



Where does the money go, **how** is the money used, and **what** are produced results in the health sector?

TRACKING the HEALTH RESOURCES in UKRAINE



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ACRONYMS

ALOS	AVERAGE LENGTH OF STAY
CMU	CABINET OF MINISTRIES OF UKRAINE
DFID	DEPARTMENT FOR INTERNATIONAL DEVELOPMENT
DRG	DIAGNOSIS-RELATED GROUP
ENT	EARS, NOSE, AND THROAT
FOP	AU: PLEASE SUPPLY
FTE	FULL-TIME EQUIVALENT
HR	HUMAN RESOURCES
IDP	INTERNALLY DISPLACED PERSON
IT	INFORMATION TECHNOLOGY
KIIS	KYIV INTERNATIONAL INSTITUTE OF SOCIOLOGY
LSA	LOCAL STATE ADMINISTRATION
MOF	MINISTRY OF FINANCE
MOH	MINISTRY OF HEALTH
NCD	NONCOMMUNICABLE DISEASE
PETS	PUBLIC EXPENDITURE TRACKING SURVEY
PFR	PUBLIC FINANCE REVIEW
PHC	PRIMARY HEALTH CARE
QSDS	QUANTITATIVE SERVICE DELIVERY SURVEY
R&D	RESEARCH AND DEVELOPMENT
RDA	RAPID DATA ASSESSMENT
SDCA	STEP-DOWN COST ACCOUNTING
SFI	STATE FINANCIAL INSPECTION
SPSS	AU: PLEASE SUPPLY
STS	STATE TREASURY SERVICE
TB	TUBERCULOSIS
UAH	UKRAINE CURRENCY
UNDP	UNITED NATIONS DEVELOPMENT PROGRAMME

EXECUTIVE SUMMARY

BACKGROUND

While Ukraine has spent a significant amount of resources on health, its health outcomes fare poorly when compared with other European countries. For example, average life expectancy at birth in Ukraine has improved from the lowest, 66.8 years in 1995 to 71.4 years in 2016, but is still nine years behind the EU average of 80.6 years. The country has much higher death rates related to noncommunicable diseases (NCD) than the neighboring countries on their west. The suboptimal health outcomes point to the inefficient use of public resources, which is magnified by the shortage of funds during the recent economic crisis and conflicts. However, although the Public Finance Review (PFR) has been conducted recently to assess the allocation and effectiveness of public spending, there is no study to track the resource flows in order to identify the magnitude of the inefficiency and waste in the health sector.

This study aims at tracking the resource flows and identifying inefficiencies in the allocation and use of public resources in Ukraine's health sector. It examines potential bureaucratic capture, resource leakage, and problems in the deployment of human and in-kind resources, and provides practical recommendations for improvement.

The study was conducted in partnership between the World Bank, UNDP, and the Kyiv School of Economics. The Kyiv International Institute of Sociology conducted fieldwork in 2016 and 2017 among primary health care (PHC) facilities, hospitals, and health administrations in selected rayons (administrative divisions) of Poltava and Lviv oblasts, as well as in government-controlled areas of Donetsk and Luhansk oblasts.

This report summarizes findings from the Public Expenditure Tracking Survey (PETS) and Quantitative Service Delivery Survey (QSDS). For the survey, data were collected from interviews with local health care officials, managers, and physicians of sampled health care facilities in the four regions, and reviews of treasury reports on central and local budgets, as well as in-depth expenditure and cost analyses at the hospital and facility levels.

MAIN FINDINGS

The main findings of the study are organized in the following categories: (i) planning and allocation of health resources, (ii) analyses of leakages, (iii) resource use, and (iv) incentives, parallel employment, and the financing system. Overall, the findings suggest that despite stringent existing controls to make financial flows in the formal sector accountable, resources are used differently by providers, mostly to cover wages and

utility bills. The current system is providing inadequate incentives that are associated with various inefficiencies in resource use and the creation of shadow parallel financing flows, which affects the quality and accessibility of health services.

Planning and allocation of the health budget

Public financing contributes to only about half of total health expenditure in Ukraine. Public health spending of USD 77 (2015) in per capita terms is the lowest among European countries. During the latest economic and political crisis, the health budget as a share of the total budget declined to 9 percent in 2016 from 12 percent in 2013.

The limited health budget is mostly consumed by one of the most oversized hospital infrastructures in Europe, with 0.4 hospitals, 7.4 beds, 4.4 physicians, and 8.6 nurses per 1,000 people. Lviv oblast, with 8.6 beds per 1,000 people, presents one of the highest bed ratios among Ukrainian regions.

The execution rate of the planned health budget is relatively low despite excessive control and regulations, but has increased somewhat in the last two years. In 2014, the health budget execution rate was 88 percent, progressing to 94 percent and 96 percent in 2015 and 2016, respectively. Still, the 4 percent execution gap in 2016 represented 3 billion hryvnias (Ukraine currency) of the planned budget not allocated to the health care sector.

Health sector spending is biased toward hospital services instead of primary health care, which provides low-cost preventive care. General and specialized hospitals represent 64 percent of the public health budget, while PHCs receive about 10 percent. In the Donetsk oblast, for example, 70 percent of the budget is allocated toward hospital care, while PHC services represent only 13 percent. Separately standing secondary and tertiary care outpatient facilities are allocated 3 percent and 6 percent, respectively.

Complementary funding of the MoH budget by local administrations, representing on average one-fourth of total public health expenditure, varies significantly from one oblast and rayon to another. Oblasts and rayons with larger tax revenues (i.e., those which have profitable enterprises in their territory) tend to provide more health care funding than others with less local revenues.

Inequality in health expenditure across oblasts and rayons are associated with the historical input-based financing system, which is designed to support the existing infrastructure and staff. While in some rayons facility optimization has already been implemented (for instance, Mykolaiv rayon in Lviv oblast), in most rayons staffing schedules based on the number of beds and fixed maintenance costs affect overall costs and introduce inequalities across localities.

Budgetary resources allocated to health facilities are essentially based on expected input levels for specific facility types and sizes, without reference to actual output levels. **Hence, health facilities of similar size and levels tend to receive similar budget allocations,**

despite differences in service types and volumes, as well as in performances.

Furthermore, performance-based incentives or penalties are not currently in practice in the current allocation of resources.

The spending patterns in different expenditure categories (e.g., personnel, medication) show significant variations across localities. Human resource expenditure, which constitutes the largest share of the health budget (about 60 percent), presents significant variations at the regional level, despite centrally regulated wage scales and hiring norms for health personnel. This variation is mainly associated with different compositions in types of health personnel and non-medical staff across regions.

Final budget allocation to decentralized levels is often decided with delays, affecting health providers' financial management. Oblast, rayon, and municipality budgets are usually approved in January to February of the current year, after the central government budget is adopted and the amounts of medical and educational subventions are communicated to local governments. Decentralized health administrations and health providers are hence informed of their budgets after the beginning of the fiscal year (which runs January 1 to December 31), which affects financial management.

Centrally supplied medications for health facilities show unpredictability, affecting service delivery. Even when information is available at the facility level about the nature and quantities of drugs and medical supplies expected from a centralized supply, there is little confidence on dates of delivery, and that affects continuity and quality of services.

Analysis of leakages

Based on an analysis of treasury accounts in the four regions and a case study in Poltava oblast, the study did not find evidence of direct leakage. Despite a small number of inconsistencies observed in the data, the absence of evidence of leakages could be associated with financial allocations and usage being controlled through treasury accounts. Each public facility, as well as health administration units (oblasts, rayons, and municipalities), have their own treasury accounts, which forms a vertically integrated electronic payments system where all revenues and disbursements are registered. This budget management system integrates various control and verification mechanisms, reducing risks of unaccounted for public funds at all levels.

The absence of direct leakages in financial transfers between the state and lower administrative levels in the health system, however, does not imply absence of leakages in other forms in the health sector. The leakages could exist in particular within in-kind transfer flows, such as drugs, equipment, and materials, which were not examined in this study. The possibility of other potential sources of leakage from the local budget, special funds, and patients' out-of-pocket payments also cannot be ruled out. Furthermore, other forms of rent capture, such as "kickback" payments for winning tenders, private capture, and reselling of drugs and materials, etc., were also not examined in this study.

Use of available public resources

Rigid budget category guidelines restrict hospitals and health facilities' capacity to manage spending according to needs and resource availability. Until 2017, there was no flexibility for the management of the hospitals to reallocate funds between line items until the local councils approved reallocations. This gave little to no incentive to optimize costs across categories, or plan spending according to the actual needs. In addition, very few resources were allocated to capital investments and maintenance of capital assets. Therefore, facilities tried to use additional accounts (other than a single treasury account) to accumulate funds, which they could spend with more flexibility. Data on inflows and outflows of funds for several facilities in Poltava oblast showed that while salaries were completely financed by state or local budget funds, between 37 to 40 percent of medication expenditures were financed by sources other than the single treasury account. These could be either special fund account or some other "charitable" accounts that a facility holds.

The existing budget execution system does not give local authorities and hospitals much financial management power. Although the decision-making power on how the medical subvention should be spent stays within each local authority, there is little room for actual fund management because of the numerous and rigid norms in practice. For example, central level policies are used to dictate the maximum number of hospital beds, salary scales, etc. Although some of the norms have been removed, the financing system remains rigid and plagued with inertia.

Service providers' budgets are mostly spent to cover wage and utility bills.

Respondents in sampled facilities reported insufficient public funding was used mainly to cover staff salaries and utilities, with little left for maintenance of equipment, consumables, and medication.

The management of the medication budget faces various inefficiencies related to poor planning, untimely expenditure and purchase, and delivery sometimes not linking with priority needs. Physicians and managers interviewed have reported drug supplies to be unreliable, and therefore, facilities cannot effectively plan essential medication procurement. For example, centralized drug procurements are often delivered with delays, which are not properly explained to facilities, and the actual supplies delivered may differ from the expected delivery.

Despite spending on average 10 to 11 percent of their budget on medication, and receiving about the same value of medication in kind from the central drug supplies, health facilities face shortages of essential medication. Overall, about 50 percent of the staff surveyed reported periodic shortages of drugs at the hospital and PHC levels. In most facilities, less than 25 percent of medication needs are reported covered, with

only special social categories of patients having secured access to drugs. About two-thirds of physicians report asking patients to buy drugs on their own, and more than a quarter of physicians reported sometimes buying medical supplies and drugs for patients themselves.

Significant productivity differentials are observed among hospitals and other provider types across regions. For instance, one secondary care municipality hospital in the oblast of Lviv treated 69 percent more patients per 100,000 UAH, Ukraine currency, of expenditure in 2015 than the same type of facility in the oblast of Poltava. Furthermore, important health staff workload differentials are also observed across facilities and localities. For instance, in a district secondary care facility in Poltava, the number of visits to the outpatient surgery (consultation) unit was 2.4 more than in a similar facility in Lviv.

While these differences in health staff and facility-level productivity could sometimes reflect overreporting by the physician respondents on the number of services, in other cases, the load reported is so low that it is questionable whether it is cost effective to maintain the unit. For instance, the lowest number of cases treated per day in our sample has been reported in a Lviv district secondary level facility at 8 patients per day (per 100,000 population of the capture area), and the maximum in another comparable Lviv facility at 65 patients per day.

Associated with these productivity gaps, substantial cost differentials are observed across facilities and regions. For instance, cost differences reach a factor of 5 to 1 between the most and the least expensive feldsher points of Poltava and Lviv aggregated sample, while cost differential of visits in Poltava and Lviv is 1.6 to 1.

These cost differentials among facilities and regions lead to inequity in health care access across different localities. The access of residents in different oblasts and rayons depends on facilities' overall efficiency as well as local authorities' financial support. Humanitarian and socioeconomic consequences of the military conflict created significant challenges to access health care services in Donbas.

Incentives, parallel employment, and financing structures

Salaries of health personnel are far below expected levels, which could affect health workers' productivity and staff moral, and generate inadequate incentive and alternative behaviors, such as moonlighting and informal payments. Physicians, in particular, report that their expected salary is only 33 percent of the actual level in the most moderate cases.

Moonlighting affects a large proportion of health facility staff. In hospitals' inpatient departments, about 4 out of 10 physicians and 1 out of 3 in outpatient departments occupy other jobs, often not necessarily related to the health sector. By facility type, 47 percent of physicians at oblast-level hospitals, 32 percent in rayon-level facilities, and 28 percent of physicians at primary health care report moonlighting activities. Such parallel employment may affect staff availability, productivity, and service provision.

The lack of public resources from central and local governments also give rise to a parallel system of cofinancing of health services. In some cases, the cofinancing system is legitimate and regulated by the MoH—including charity payments from patients, business enterprises, and international organizations, and from a likarniana kasa a quasi-insurance scheme. In other cases, the parallel system, which likely emerged to circumvent restrictive official procedures (e.g., rigid budget line categories) and to supplement insufficient state financing, is shadowed. It includes, for example, informal out-of-pocket payments for services.

Revenues accruing to the “charitable account,” which can represent from 5 to 25 percent of a facility’s budget, are generally not accounted for, nor transparently managed at the facility level, despite their importance. As reported by physicians and managers, most of these additionally generated funds tend to be used for the maintenance of equipment and infrastructure, or for the purchase of essential medication. However, actual use of these resources remains unclear as they are not formally accounted for at the facility level or reported in official treasury accounts.

The parallel system of financing is associated with patients often being required to cofinance their treatment. Respondents report that about 50 percent of patients provide informal payments. While the survey did not collect information on fees (formal and informal) paid at the facility level, out-of-pocket fees for services are reported to be substantial.

