for acute low back pain without specific indications.	Imaging for low back pain in the first six weeks after pain begins should be avoided in the absence of specific clinical indications (e.g., history of cancer with potential metastases, known aortic aneurysm, progressive neurologic deficit, etc.). Most low back pain does not need imaging and doing so may reveal incidental findings that divert attention and increase the risk of having unhelpful surgery.	American Society of Anesthesiologists – Pain Medicine
Routine stress testing after PCI	Avoid performing routine stress testing after percutaneous coronary intervention (PCI) without specific clinical indications.	In patients who have undergone successful revascularization with PCI and are now symptom free, routine screening via stress testing can lead to the performance of additional procedures with little clinical benefit. Therefore, testing should generally be limited to patients with changes in clinical status (for example: new symptoms or decreasing exercise tolerance).	Society for Cardiovascular Angiography and Interventions

Diagnostic/treatment	Recommendations	Reasoning	Source
Use of anti-psychotics	Don't prescribe antipsychotic medications to patients for any indication without appropriate initial evaluation and appropriate ongoing monitoring Don't routinely prescribe two or more antipsychotic medications concurrently Don't use antipsychotics as first choice to treat behavioral and psychological symptoms of dementia Don't routinely prescribe antipsychotic medications as a first-line intervention for insomnia in adults Don't routinely prescribe antipsychotic medications as a first-line intervention for children and adolescents for any diagnosis other than psychotic disorders.	Antipsychotic medications have tremendous benefits and improve the quality of life for many people with serious mental illness, however, they carry risks including potentially harmful side effects. Unnecessary use or overuse of antipsychotics can contribute to chronic health problems, such as metabolic, neuromuscular, or cardiovascular problems, in people with serious mental illness	American Psychiatric Association

Source: choosingwisely.org

75. Finally, more generally the health system needs to do a better job of ensuring universal health coverage – that is, access to high quality care and appropriate medication that does not depend on an individual's income or the timing of their illness. This will require experimentation to identify a schedule of quotas, copayments, and exemptions that reflects medical need and provides an adequate level of financial protection for the users of health services.

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Appendix 1

Diagnosis codes

Condition	Diagnosis codes	
	NHS/death registry	SEMS
Diabetes	E08 + all sub-codes E09 + all sub-codes E10 + all subcodes E11 + all subcodes E13 + all subcodes	201 201A 3010 301A 2010
Hypertension	I10 + all subcodes I11 + all subcodes I12 + all subcodes I13 + all subcodes I15 + all subcodes	344 344A 3440
Breast cancer	C50 + all subcodes D05.1 + all subcodes	319D
Cervical cancer	C53 + all subcodes D06 + all subcodes	
Colorectal cancer	C18 + all subcodes C19 C20 C7A.02 + all subcodes D01.0 D01.1 D01.2	
Depression	F32 + all subcodes F33 + all subcodes F34 + all subcodes F39 F31 + all subcodes F53	214 214A 2140
Suicide	X60-X84	

Manipulation codes

Examination, diagnostic, or procedure	Manipulation codes
Annual wellness check	01016 60404 60405 60231 01063 01004

Microalbuminaria	41101
Glucose test	41095 41096 41102 and 41103 41104 41105 41097
HgAIc	41103 41104 41105 41097
Creatinine	41006
ECG	06003 06004 06005 06013
Eye examination	Method 1: 01065 Method 2: 01065 + 17001-17120
Mammogram	50096 50097 50102 50105 50188 50189 50190 50191 50192 60258
Pap smear	42026 42027 42028 42029 42030 42031 42003 01063 01004
FOBT	40161 40173 40172
Biopsies	16001 16008 16147 18101 18243 20041 20059 20060 21021 31175

Calculation of fraction of household income per capita spent on medicines

For each patient that appeared in the reimbursable medicine database in 2014, their total spending on medicines was estimated, using the variable corresponding to "patient contribution." The top 1 percent of values dropped from any further calculations, and the remaining patients were merged with the 2014 earnings data provided by the State Revenue Service and the anonymized personal IDs and household IDs from the Census provided by the Central Statistical Bureau. For each household, household income per capita was calculated by summing earnings from wages and self-employment income and dividing by the total number of unique personal IDs mapped to a household ID. Among all patients, those with values in the top 1 percent of household income per capita were dropped from any further calculations. For each patient, the share of household income per capita spent on medicines was then calculated as total spending on medicines in 2014 divided by household income per capita.