In addition, patients often have to bear costs for medication officially covered by the health budget in the presence of stock outs at the facilities. Indeed, according to the survey, 63 percent of physicians report asking patients to purchase the required medications when they are unavailable in the health care facility.

The non-transparent parallel out-of-pocket fee systems can have a negative impact on patients' access to care. Even when asked to pay for a service officially to the health facility cashier, patients might not be able to differentiate between what is legally required and what is technically optional (informal). Furthermore, while it is not known exactly how much additional funds patients are requested to contribute, as well as whether such informal contributions are compulsory to obtain access to health care services, the prevalence of parallel financing systems raises the question of equitable access to health care and its quality.

Suggestions and recommendations

We identified several suggestions and recommendations to improve the health financing component of the health system, including the use of public funds. Some of the recommendations are more strategic, therefore requiring implementation of systemic reforms, while others are more operational. Operational recommendations can be introduced at the lower levels, such as at regional health administrations or health facilities.

Key recommendations:

As confirmed by the study, health facility outputs are not linked to the public resources they receive. It is recommended to accelerate the implementation of the health financing reform, as defined in the **new health financing concept developed by the MoH and endorsed by the government, including a shift toward results-based financing.**

Implementation of output-based contracting will allow linking specific outputs of health care providers to their revenues and thus improving both quality of service and efficiency of resource use.

It is currently unclear what volumes and what types of cases are expected to be taken care of by each specific type of health facility. Duplication of service delivery is observed, leading to unnecessary duplication of capacities. **Explicit definition of health benefit packages, together with implementation of contracting mechanisms, will help better channel available public resources to provide guaranteed services to citizens.** This will also help to clarify for patients the guaranteed level of coverage by the state budget and influence the uncertainty of expected contributions from the patients.

As reported in the key findings, a parallel health facility financing structure exists in the form of (formal and informal) charity contributions managed at the facility level. It could be that patients generally accept the idea of cofinancing health services by making additional payments to providers. However, the existing mechanisms are not transparent. **Formalizing co-payment mechanisms can help cover financial gaps and make providers more accountable for the additional revenues.** Moreover, allowing health care providers to officially charge for services outside the guaranteed package would encourage patients to buy insurance policies, and for hospitals to accept payments from insurance companies.

As observed in this study, stringent control in financing health facilities does not result in better efficiency of health spending. **Providing more flexibilities and autonomy in financial management can actually stimulate more rational spending at the decentralized level.** We suggest that after ensuring a minimum standard of services and quality across regions, providers be given more freedom to manage resources by: deciding the number of staff and their salaries, controlling the load, and linking the intensity and volumes of care to other required inputs. A large potential for savings lies in optimizing the facility network, space within facilities, and utility payments. Improved financial management skills and routine use of simplified cost accounting tools can help providers better use available resources in the organization and management of facilities.

Uncertainties that currently exist at the local and facility levels regarding financing, as well as budgeting on an annual basis, reduce the possibility for strategic longer term planning at the oblast and rayon/city levels. **A shift toward a three-year medium-term budget would help provide greater clarity on budget limits at the local and facility levels and incentives to improve efficiency and health provision.**

There is no publicly available information or register of health financing approved or actual budgets. Access to expenditure data from health facilities is only possible through specific official requests, and only aggregated data, without department-specific expenditures. **It is recommended to start publishing expenditures for all types of facilities at the level of clinical departments together with selected performance indicators (e.g., number of discharges for hospitals, outpatient visits for specialized polyclinics, and number of population served at primary care facilities) to ensure better transparency and accountability of health care providers.** Access to data and benchmarking the performance of different facilities are two effective mechanisms to improve efficiency of service delivery.

At present, data on health facility performance, expenditures, and human and other resources are kept in various registers, without electronic data exchange, leading to slow and non-transparent information flows. The financing entity responsible for health care expenditures needs to have direct electronic communication with health providers and have actual data on key performance indicators. **Speeded up implementation of electronic exchange of data will help improve accountability in outputs and better link costs to provided services.** Information technologies may be used as an effective tool to reduce inefficiencies in planning, allocation of resources, and analyses of patients' outcomes.

Health facility managers and physicians report that they cannot adequately plan deliveries from centralized procurement. Because of frequent shortages, patients bear a high burden through out-of-pocket payments for the essential but unavailable medications or consumables. **It is recommended to continue improving public procurements efficiency, increase supplies of medicines, and expand the effective reimbursement programs of medication at the out-patient level.** It would also be useful to monitor drug stocks at the facility level in order to: (a) have actual information at the central level about available drugs; and (b) inform medical professionals and patients about access to medical products in health facilities.

1. INTRODUCTION

Evidence has shown that the shortage of public resources in the Ukrainian health sector is magnified by their inefficient use. The issue of better governance and more efficient use of the existing resources in the sector hence becomes a priority for improving health services and producing better health outcomes.

This study aims at identifying inefficiencies in the allocation and use of public resources in the health sector in Ukraine. It makes use of a Public Expenditure Tracking Survey (PETS) combined with a Quantitative Service Delivery Survey (QSDS) to examine potential bureaucratic capture, resource leakage, and problems in the deployment of human and in-kind resources, and provides practical recommendations for improvement.

In 2016, the World Bank commissioned the Kyiv School of Economics to conduct a PETS/QSDS among a sample of health care facilities in Lviv and Poltava oblasts. Interviews among local health care officials, as well as facility managers and physicians, were to be complemented with the analysis of financial and budgetary reports and statistics at the national and regional levels.

The geographical coverage of the study was extended in November 2016, with financial support of UNDP, to areas of Donetsk and Luhansk oblasts under governmental control. The objective was to increase regional representation and investigate the use of public funds and quality of health services in the armed conflict zones. This second round of the PETS/QSDS study was implemented using the same methodology and general approach as during the first round.

This report presents the results of the PETS/QSDS conducted in the four regions, as well as reviews of treasury reports on central and local budgets, and in-depth expenditure and cost analyses at the hospital and facility levels.

The main findings of the study relate to planning and allocation of health resources, resource use, and incentives, parallel employment, and financing systems. They suggest that despite stringent control, scarce resources and inadequate incentives lead to various inefficiencies in resource use, thereby affecting quality and accessibility of health services.

1.1 Context and objectives

Although the Government of Ukraine is spending a significant part of public resources on health, health outcomes remain unsatisfactory. In particular, life expectancy of 71.2 years (2015) is much lower than on average in Europe (79.6 years). People have to directly cofinance health services through out-of-pocket spending almost at the same level as the government, putting many households at risk of catastrophic health care expenditures.

Currently, public health spending of USD 77 (2015) in per capita terms is the lowest among European countries. During the latest economic and political crisis, the health budget as a share of the total budget declined to 9 percent in 2016 from 12 percent in 2013.

In the near future, Ukraine will likely continue to experience a shortage of resources to adequately finance health services. Indeed, given the weak economic perspectives and ongoing military conflict in Eastern Ukraine, it is unlikely that the level of health spending will considerably increase anytime soon. Moreover, even if Ukraine pours more resources into the system, there are serious doubts that they will translate into better health outcomes. For instance, between 1995 and 2010, the level of per capita health spending in Ukraine more than doubled in constant international dollars. However, health outcomes worsened during the same period (with the exception of maternal and child health).

The most plausible explanation for this weak relationship between health expenditures and outcomes is inefficient use of resources in the health sector. In particular, the relatively small public health spending supports one of the most oversized health infrastructures in Central Europe, with 0.4 hospitals, 7.4 beds, 4.4 physicians and 8.6 nurses per 1,000. Lviv oblast, with 8.6 beds per 1,000, presents one of the highest bed ratios among Ukrainian regions.

A previous World Bank study “How is it working?” (2015) identified planning, budgeting, and financial management in the Ukrainian health sector as major areas requiring better governance. Furthermore, reform of the health sector is one of the priority areas for the government. The recently endorsed Health Financing Concept defines the need for new financing mechanisms in the health sector.

At the request of the government, the World Bank supported the analysis of public expenditure toward health facilities in selected rayons of Lviv and Poltava oblasts using PETS and QSDS survey tools. The geographical coverage of the study was later extended to areas of Donetsk and Luhansk oblasts under governmental control with UNDP support.

In comparison with the rest of the country, military occupation of parts of Donetsk and Luhansk oblasts in 2014 worsened the socioeconomic situation in these oblasts. Because both oblast centers were in occupied territories, some oblast-level health facilities were not financed nor controlled by the Ukrainian administration, while services

in others were transferred toward government-controlled area hospitals. **These facilities now confront equipment and infrastructure shortages as well as financial constraints due to lower tax revenues in these oblasts.** Concurrently, given the conflict, larger than usual flows of donor and humanitarian assistance have been available to fill the gap.

The main objective of the study is to assist the government in identifying existing inefficiencies in health financing and use of public funds in the health sector. The PETS and QSDS instruments have proven useful in identifying bureaucratic captures, leakages, and problems in the deployment of human and in-kind resources. PETS traces financial and material flows from the Ministry of Health (MoH) and local governments to hospitals and health facilities with the purpose of identifying inefficiencies and potential leakages that could reduce the quantity of resources reaching frontline service providers. QSDS additionally explores service delivery and resource use, budget planning and execution, and prevalence of supplementary financial flows.

2. STUDY METHODOLOGY

This chapter presents the study methodology. It discusses the research questions, the sampling strategy, and survey instruments.

A. STUDY STEPS AND INSTRUMENTS

The study relied on various instruments and proceeded in multiple steps. An initial desk review of health care institutional arrangements, financing, and policy context was realized to understand the policy and administrative arrangements governing the allocation of resources within the health sector. Following the definition of the survey scope and design of survey instruments, semi-structured interviews using PETS/QSDS survey instruments were conducted among oblast and rayon-level health care administrations in Lviv and Poltava oblasts, as well as managers and physicians at the facility levels, to understand actual practices and procedures in the health system.

The instruments were revised for the second wave of the survey in Donetsk and Luhansk oblasts that took place in December 2016. In particular, revisions included adaptations for the introduction of the Prozorro e-procurement system in August 2016. Some questions were structured (closed) while still allowing respondents to provide comments on most questions. Furthermore, a section was included on the impacts of the armed conflict and humanitarian crisis in the government-controlled areas of Donetsk and Luhansk oblasts.

The PETS/QSDS survey instruments were complemented with financial data from public reports and special financial data requests to the Treasury. These included facility balance sheets, budget reports, treasury accounts information, and special requests to formally track facilities' inflows and outflows. Facility-level costs and output data were used to study facility performance using a step-down cost accounting (SDCA) approach, comparing the cost of services and cost structure across health facilities.

B. RESEARCH QUESTIONS AND APPROACH

Various research questions and hypothesis are examined throughout the study, in particular:

1. Are planning and allocation of resources toward service providers efficient? To assess the resource planning process toward service providers, the stakeholders were identified, as well as the various factors considered in the planning process and the main decision-making points. The information is based on in-depth PETS/QSDS interviews of the oblast- and rayon-level health care administrations, facility managers, and physicians.

Interviews also provided information on resource allocation (whether facilities receive everything they need, and, if there are shortages, what the reasons are and how they are addressed) and timeliness of disbursement. Regularity and delays of payments toward decentralized administrations and facilities were also studied.

2. How does public funding reach frontline facilities? Are there potential leakages from the central budget to actual medical service providers?

This issue was investigated in three steps. The aggregated country-level expenditures were first analyzed. Then, financial data from the State Treasury Service (central level) and local state administrations (at oblasts and rayon/city levels) for all four oblasts and all subordinated rayons/cities were aggregated and compared. Finally, a single case study in a randomly chosen rayon (Poltavsky rayon in Poltava oblast) was conducted to assess resources reaching facilities, and then compared to total health care expenditures of facilities (derived from facilities' balance sheets) and rayon health care expenditures, as reported by the local treasury department.

3. Are personnel allocation and time use efficient? We analyzed whether facilities have enough personnel, and whether personnel allocation is efficient, as well as human resources usage. In particular, physicians-managers at hospital and facility levels were asked whether they would like to modify the number of staff, composition, or allocation across departments at their facilities or if the current allocation was optimal. Physicians were asked to provide details of their work schedule, including the average number of patients admitted per shift, whether they work elsewhere or overtime, and how much time they spend per patient on average.

4. What are the service cost variations between similar facilities and how could these differences be explained?

To answer these questions, expenditures of the health facilities in the sample were analyzed using a cost-accounting methodology and step-down allocation of costs to the service centers. It allowed for estimation of cost per service at the facility level and comparison of costs across facility types.

5. Are health professionals aware of planned health care reforms, and if so what are their opinions about these reforms?

To answer these questions, the PETS/QSDS instruments included a set of questions to stakeholders on proposed health care reforms (see Box 1 for an overview of current reforms). In addition, an open-ended question was asked to respondents on possible ways to increase service delivery efficiency.

C. DATA SOURCES

The main primary and secondary data sources used in this study are as follows:

PETS/QSDS survey data

The Kyiv School of Economics, in cooperation with the World Bank, customized the public expenditures tracking survey (PETS) and Quantitative Service Delivery Survey (QSDS) instruments. Prior to the fieldwork, a training for interviewers was organized. Questionnaires were tested during a pilot stage among all categories of respondents (not a part of the sample). A team of interviewers from the Kyiv International Institute of Sociology (KIIS) then conducted the two waves of the survey. The first wave of the survey in Lviv and Poltava took place between June 14 to July 31, 2016, and the second wave in Donetsk and Luhansk in December 2016.

Ukrainian and Russian versions of the questionnaires were used during fieldwork.

The instruments were made of four different questionnaires, corresponding to the type of respondents:

- 1 Oblast health management team questionnaire
- 2 Rayon/municipality health management team questionnaire
- 3 Health facility management questionnaire
- 4 Health worker (physician, paramedics, nurse) questionnaire

The survey questionnaire consisted of the following parts:

- 1 Resource planning
- 2 Resource flows (except questionnaire 4)
- 3 Resource utilization
- 4 Financial supervision from the central and oblast/rayon government (except questionnaire 4)
- 5 Shortages of resources
- 6 Budget adjustments (except questionnaire 4)
- 7 Performance (questionnaire 4 only)
- 8 Current and planned reforms
- 9 Socio-demographic profile of the respondent (except questionnaires 1 and 2)

Scope and sampling

The PETS/QSDS survey was limited in scope. It was administered in four selected regions. Lviv oblast in the western part of the country and Poltava oblast in the center were initially selected in the first round of the survey. The government-controlled areas of

Donetsk and Luhansk oblasts were selected for the second round of the survey. It should be noted that these two regions were combined for sampling purposes and presented together in the report.

During the first round of the survey, interviews were conducted in 25 locations and 37 points of health service delivery in the Lviv and Poltava oblasts. Interviews were conducted during the second round in 11 locations and 50 points of service delivery in Donetsk and Luhansk oblasts. Table 1 presents the sample by facility types and oblast (A more complete description of the sample is presented in Annex A).

Table 1. Sample (short description): number of facilities sampled by type and oblast

OBLAST AND FACILITY TYPE	NUMBER OF SAMPLED FACILITIES	TOTAL NUMBER OF SIMILAR FACILITIES WITHIN THE OBLAST
Lviv oblast		
Oblast-level hospital	2 (+2 polyclinics)	13
Rayon/city-level hospital or polyclinic	4 (+3 polyclinics) + 1 city polyclinic	27
Primary care facility	3 centers of family medicine + 3 ambulatories + 3 FOPs	50 ambulatories, 204 ambulatories, 1,004 feldsher posts
Poltava oblast		
Oblast-level hospital	2 (+2 polyclinics)	4
Rayon/city-level hospital	4 (+3 polyclinics) + 1 city polyclinic	28
Primary health care center	3	25
Primary care facility	4 ambulatories + 2 FOPs	327 ambulatories, 619 feldsher posts
Donetsk oblast		
Oblast-level hospital	0	7
Rayon/city-level hospital or polyclinic	7 (+7 polyclinics)	79
Primary care facility	5 primary health care centers (10 ambulatories and 4 FOPs within them)	21
Luhansk oblast		
Oblast-level hospital	2 (+2 polyclinics)	14
Rayon/city-level hospital	2 (+2 polyclinics)	8
Rayon territorial medical unit	2 (+2 polyclinics)	9
Primary care facility	3 PHCs (6 ambulatories and 4 FOPs within them)	16

Note: Data source for Lviv and Poltava—aggregated Form 20, for Donetsk and Luhansk oblasts—contact list of health care facilities provided by local administrations.

In each of the sampled oblasts, the following respondents were interviewed:

- 1 A head (or a deputy head in economic affairs) of the oblast state administration health department
- 2 A head (or a deputy head in economic affairs) of the rayon/municipality administration health department
- 3 A chief physician, deputy chief physician, chief economist, chief of the polyclinic division, chief of the PHC or ambulatory head
- 4 In hospitals: physicians from the following categories: department chief physician (when possible); physicians from different departments (therapeutic vs. specialized); physicians dealing mostly with the inpatients, with day and night shifts; physicians dealing mostly with outpatients
- 5 In polyclinics: one department chief physician (when possible), physicians from different departments (therapeutic vs. specialized)
- 6 In ambulatories: family practice physician
- 7 In FOPs: a medical worker.

Within these various categories, overall 300 respondents were surveyed, including:

- 1 4 chiefs/acting chiefs of oblast health department
- 2 21 chiefs/acting chiefs of city/rayon health department
- 3 67 chiefs of the facility/polyclinic division/urban outpatient family practice center/rayon primary health care center
- 4 188 hospital/polyclinic's physicians/family physicians/medical assistants/nurses

SPSS software was used for analysis of close-ended (coded) and open-ended questions and involved the use of 40–50 logical conditions depending on the type of the questionnaire.

Administrative and financial data

In addition to the primary data collected through the PETS/QSDS survey instruments, supplementary administrative and financial data were collected to analyze financial flows and identify potential inefficiencies and leakages in the existing budgeting and allocation process in the four sampled regions.

The data collected analyzed fund flows in the Ukrainian health system from (i) the Ministry of Finance to local administrations and then (ii) from local administrations to facilities, according to the budget allocation formula proposed by the MoH. Data were collected at both stages to examine potential leakages.

Within the first stage, budgetary data were collected for all four oblasts on all health expenditures at oblast and rayon/city levels (129 budgets) for the fiscal years 2014 and 2015.

Data were obtained from the Central Treasury on planned and actual revenues and expenditures at the state, oblast, and rayon/city level on a monthly basis.

Accompanying reports included adjustments to the planned budget made by Parliament and local councils during the year.

Ministry of Finance reports were also collected providing information on financial and in-kind resource flows from the Central Budget to oblast, municipality, and rayon budgets.

State Treasury Service (STS) budget execution reports at the oblast, rayon, and municipality levels provided detailed information on health resources within regions. These reports were compared to similar data from the local state administrations (LSA) for triangulation purposes.

For the second stage, a case study was realized for a single rayon, Poltava rayon of Poltava oblast, for which financial data of all health care facilities within the rayon were collected. Finally, transaction-level data from the government open data portal were collected and analyzed for one randomly chosen hospital in each oblast.

Cost and productivity data

Detailed cost data were provided by health facility by cost centers and purpose (i.e., salaries, utilities, etc.) in two oblasts, Lviv and Poltava, to allow cost and productivity analysis.

Cost data provided by health facilities include the following cost centers:

- A* Administrative Group—including administration, accounting, human resources management, planning and economic departments
- B* Support Group—laundry, kitchen, computer maintenance, department of statistics, information and analytic department, engineering units, etc.
- C* Paraclinic Group—laboratories, diagnostics units, operating and anesthesiology rooms, intensive care rooms, blood transfusion services, etc.
- D* Ambulatory-Polyclinic Group
- E* Inpatient Care
- F* Polyclinic Group
- G* Day Inpatient Care
- H* Perinatal Center
- I* Subordinated primary care facilities

D. LIMITATIONS

The current study presents some limitations. In particular, the limited scope of the survey sample, which uses a convenient case study approach at the oblast level and disproportionately stratifies according to the type of respondents, restricts the generalization of the study findings. Indeed, the Ukrainian health care organizational structure differs among oblasts and sometimes even among rayons within an oblast, forbidding generalization of the study results to the entire country.

Also, the use of qualitative open-ended questions, where respondents were asked to share their experiences, may have had unexpected effects. While aiming at obtaining the most comprehensive information on the various topics of the survey, an open-ended approach, however, is a complex and time-consuming process. Open-ended questions require significant effort from respondents, as well as for data entry, cleaning, and analysis. During interviews, transitions back and forth between quantitative and qualitative questions may have also hampered interviewees' responses. In future research, these limitations could potentially be mitigated through extended introduction to respondents on survey structure and themes.

It should also be noted that presence of sensitive themes in the survey—in particular budgetary allocation and usage, as well as informal payments, which are not entirely socially acceptable subjects—may have led to information withholding, especially with regard to hospital parallel financing systems.

3. OVERVIEW OF THE HEALTH SECTOR

This chapter presents an overview of the health sector in Ukraine. It describes the organization and financing of the public health system, and discusses the official process of planning, budgeting, and allocation of financials and in-kind resources toward various levels of health facilities. Three main elements are examined: (i) organization and financing of the health sector, (ii) budget planning, and (iii) budget execution.

A. ORGANIZATION AND FINANCING OF THE HEALTH SECTOR

As stipulated by Ukrainian laws, the government has the obligation to finance and provide access to health care for all Ukrainian citizens. Responsibility for financing health care expenditures is shared between central and local governments (Articles 87–90: articles of the Budget Code). Overall, public health services are financed from the national budget, local (oblast, rayon, municipal, and community) budgets, health insurance funds, charity funds, and any “other sources not prohibited by law.”

Public financing covers health care services delivered by publicly owned health clinics and hospitals, as well as costs related to education and research in the sector. According to the law, national health financing is based on a per capita allocation. The annual budgeting process in the health sector is described in the Ukrainian Budget Code.

The current structure of the Ukrainian health care system still mostly resembles the Soviet era model. It takes its roots in the Semashko universal coverage system similar to the Soviet model introduced at the beginning of the twentieth century. At the time, the system was mainly designed to respond to war casualties and the spread of infectious diseases. An emphasis on universal coverage was placed through the availability of at least a feldsher or a physician within each village/locality, and hospital beds to treat the wounded or those suffering from infectious diseases. This system poorly addressed modern health challenges, the main of which was the spread of non-transmittable diseases.

Today, the State remains the major provider of health care services. Private sector’s role is relatively small, with estimated share at below 10 percent of total health expenditures.

The structure of the public health system is organized at three administrative levels: central, oblast, and rayon/city/united community. Decentralization reform implemented since 2014 created an additional administrative level of communities

(hromada). In total, there are 490 rayons and 180 cities. The number of hromadas is growing during decentralization reform: from 85 at the end 2015 to 660 in 2017. With over a thousand different recipients of medical subvention, health funding is very fragmented.

The central MoH is in charge of both policy making and management of national-level health hospitals and facilities. MoH’s responsibilities include the development and implementation of the national health policy, supervision of medical educational and research institutions, pharmaceutical regulation, and disease protection. The MoH also manages and centrally finances highly specialized tertiary care-level hospitals and health clinics (such as National Childcare Hospital “Okhmadyt,” Kharkiv Cardiovascular Surgery Center, etc.), sanatoria, and orphanages for children under the age of three.

While the central MoH is a key regulator and policy maker, health care services are mainly provided by locally owned and managed hospitals and health clinics. In each oblast center, oblast-level hospitals provide tertiary care-level treatments. Secondary-level treatments are provided by hospitals serving a rayon, a town, or a district in a city. Primary care services (polyclinics, ambulatories, or feldsher points) are organized at villages, towns, or districts in cities. At that level, physicians or pediatricians perform examinations and, if needed, send patients to specialists or to hospitals. Quite often though, patients consult specialists directly to save time.

While during the Soviet period patients could only consult the physician “attached” to the district where the person lived, since 2011, Ukrainians are allowed to obtain primary care at any primary facility of their choice. This option was first piloted in 2011–2013 as part of the reform of primary care implemented in Dnipropetrovsk, Donetsk, Vinnytsia, and several rayons of Kyiv city. Starting April 2017, patients can choose their family doctors by signing and registering a delacration with them.

Given the current absence of a single database of patients, this may result in some patients being “attached” to several facilities. Furthermore, current allocation of resources is linked to statistical number of patients living in certain areas, and not the number of patients actually receiving services in a particular facility serving that territory.

With regard to financing, the MoH manages most of the national health budget. MoH expenditures include ministry spending for itself, its subordinated services and institutions, and inter-budgetary transfers (medical subventions) going from the Ministry of Finance to the lower-level budgets (oblast, rayons, municipalities, hromadas) and expenditures on state-level health-related programs (e.g., a program on diabetes, a program on HIV/AIDS, and others).

Administration and financing of health care at the local level is the responsibility of territorial administrative units. Local-level authorities are key decision makers on the management of resources received, such as the medical subvention. Each of 25 oblasts and the city of Kyiv has departments of health responsible for managing oblast-level (tertiary care) hospitals. Rayons and municipalities are responsible for management of

secondary-level facilities and primary health care centers (PHCs). In their turn, primary healthcare centers or rayon/city hospitals where PHCs are not formed run ambulatories and FOPs.

Complementary funding is provided by local administrations representing on average one-fourth of total public health expenditure. Local contributions vary significantly from one oblast and rayon to another. Oblasts and rayons with larger tax revenues (i.e., those which have profitable business enterprises on their territory) are able to provide more health care funding than others. Furthermore, local authorities tend to favor visible capital expenditures and attractiveness of facilities to local elected officials.

In 2015, the government introduced new specialized instruments of inter-budgetary transfer for the health and education sectors. The medical subvention is an earmarked budget transfer for the health sector toward decentralized administrations, which replaced general equalization grants to the regions.

Medical subvention is transferred twice a month to Treasury accounts of oblasts, rayons, cities, and hromadas; the size of the medical subvention for each unit is defined by the MoH according to a formula. Oblast administrations can control implementation of budgets of rayons, cities, and hromadas. However, they generally do not intervene in the management of resources within rayons, cities, and hromadas, which is the responsibility of respective authorities.

Formally, local budgets finance about 80 percent of health services. They execute this delegated function within the allocated resource of the medical subvention and contributions from the local budgets.

The size of the medical subvention for each oblast and other transfers depends on the total amount of medical subvention and the formula used for its distribution. The exact amount of allocated funds is determined by the Ministry of Finance, based on an allocation formula proposed by the MoH. The formula is a function of the (i) population size in the respective administrative-territorial unit; (ii) coefficients for the oblast and lower level territorial units, for rural and urban territories; (iii) correction coefficients which account for age and gender structure of population, and several morbidity factors; and (iv) peculiarities of health care services delivery in mountain areas.

B. BUDGET PLANNING AND EXECUTION

Health facilities' budgets are planned from the bottom up but with stringent limits of funding from the central level. Each health facility—the lowest level spending unit—initiates a budget request which then goes through several stages of approval by local financial authorities, local governments, and the Treasury of the respective levels. During these stages, budget requests, budget ceilings, and monthly installment plans are approved.

Box 1. Brief overview of current health care reforms

The need to reform the health care system in Ukraine has been recognized long ago. Various attempts have been put forward, but most previous reforms have lacked a systemic approach and have faced great resistance.

The most notable element of the current reform program has been the singling out of the importance of primary health care through the creation of Primary Health Care Centers and the introduction of family doctors. This reform was first introduced in 2011 on a pilot basis in some regions. The new wave of primary health care reform is due to start in mid 2018. It is expected to introduce age-adjusted per capita financing (i.e., each citizen is required to sign a contract with his/her family doctor, and the revenues of the family practice will depend solely on the number of patients served). With this reform, doctors will be paid a fixed amount per year per patient and be able to take up to 2,000 patients, implying a 5–7 times potential (pretaxed) salary increase. The primary aim of the reform is the creation of an efficient “filter” of entry in the health care system, i.e., the family doctor decides which patients to treat at home, and which should be sent to secondary or tertiary level hospitals. In addition, programs of reimbursement of certain prescribed drugs to be purchased by patients (e.g., for diabetes, asthma, heart diseases) have been introduced and will be extended to other illnesses to help prevent severe illnesses (e.g., heart attacks).

Another milestone of the current reform program will be the introduction of health care facilities autonomy, eventually turning them from budgetary institutions into state- or communal-owned (nonprofit) enterprises (now hospitals are so-called budgetary institutions, i.e., they are currently financed from state or local budgets based on their needs). When hospitals become enterprises, they are financed on a pay-per-service basis, and can receive payments both from the State Health Care Agency (a newly created ordering customer of health care services) and from private insurance companies. In addition, facilities will be able to introduce fees for certain services and compete with private clinics. For this, three types of health care services will be defined—those completely financed by the state (primary, emergency, palliative care, most common types of secondary care), those partially financed by the state, and those not financed by the state (e.g., cosmetic surgery, dental services except for urgent cases, etc.). In order to ensure efficient use of public funds, medical protocols will be updated, and doctors will be required to provide treatment according to them. The laws to implement this reform were adopted by the parliament in the end of 2017.

The final component of the current reform program is the introduction of the “money follows the patient” principle replacing the current system, which finances facilities according to the inputs or number of people in an area. To facilitate this transformation, an electronic patient registry system (e-Health) is currently under development. Besides the network of medical facilities that will be optimized—so called “hospital districts” will be created with the main hospital in the district treating the most complicated cases and other hospitals performing auxiliary functions. In a hospital district, a patient should be able to arrive (or be delivered) to a main hospital within an hour.

The budget planning process is highly formalized and requires facilities to respect numerous normative procedures. The set of requirements to be followed by facilities in preparing their budgets includes:

- 1 Use of precise templates and sequences; the structure of expenditures must correspond to key classifications and templates defined by the Ministry of Finance (MoF) (Order No 57 of 28.01.2002).
- 2 Rules for defining the number of staff and their salary levels (Staff Schedule) (the MoF Order No 57, the MoH Order No 33); Terms of Pay for Medical Workers Ministry of Labor and Social Policy, Ministry of Health Care Order No 308/519 of 05.10.2005 "On establishing ordered arrangements for defining terms of pay for the workers of health facilities and Social Care institutions."
- 3 Expenditure norms and rules for calculating all other types of recurrent and capital expenditures based on the MoH's Methodological recommendations on planning and utilizing budget funds for provision of medical help by health facilities.
- 4 Prioritizing "protected expenditure items." A particular list of Protected Expenditures is established within the Budget Code (Article 55).

The health sector budget planning process is backward-looking. Planning for the next year is based on historical figures of the number of patients and most frequent illnesses. The previous-year budget is used as a baseline and adjusted for factors such as inflation and population growth (e.g., new patients to be provided with subsidized drugs). First, local administrations approve facility budgets. After adoption of the State budget, final medical subvention limits are known, and local administrations and facilities adjust their budgets accordingly. Also, facilities try to raise additional money from local councils, business enterprises, and private individuals.

The budget planning process is still largely input-based. It follows the MoH 2011 guidelines which are very detailed and prescribe exactly how the funds should be planned for each budget item code. Drug and medical goods budgets are to be determined by the number of beds and bed-days (for inpatient clinics) or the number of visits and people who have the right for free drugs (for outpatient clinics). Expenses on salary are planned according to the Unified Tariff Scale, which should include mandatory bonuses (normally one monthly salary per year).

With regard to execution of the budget and financial reporting for the use of public funds, strict procedures are also defined. One of the core legal requirements and the basis for authorization and release of funds for all facilities is activating a monthly installment plan over the course of the year, approved by local financial authorities and the State Treasury.

The use of public funds is subject to extensive control and inspection by different agencies. The State Treasury monitors and maintains control over budget expenditures at all stages of budget planning and implementation. It starts with the formation of

the spending unit network and ends with the releasing of funds from the accounts of Spending Units and Recipients of Budget Funds. The State Financial Inspection (SFI) is responsible for regular inspections to monitor financial accuracy, legislative compliance, and to some extent, performance and value for money achieved by the spending units, as well as financial audits. Overall, more than 30 agencies could launch financial inspections of health facilities.

Financial transfers in the health system are disbursed from the State Treasury to relevant treasury accounts of oblasts, rayons, municipalities, and hromadas, based on the medical subvention formula. Oblast administrations then allocate funds among oblast-level (tertiary) hospitals, while rayon administrations allocate funds among rayon-level hospitals and PHCs, and similarly for municipalities and hromadas, according to the budget allocation formula proposed by the MoH.

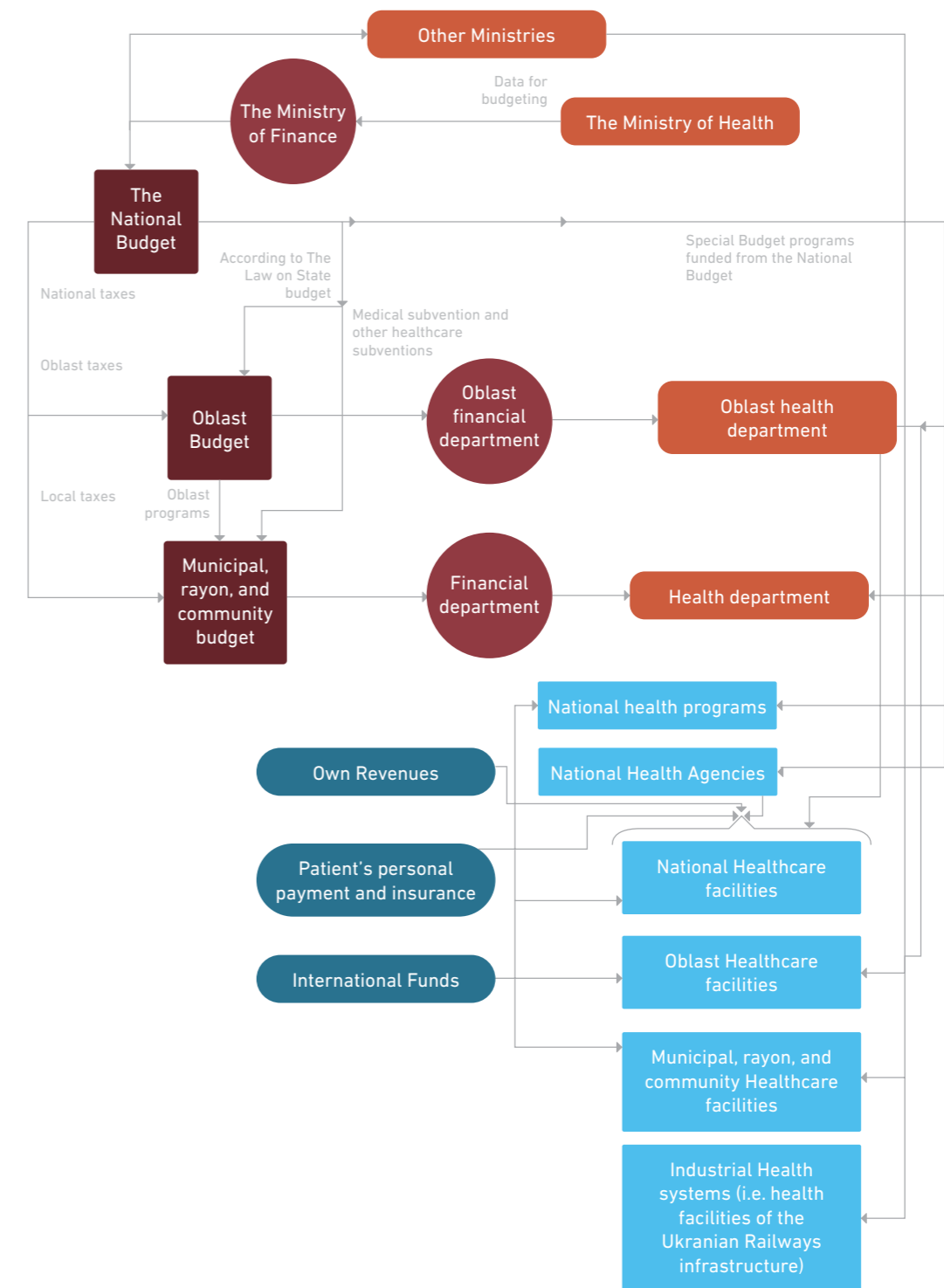
By law, all publicly owned health facilities are required to report their financial transactions and make use of the state treasury system. Publicly owned facilities can generate additional revenues from fee-paid services or receive other financial (charitable) contributions, but these revenues are also required to be deposited and flow through treasury accounts.

Figure 1 illustrates the main sources of revenues in the health sector and financial flows toward health facilities. As observed, the main sources of revenues and flows include:

- 1 National Budget. In 2015, UAH 46.4 billion was allocated for inter-budgetary transfers from the central budget level (the Ministry of Finance) to public health facilities (including UAH 46.2 billion of so called "medical subvention") via local government budgets. In addition, the MoH allocated UAH 8.1 billion budgetary programs and directly subordinated health facilities, including UAH 3.4 billion for centralized purchases of drugs and medical equipment through the program "Provision for health components of certain government programs and for complex medical programs." Since the end of 2015 until 2019, procurement for several programs (e.g., HIV/AIDS, tuberculosis (TB), hepatitis, child hemophilia, oncology, and specialized nutrition for children with rare diseases) was transferred from the Ministry of Health to the international organizations.
- 2 Local budgets (oblast level or rayon/municipality/amalgamated hromada level). Oblasts, rayons, municipalities, and hromadas can finance health programs and disburse funds to health facilities from local budgets revenues (from locally levied taxes) and intergovernmental transfers.
- 3 Funds generated by the health facility transiting through the treasury account. Health facilities could officially receive fees for services provided according to a defined list, as well as accumulate funds from other sources (e.g., rent, charitable contributions, grants and presents, etc).
- 4 Funds received in [non-treasury] accounts. Most health facilities maintain so-called "charitable funds," consisting in "contributions" made by patients for various services, with funds deposited in commercial banks. These funds are managed independently and are not accounted for in facilities' official financial statements.

In addition to these financial allocations, health facilities receive medication and medical supplies transfers in kind from centralized procurements. Procurement of medical supplies is organized at different levels in the Ukrainian health care system. The MoH, through several specialized national programs (vaccination, HIV, TB, etc.), allocates various drugs and supplies to hospitals and health clinics. Local-level health administrations (oblast, rayon, or municipalities) also procure and allocate in-kind supplies and drugs to facilities according to health care facilities' requests. Finally, facilities themselves (except PHCs and polyclinics) also purchase various drugs and supplies.

Figure 1. Financial flows in the health care sector



Source: Developed by the authors based on the Budget Code and other legislative data.

4. BUDGET MANAGEMENT IN THE HEALTH SECTOR

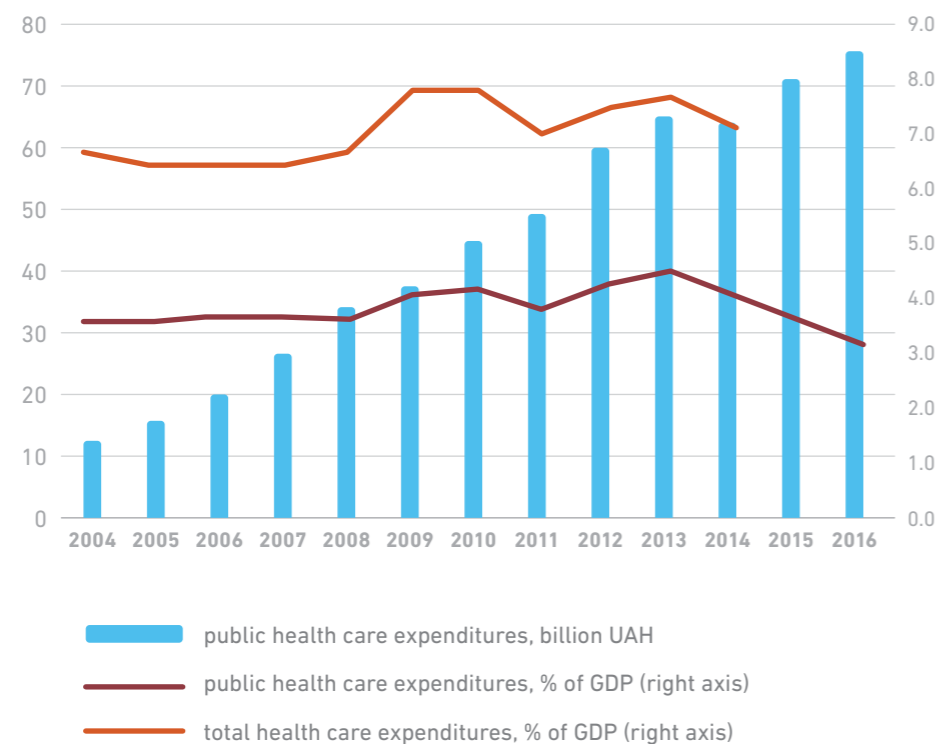
This chapter discusses the findings of the PETS/QSDS based on central Treasury budget information and interviews of oblast and rayon managers, as well as facility physicians. It first presents the level and structure of the 2015 health budget, in particular the medical subvention and composition of the health budget in the four sampled regions. It then discusses the main planning and control process stages as reported by managers and physicians.

A. THE HEALTH BUDGET

In 2015, total public health spending in Ukraine was UAH 71 billion (U.S.\$3.25 billion).

Public spending on health as a share of GDP has been rather stable during the recent years, but has declined to 3.2 percent of GDP in 2016 from 4.5 percent in 2013 (Figure 2).

Figure 2. Public and total health expenditures in Ukraine, 2004–2016



Source: State Treasury Service and World Bank data.

Figures 3 and 4 present the levels and shares of health expenditure at different levels in FY2015 overall and for the four sampled regions. **We observe that the largest part of resources allocated in the health system is channeled through the medical subvention mechanism directly to local budgets.** About 35–40 percent of all health care expenditures are spent at the oblast level, while the rest go to rayon/municipality/community levels. We also see that in all oblasts except Donetsk slightly more than half of the health-care budget is spent by rayons and communities. In Donetsk, over 80 percent is spent by municipalities due to the specific structure of Donetsk oblast, which consists mostly of industrial cities, towns, and few rural areas.

Figure 3. Health sector expenditures: Poltava and Lviv oblasts, 2015

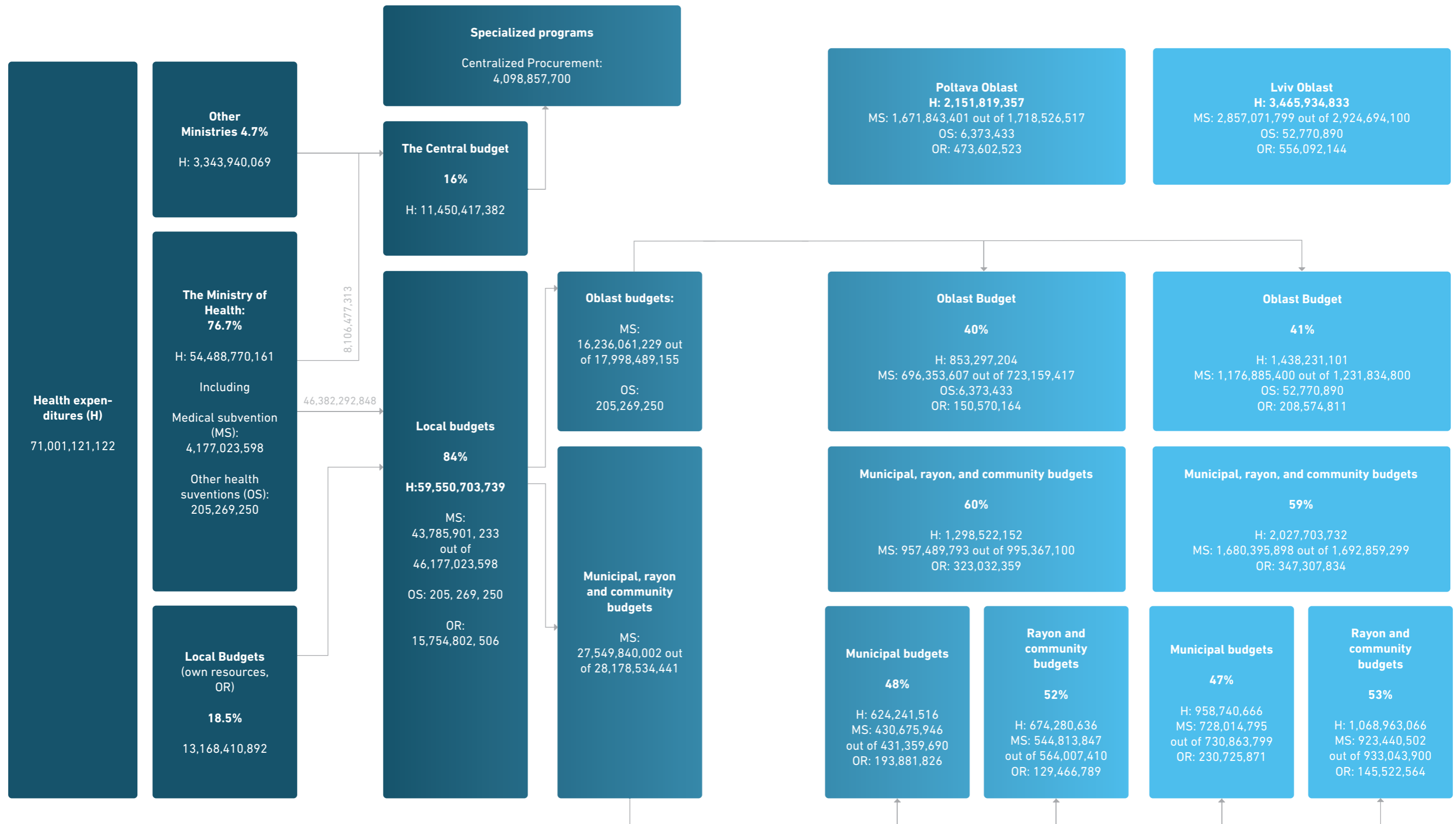
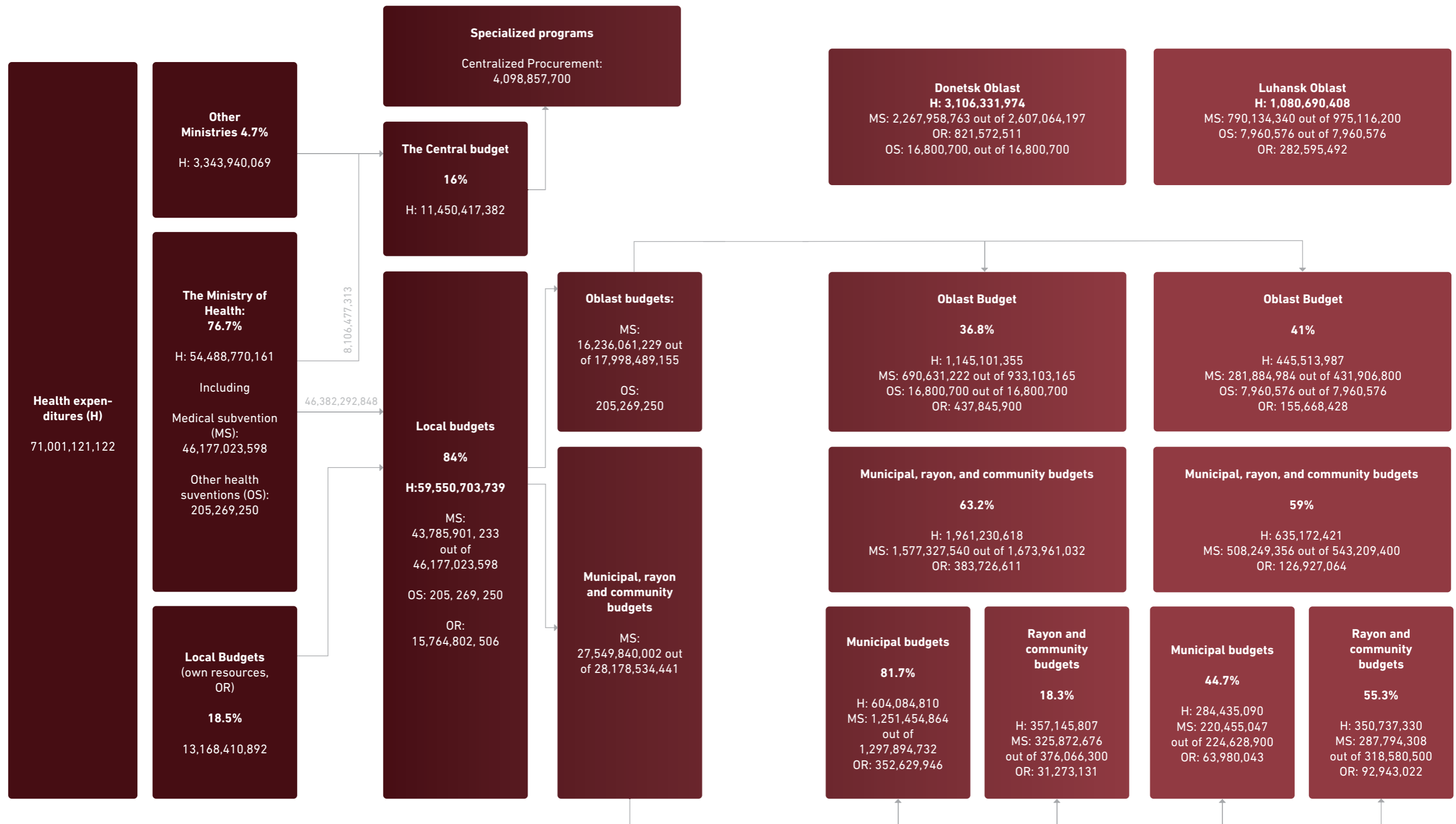


Figure 4. Health sector expenditures: Donetsk and Luhansk oblasts, 2015



Source: Authors' calculations based on the Ministry of Finance data.

According to Figures 3 and 4, total public health sector resources are composed of 15.7 percent of funds managed centrally by the Ministry of Health (UAH 11.5 billion), about 62 percent locally managed through the medical subvention mechanisms (UAH 43.8 billion), and 22 percent also managed locally as a part of local budget funds (UAH 15.7 billion).

Besides general medical subvention, local budgets can receive subventions for specific purposes as defined by the Ministry of Health, (see Table 2) but these additional subventions are very small compared to the main subvention. Table 2 illustrates that in some cases oblasts can receive financing from the Central budget even for specific hospitals (usually these are capital expenses). Such “specific” subventions appear in the budget for two reasons—to ensure provision of certain goods (e.g., subvention to purchase drugs for anesthesia makes sure that every hospital has at least some amount of such drugs since this money cannot be spent on anything else) and to simplify control over funds use.

Table 2. Medical subventions to local budgets in 2015 and 2016 (UAH million)

TYPE OF MEDICAL SUBVENTION	2015		2016	
	PLAN	ACTUAL	PLAN	ACTUAL
Medical subvention	46,177	46,177	44,434	44,434
Subvention to reform regional health care systems within the IBRD project "Serving People Improving Health"	130	6	180	180
Subvention for purchase of drugs and medical supplies for emergency care	138	136	138	136
Subvention for purchase of medical disposables and drugs for anesthesia	19	18	19	18
Subvention to Lviv oblast for reconstruction of a perinatal center	45	45	-	-

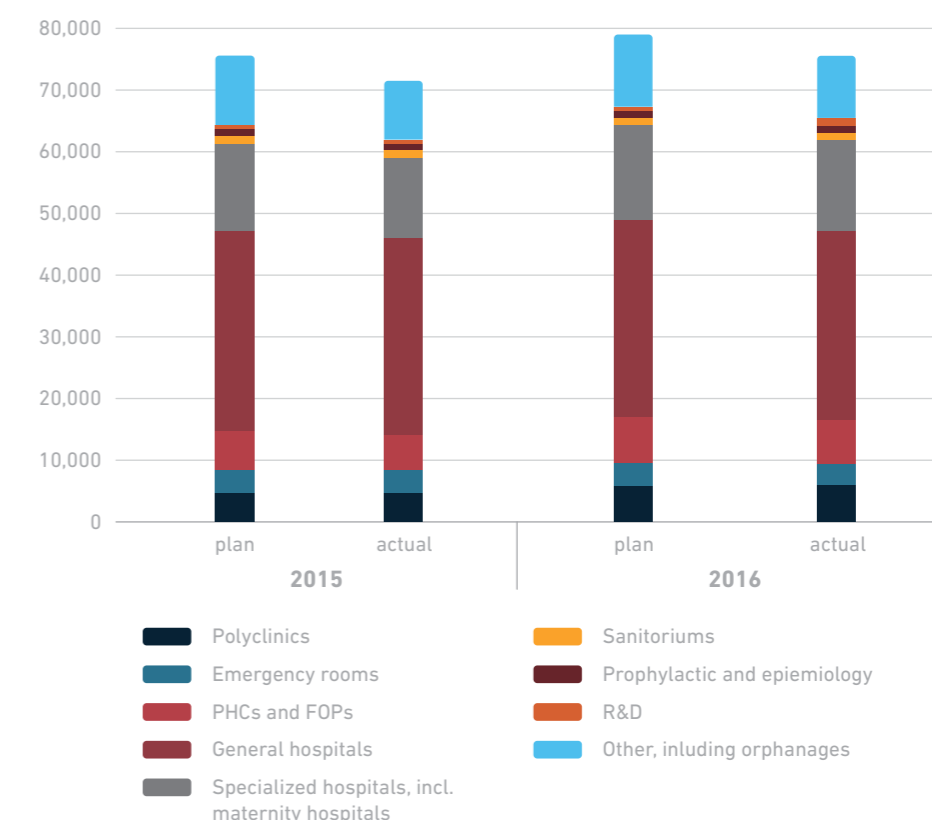
Source: Treasury reports

Figure 5 and Table 3 present the structure of health expenditures by functional classification in 2015 and 2016. (More details on the structure of health expenditures in the four oblasts are provided in Annex B). We observe that health sector spending is biased toward hospital services instead of primary health care that provides low-cost preventive care. General and specialized hospitals represent 64 percent of the public health budget, while PHCs receive about 10 percent. In Donetsk oblast for example, 70

percent of the budget is allocated toward hospital care, while PHC services represent only 13 percent; 3 percent and 6 percent respectively are allocated to secondary and tertiary outpatient services.

Budget planning, while characterized by wide control and regulation, does not secure complete execution of planned health allocations. The execution rate of the planned health budget is relatively low, but has increased somewhat in the last two years. In 2014, the health budget execution rate was 88 percent, progressing to 94 percent and 96 percent in 2015 and 2016, respectively. Still, the 4 percent execution gap in 2016 represented 3 billion hryvnia of the planned budget not allocated to the health care sector. Execution rates were below sector average for expenditures related to orphanages and research and development (R&D) in both years (Table 3).

Figure 5. Structure of Ukraine’s health expenditures by functional classifications



Source: Treasury report on consolidated budget.

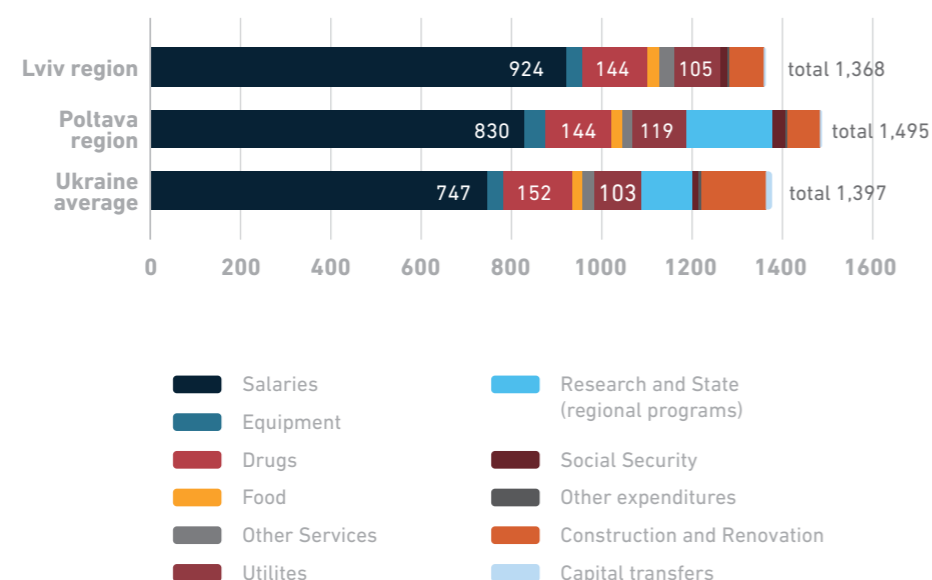
Figure 6 presents the composition of health care expenditures overall and in per capita terms in two regions. By economic categories, salaries account for the largest share of public health expenditure. The other main expenditure categories are medications and utilities.

Table 3. Planned and actual health budget by functional classification 2015 and 2016, with execution rates

Expenditure items	2015 (UAH) MILLION			2016 (UAH) MILLION			EXECUTION RATE % (ACTUAL AS PERCENTAGE OF PLANNED BUDGET)	
	Planned	Actual	Actual %	Planned	Actual	Actual, %	2015	2016
Polyclinics	4,560.6	4,482.7	6.0	5,683.1	5,546.0	7.2	98.3	97.6
Emergency care stations	3,486.3	3,338.1	4.6	3,617.6	3,456.6	4.6	95.7	95.6
PHCs and FOPs	6,640.1	6,398.1	8.8	7,784.4	7,406.6	9.9	96.4	95.1
General hospitals	32,574.2	31,631.2	43.2	31,389.7	30,319.1	39.8	97.1	96.6
Specialized hospitals, including maternity hospitals	13,926.4	13,147.7	18.5	15,334.7	14,790.8	19.4	94.4	96.5
Sanatoriums	1,272.8	1,234.4	1.7	1,320.7	1,299.0	1.7	97.0	98.4
Prevention and epidemiology	1,209.0	1,143.8	1.6	1,230.5	1,198.0	1.6	94.6	97.4
R&D	457.9	412.0	0.6	404.7	354.3	0.5	90.0	87.6
Other, including orphanages	11,316.2	92,132	15.0	12,131.1	11,133.1	15.4	81.4	91.8
Total	75,443.6	71,001.1	100	78,896.5	75,503.4	100	94.1	95.7

Source: Treasury reports.

Figure 6. Composition of per capita spending in 2015 (from the local health budgets), UAH



Source: Author calculations, data from BOOST.

B. PREPARATION OF THE HEALTH BUDGET AND CONTROLS

As explained by officials and physicians-managers during interviews, the budget planning process usually starts in August–September of the previous year and takes several months, generally being completed in January–February of the current year, when final amounts of medical subvention are communicated to oblasts/rayons and then to various health care facilities.

The biggest drawback of the current planning process, as reported by officials and physician-managers, is the absence of middle-term planning—despite over 10 years of discussions of the need to introduce three-year budgeting, budgets at all levels are still planned for just one year ahead. This results in very poor, essentially no, planning of capital expenses such as new equipment.

The budget planning process is the responsibility of a physician-manager and an economist or a chief accountant of a facility. Budget planning proceeds in the following stages:

- 1 Department or ambulatory heads, together with the chief nurse who is responsible for medications, collect the needs of their department or ambulatory facility. They may consult the physicians in the process.
- 2 Department or ambulatory heads provide this information to the physician-manager and economist or chief accountant of a facility, who review and aggregate the information and compile a facility budget.
- 3 Drafted facility budget is sent to respective health department (rayon/city for rayon or city hospitals, oblast for oblast-level hospitals).
- 4 Health department reviews the budget and approves it. Before approval, there can be negotiations between facility managers and regional officials—usually the latter ones try to reduce the facility budget, whereas facility managers try to advocate for a budget increase.
- 5 Likewise, rayon and city health care budgets are reviewed and approved by oblast health care departments.
- 6 After the ultimate sum of medical subvention is communicated to the regions (upon approval of the state budget by the Parliament), oblasts, rayons/cities, and facilities adjust their budgets accordingly (usually they receive less money than they ask for, therefore they redistribute the budget).

Main actors of the budget process and their functions are described in Table 4.

Table 4. Main actors of the budgeting process and their functions

Medical staff	Usually is not involved in the budget process although may take part in discussions of department/FOP needs
Head of an ambulatory or a department	Collects the needs of her department/facility based on the number of patients they served, drugs spent in the previous year and also needs for equipment repair and renovation, and provides to the chief physician
Physician-manager of a health facility	Together with chief accountant (economist) collects the needs of departments/ambulatoires and compiles the budget; then sends it to rayon/oblast health care department for review
Rayon/city health care department	Reviews budgets of respective health facilities
	Reports the needs of hospitals in local councils; sometimes advocates additional financing from local budgets; fundraises for hospitals among businesses and local hromadas
	Advocates corrections of hospital budgets during the year at local council; sets the price list for facilities' paid services (approved by local council)
	Distributes medical subvention and local budget funds to oblast/rayon/city facilities
Ministry of Health together with the Ministry of Finance	Oblast councils review health care budgets of rayons and cities
	Define the amount of medical subvention
	Define the formula for distribution of medical subvention
	Define the parameters, including financing, of state-level health care programs (e.g. HIV, diabetes etc)
	Review oblast health care budgets

Source: Compiled on the basis of interviews.

Weak coordination is reported between physicians and facility management with regard to budget planning. About a half of respondents, mostly physicians and nursing personnel, reported that they are not involved in the budget planning process, and about 30 percent of respondents report not having a clear understanding of the budget planning process (Figure 7). However, 70 percent of physicians report being involved in the planning of drug purchase (see Figure 8).

Figure 7. Do you have a general understanding on how the budget of your department/ambulatory/FOP is determined? (percent of positive answers among physicians)

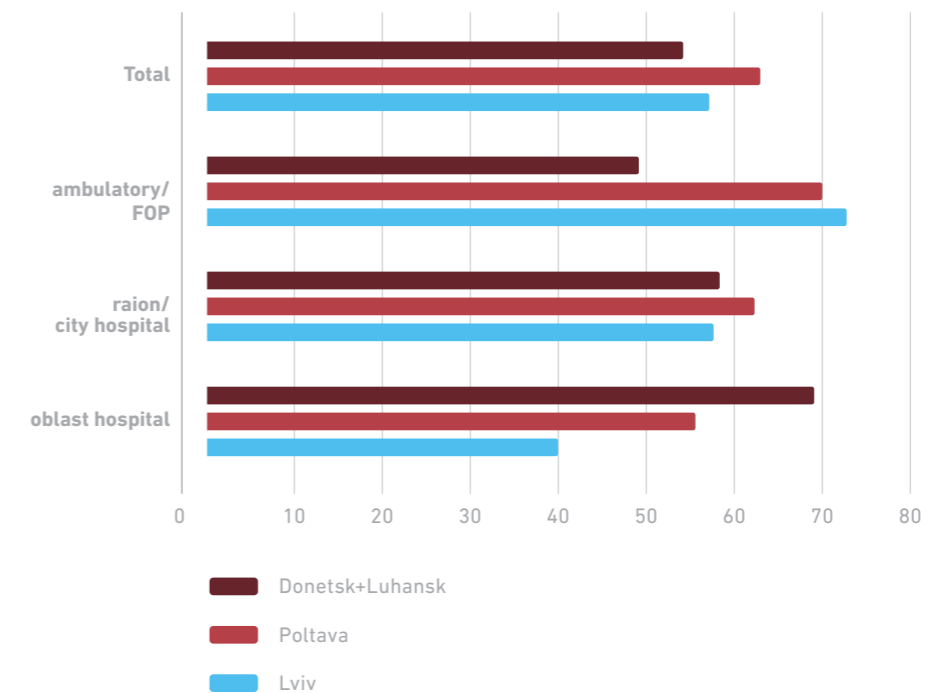
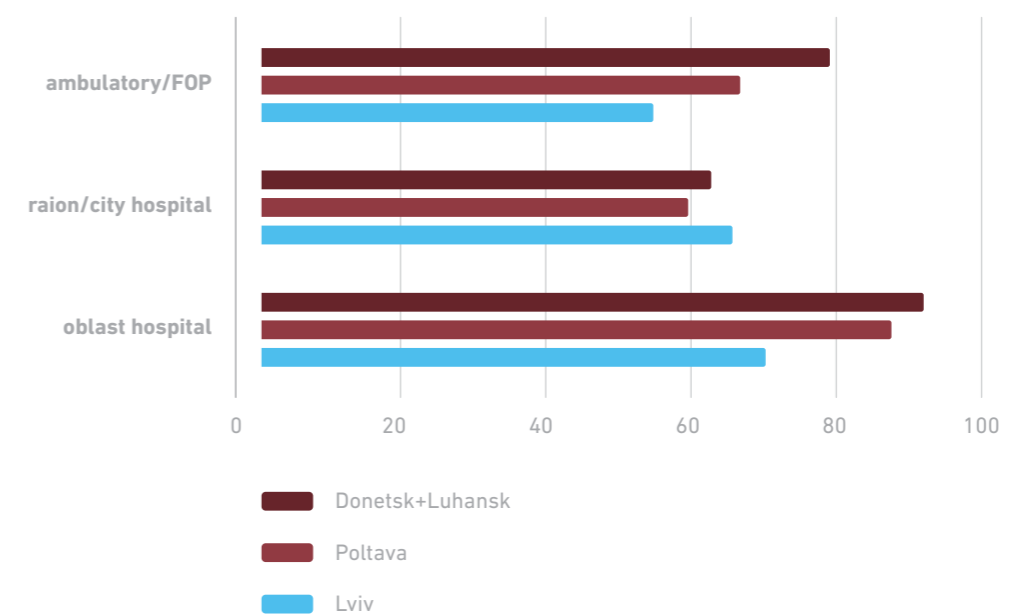


Figure 8. Is your experience with certain drugs considered during budget planning? (percent of positive answers among physicians)



Managers and physicians involved in budget planning generally report using the previous year's budget as a basis for the current yearly needs (only one oblast specialized hospital reported that they make some forecast of the number of patients based on the long-term trend). From that baseline, inflation is accounted for as well as specific priorities.

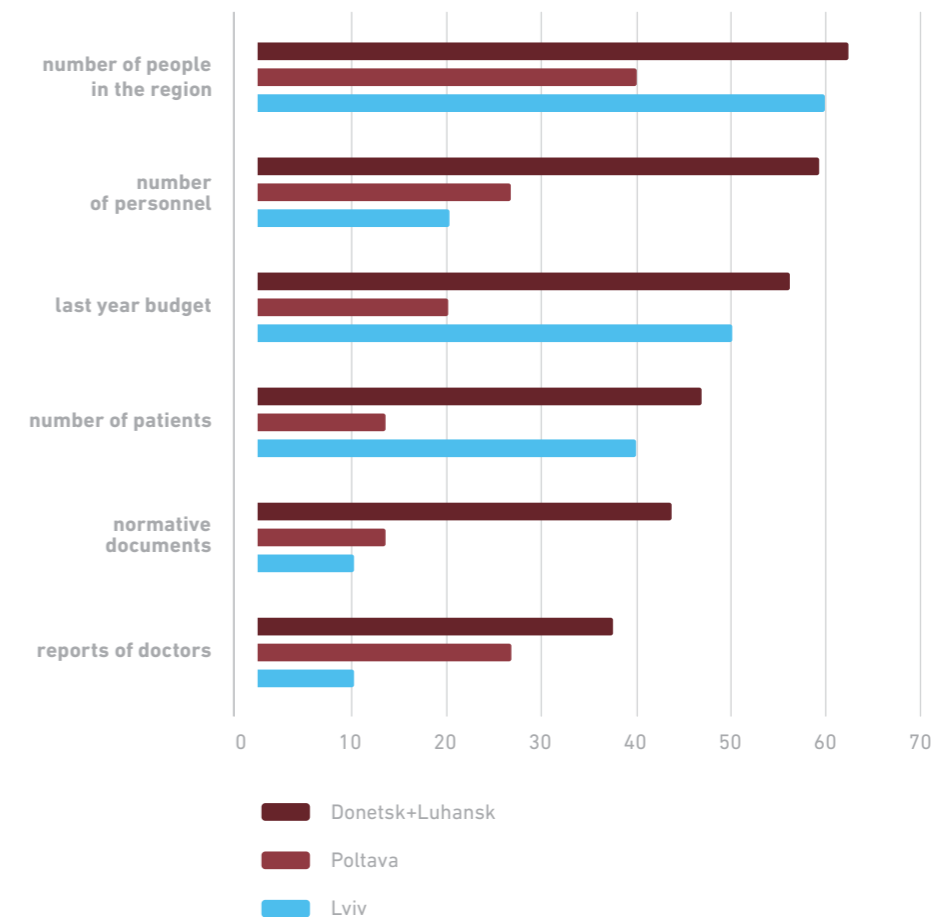
Although some respondents report taking into account facility's capture area and average number of patients per year, planning is heavily based on staff level (see Figure 9). By considering capture area, it is conceivable that facility managers try to forecast the amount of medical subvention they will likely obtain.

Most physicians in managerial positions report that general and special fund planning is not very different, both being historical and largely based on the last yearly budget. Complaints were voiced about small special funds availability and lack of advanced knowledge of amounts attributed, especially in the context of uncertain "charitable contributions."

Furthermore, facilities tend to not develop any strategic plans given the general absence of capital expenditures in the planning process in the context of the unavailability of immobilization funds. In their planning process, facilities tend first to protect some basic expenses (i.e., salaries and utilities) and then priority drugs (i.e., anesthesia, emergency and lifesaving drugs which are often not available in drugstores). Facilities then compile a "wish list" for infrastructure maintenance and renovation or equipment purchase. They also try to fundraise among local administrations and businesses, and sometimes among international or charitable organizations. Renovation is performed predominantly using local budgets, charitable funds, or facilities' own earnings.

Some physicians-managers reported that facilities are not allowed to spend medical subvention funds on renovation.

Figure 9. What do you take into account when planning your budget? (percent of respondents from physicians-managers who selected certain answer; several answers could be provided)

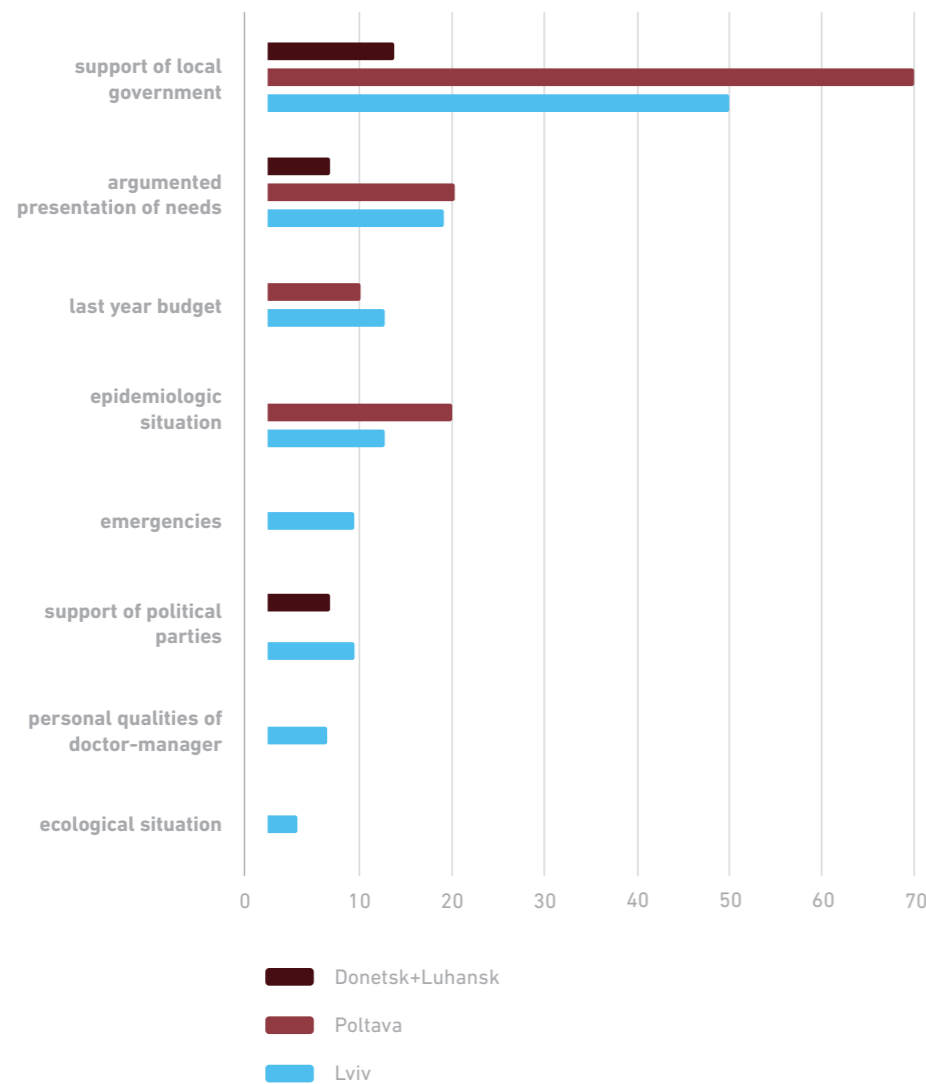


Advocacy for additional financing

Oblast and rayon/city officials, as well as facility managers, generally request local councils for additional funding from local budgets. However, funding in addition to state medical subvention tends to depend on the relative wealth of localities. Additional local support is sometimes financial, but is generally in kind, through for instance the delivery of equipment or goods (e.g., food, fuel, renovations of infrastructure).

About 60 percent of physicians-managers in Poltava and 80 percent in the other three oblasts report approved facility budgets to be lower than requested. In that context, almost all facility managers try to advocate for increased financing of their facilities once the medical subvention is officially announced. The main factor reported for successful advocacy is the support of local authorities (see Figure 10). Other factors are less frequently cited, such as the importance of personal relations with local deputies and heads of local enterprises for fundraising.

Figure 10. Factors reported useful for successful advocacy (percent of physicians-managers who selected certain answer, several answers were possible)



Human resources planning

Budget planning for personnel within health facilities depends on the number of full-time equivalent (FTE) positions at the facility. FTE positions tend to depend on current or historical numbers of beds rather than current population. Staff bonuses are planned within the limits of the law and are paid at the end of the year in the presence of leftover resources.

Despite widespread knowledge that “Order 33” of the MoH has been abolished, most physicians in managerial positions report that they still plan staffing “within the limits of the order.” In the absence of such order, they do not know how to plan for personnel or they do not perceive that they have the latitude to make major personnel changes. In Lviv oblast for instance, only a third of physicians-managers think that the current personnel

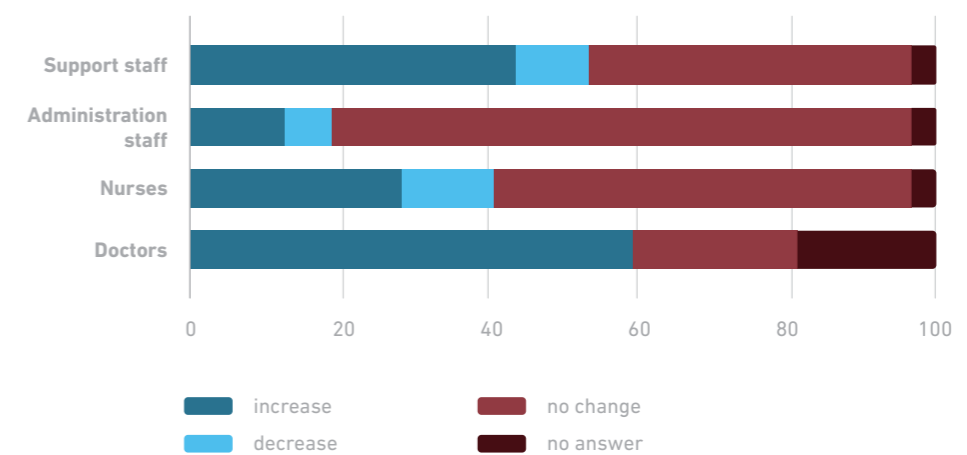
planning system is efficient, while in other oblasts, about half of them support this view. However, at the same time, about 70 percent to 80 percent of respondents report that personnel is used efficiently at their facility.

In Donetsk and Luhansk oblasts, about 60 percent of physicians-managers interviewed report that they would recommend an increase in number of physicians at their facilities. However, despite having sufficient FTEs, they have difficulty recruiting physicians to fill these positions. Specialists are especially needed, in particular cardiologists, anesthesiologists, and surgeons, etc. Pediatricians and other children specialists are also in high demand.

A common complaint by facility managers is the difficulty to attract young staff to hospitals because of low salaries. On the other end, unproductive physicians cannot be fired, even when having reached pension age according to physicians-managers in Lviv and Poltava.

Regarding other personnel, respondents report the relative scarcity of support staff (see Figure 11)

Figure 11. How would you like to change the number of personnel at this facility? (answers from physicians-managers in Donetsk and Luhansk oblasts)



Expenditures on utilities for the next year are planned based on previous consumption, taking into account potential tariff increases. When the government unexpectedly raised energy tariffs in 2014 and 2015, facilities had to cover the difference either from their own earnings (special fund) or from the funds provided by the local budget. Respondents reported saving energy and resources in different ways to reduce their utility bills—from replacing light bulbs with energy-saving ones and installing plastic windows to replacing central heating and gas boilers with wood/palette boilers.

Budgetary discipline

There is a well-established bottom-up reporting system for facility expenditures.

Monitoring and control over local- and facility-level expenditures at all stages of budget planning and implementation are maintained by the central Treasury. The Local State Treasury Service verifies that transactions correspond to their planned classification, approves them, and regularly provides budget execution reports. State Financial Inspection (SFI) is responsible for the comprehensive financial audits, which include regular inspections to monitor financial accuracy, legislative compliance, and to some extent, performance and value for money achieved by the spending units.

In addition, frequent financial inspections are reported. About 60 percent of physicians-managers in each oblast report that their facility was inspected every quarter by a controlling agency. Although some respondents complain about the time taken by inspections, most physicians in managerial positions in Lviv and Poltava report that the inspections did not have impacts on planning or resource usage.

In Donetsk and Luhansk oblasts, financial inspections are less frequent. About a third of physicians-managers reported at least one inspection every quarter in both 2015 and 2016. Also, about a third of managers report a single or no inspection of the facility during the last two years. The perception of potential positive impact of these inspections on resource planning and utilization is reported by about a half of respondents.

The budget is perceived as very inflexible due to rigid budget regulations. For instance, transferring funds between budget lines within the general budget needs to be approved by the local council by voting on it at their monthly session (e.g., funds saved on energy during a warm winter could not be easily transferred to medicine). Funds of the Special Fund can be used more flexibly. This rigidity could lead to inefficient budget usage and to facilities trying to accumulate money within their Special Funds to have some reserve for unexpected expenses. Since 2017, the General Fund has been made more flexible with only two budget lines—'salaries' and 'everything else'.

C. ANALYSIS OF LEAKAGES

In several countries where PETS were conducted, one of the most important inefficiencies identified in public expenditure was the evidence of public resource leakage. Leakage is broadly defined as the share of resources earmarked to specific beneficiaries, which fail to reach them. This phenomenon was generally associated with inadequate incentives and improper monitoring and enforcement within the service delivery system.

To identify potential leakage of resources in the health sector in Ukraine, the assessment focused on financial transfers between central government and lower level administrations and facilities. More specifically, data on financial resources disbursed by the Central Treasury were compared with funds received by local administrations and facilities in all four regions. In addition, a case study was

realized in a single rayon, Poltava rayon of Poltava oblast, to compare the budgets reported by all facilities in the rayon with the overall health care budget provided by the local rayon treasury.

The leakage assessment between central and local levels was investigated in three steps. First, the aggregated country-level health expenditure was estimated. Second, aggregated financial data from the State Treasury Service (central level) toward local state administrations (at oblasts and rayon/city levels) for all four oblasts and all subordinated rayons/cities were assessed. Finally, to assess resources reaching facilities, a single case study was conducted in a randomly chosen rayon of Poltava in the oblast of Poltava, in which total health care expenditures of facilities (derived from facilities' balance sheets) were compared with the rayon health care expenditures, as reported by the local Treasury department. This rayon study did not find evidence of leakages similar to those found in other countries—i.e., all funds designated for a certain facility reached that facility.

All transactions between state-owned institutions and central and local budgets in the Ukrainian health sector are recorded in a single electronic system. In that context, in a perfectly functioning system, there should be no discrepancies between disbursed funding by the State Treasury and received transfers by oblasts/rayons/cities and facilities, which would reflect an absence of leakage.

We used three measures to match figures from central Treasury reports to the same indicators in local Treasury reports. These measures are the executed health budget, medical subvention sent/received, and medical subvention actually spent.

The most common reason for discrepancies is blind spots in medical transfers controlled by the Treasury (Tables 5-8). The Treasury does not track some transactions within/between oblasts (e.g., from rayons to cities), but local administrations usually provide consistent reports. This lack of tracking is responsible for 54 percent of medical subvention discrepancies (14 out of 26 cases). Unreported and mostly minor spending in the Treasury system is responsible for 38 percent of discrepancies.

Discrepancies in public health expenses are more common and mostly due to unreported payments. However, there are 11 cases with significant differences which are not explained by local administrations.

In Lviv and Poltava oblasts, discrepancies between state and local budget reports were minor (Table 5 and Table 6) and can be explained by transfers between cities/rayons as well as peculiarities of accounting. For example, some expenses planned in 2016, incurred in 2017. Thus, they were attributed by the Treasury to "actual" expenses of 2017, not of 2016. Also, transfers of medical subvention funds between different administrative units are not recorded in Treasury accounts (such transfers are frequent in Donetsk oblast—see Figure D3 in Annex D and Table C3 in Annex C).

Overall, in 22 cases out of 42 rayons and cities studied, all the figures matched perfectly or with insignificant deviations. There are 20 cases that can be classified as leakages according to our definition of leakage, but which were really inconsistencies, blind spots, and improperly reported health expenditures.

Most deviations between received and used medical subvention have been identified (after double checking with officials) as transfers between oblasts or more frequently within oblasts (e.g., from one rayon/city to another within the same oblast or from rayon/city budget to oblast budget). However, in one case, State and local treasuries report significantly different figures, so this case requires further investigation.

Table 5 shows that in Lviv oblast discrepancies between the data reported by the Treasury and local authorities are minor. One case (Lviv city) is explained by the fact that a transaction was made on December 31st and for some reason (probably a computer error) it never appeared in the electronic system. Sambir town transferred its entire medical subvention to Sambir rayon, and hence Sambir rayon hospital also serves town dwellers. Pustomyiv rayon provided some funds to the rayon hospital from the local budget, but for unknown reason this transaction was never reflected in Treasury files.

The only significant discrepancy in Poltava oblast (Table 6) is explained by the transfer from Poltava oblast budget to Kharkiv oblast budget to pay for medical services.

In Donetsk oblast (Table 7) transfers between rayons and towns are more frequent. In addition, some departments of certain hospitals serve people from the entire oblast. These inter-budgetary transfers mainly explain the differences in the data from Treasury and local administrations in this oblast. In Luhansk oblast (Table 8) such transfers are less frequent—hence, there are only four cases of minor inconsistencies.

There are 8 cases of significant differences in total health care expenditures in Donetsk and Luhansk oblasts and three in Lviv oblast, which unfortunately are not explained by local administrations.

Furthermore, to assess the presence of leakage at the lower level, a case study was conducted in the rayon of Poltava. The sum of all health care facility budgets as reported by facilities in the rayon was compared to the overall health care budgets provided by the local rayon treasury. We observed that the sums of expenditures of health care facilities, by economic classification codes, were equal to those presented in the rayon level budget execution report.

Hence, our comparison of data from different sources does not provide evidence of direct leakages in financial transfers in four oblasts examined and specifically for one rayon at the lower level. A small number of inconsistencies that are present in the data may not be due to leakages, but seem to reflect the complexity of the control system.

Indeed, based on findings from the interviews and after processing financial information at various levels, we were convinced that particularities of the health care system in Ukraine prevent direct leakages that were found in many PETS. To a large

extent, the situation is determined by the presence of a vertically integrated electronic payments system in the form of unified Treasury accounts, which is accompanied by a well-established bottom-up reporting system. Each public health facility, as well as local oblast, rayon, and municipal administration, has its own single treasury account and, officially, all financial transactions have to be processed through this system.

It should be noted that the absence of evidence of direct leakages on financial transfers between the state and lower administrative levels in the health system does not imply, however, absence of leakages overall and in other forms, in particular on in-kind transfers such as medication, equipment, and material provided centrally.

Also, the analysis does not comprise potential leakage on health resources from local budgets, special funds, and patients' fees. Furthermore, other forms of leakages, such as “kickback” payments for winning tenders, private capture, reselling of drugs and materials, etc., also could not be tested in this study.

5. MANAGEMENT OF MATERIAL INPUTS

This chapter discusses the findings of the PETS/QSDS on adequacy of provision of financing and inputs. Based on interviews of local officials, facility managers, and physicians, it describes coping strategies in face of medication and medical supply scarcity (e.g., the buying in priority emergency drugs, drug reserves). It first discusses overall resource availability in the perspective of local administrators and physicians, including excess bed capacity, and then examines more specifically various inputs, in particular medication.

A. AVAILABILITY OF PUBLIC RESOURCES

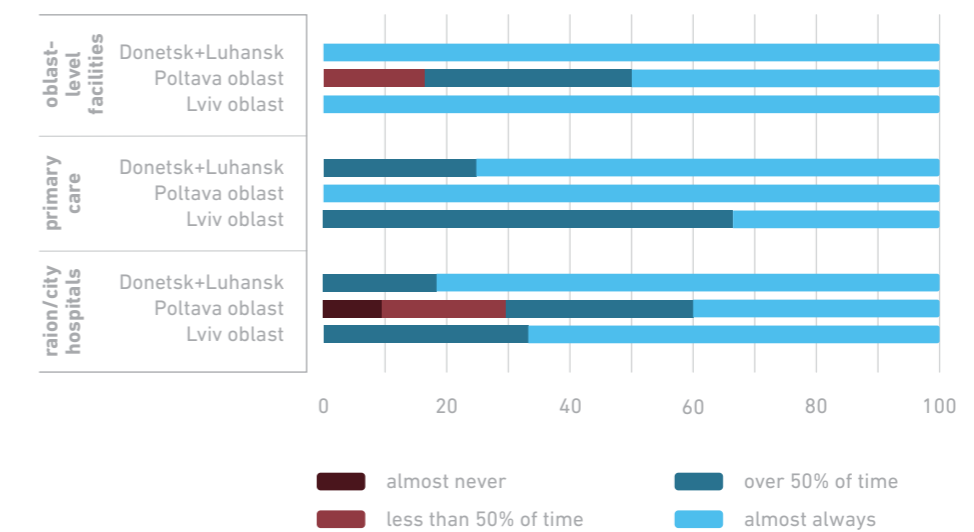
The survey included questions on the perception of oblast and rayon officials, physicians-managers, and frontline physicians on overall public resources availability, in particular about infrastructure and capacity.

Bed capacity

There is a common perception that Ukraine has too many hospital beds. Indeed, at the beginning of 2016, the official norm was reduced from 80 to 60 beds per 10,000 of population, but has not been fully implemented yet, while the EU average is 53 beds per 10,000.

However, managers of sampled facilities did not agree regarding the existence of a bed excess supply. Some specialized hospital managers even claimed on the contrary that they needed additional units. Physicians at oblast-level hospitals report not having enough beds to admit patients and the existence of a waiting list for hospitalization. Practically all the physicians report that in their facilities, all beds are occupied either 100 percent or over 50 percent of the time (see Figure 12).

Figure 12. How often are all beds occupied at this facility (by oblast and facility type)? (physician responses)



Contradiction in responses were also observed as most physicians report an efficient use of beds at their facilities, while about half of rayon/city hospitals' physicians-managers (chief doctors) believe that about one-tenth to one-fifth of their hospital patients could be treated as outpatients.

Most physicians estimate the share of socially vulnerable patients at their facilities to be low, with a slightly higher share in winter. Surveyed facilities hence appear not to be used for social care according to physicians (or at least not extensively used).

Overall resource availability

The survey included questions on the perception of oblast and rayon officials, physicians-managers and frontline physicians on overall public resources availability.

All categories of respondents (rayon and oblast officials, physicians, physicians-managers) report insufficiency of health resources and substantial variations in covered health care needs by the health budget between oblasts and rayons/cities within oblasts.

Given that actual resource availability is lower than needs in their regions, health managers from local administrations try to proportionately distribute available funds between regional facilities. Larger proportions of funds are reported to be allocated to facilities providing prenatal and child services, and specialized hospitals treating acute diseases.

Overall, estimates of resource shortages differ by regions and localities. These differences could be explained mainly by different abilities of local administrations to provide additional funds. Reported shortages also vary by facility types and levels. For example, primary care facilities probably have lower needs and therefore report higher coverage of needs; oblast-level facilities appear to be better supported, while secondary-level hospitals report the most shortages.

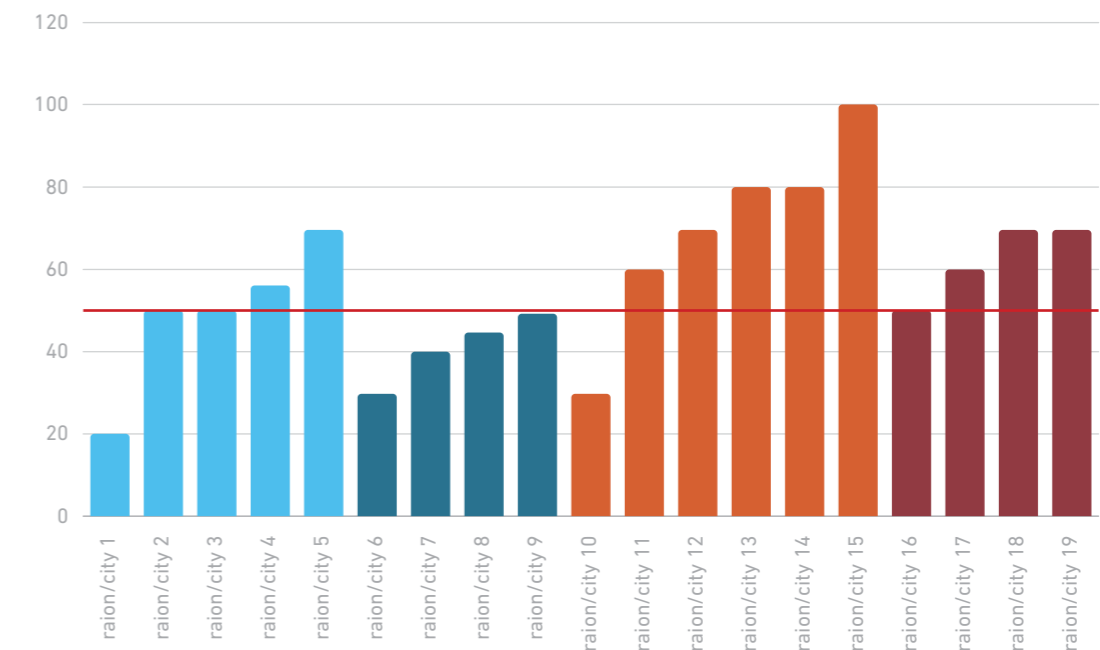
The perception of shortages also varies by category of respondents. For example, facility managers report greater equipment shortages than physicians, which could be potentially due to managers' greater knowledge of additional services that could be provided with additional and more modern equipment.

Perception of Oblast and rayon officials

Figure 13 presents rayon and oblast officials' perception of the share of health care needs covered by the health budget. As observed, in health officials' perspective, Donetsk oblast is relatively better financed regarding the perceived needs, while Poltava oblast presents the lowest perceived coverage of needs (65 percent and 30 percent respectively).

Two main underlying factors could explain these levels and variations in coverage: insufficient provisions of financing and different perception of needs. For example, a rayon official from Luhansk oblast explained that "almost all of our needs are covered but we do not ask too much." At the same time, officials from rural rayons in Lviv and Poltava oblasts say that medical subvention does not take into account that in their areas travel costs, both for medical personnel and patients, are higher than in cities—therefore they have to ask local businesses to provide cars and/or gasoline. Furthermore, variations in needs coverage could be associated with decentralized additional health financing at the local level. Indeed, facilities located in wealthier rayons and cities with profitable business activities tend to receive greater additional funding from local administrations, in the context of insufficient central level medical subvention to cover basic needs.

Figure 13. Share of health care needs covered by the oblast/rayon/city budget: rayon and oblast officials' responses



Light blue bar: Lviv oblasts; Dark blue bars: Poltava oblast; Orange bars: Donetsk oblast; Gray bars: Luhansk oblast, red line - average for four oblasts

Perception of physician-managers

Figure 14 presents the physicians-managers' perception of the health budget coverage of the needs in drugs and medical supplies, by oblasts and facility types.

Note that the choice of response was presented by categories of coverage ("less than 25 percent," "25–50 percent," "50–75 percent," "75–90 percent," and "more than 90 percent").

We observe that in Lviv oblast, perceived coverage of drugs and medical supplies' needs is lower than in the other oblasts. Furthermore, in all sampled oblasts, lower perceived coverage is reported in rayon/city hospitals compared to other facility categories—with only about a quarter of drugs and medical supplies needs covered by the available budget. Primary level facilities and polyclinics report better provision of drugs and medical supplies, which could be associated with the fact that they are not supposed to provide basic drugs to patients—except in an emergency. Oblast hospitals' needs in drugs and medical supplies are reported to be better covered.

In Donetsk and Luhansk oblasts, where questions on perception of covered needs were asked separately for drugs, medical supplies, and equipment, we observe that needs appear to be better covered for medical supplies than drugs, with equipment coverage faring the worst (Figure 15). Shortage or obsolescence of equipment is a commonly reported problem at most facilities and could be explained by their relatively expensive nature and "unprotected" expenditure category. In that regard, some facility managers report equipment dating from the 1960s–1970s with the financing of spare

parts using funds collected within the department. Several facility managers and physicians mention that they have to send patients to other facilities (public or private) for some advanced diagnostics (e.g., MRIs or some types of ultrasound).

Perception of physicians

Figures 16–18 present physicians' perception of covered needs for drugs, medical supplies, and equipment separately, by oblast and facility types.

Figure 14. Share of need in drugs and medical supplies reported covered by the facility budget (physicians-managers answers by facility level)

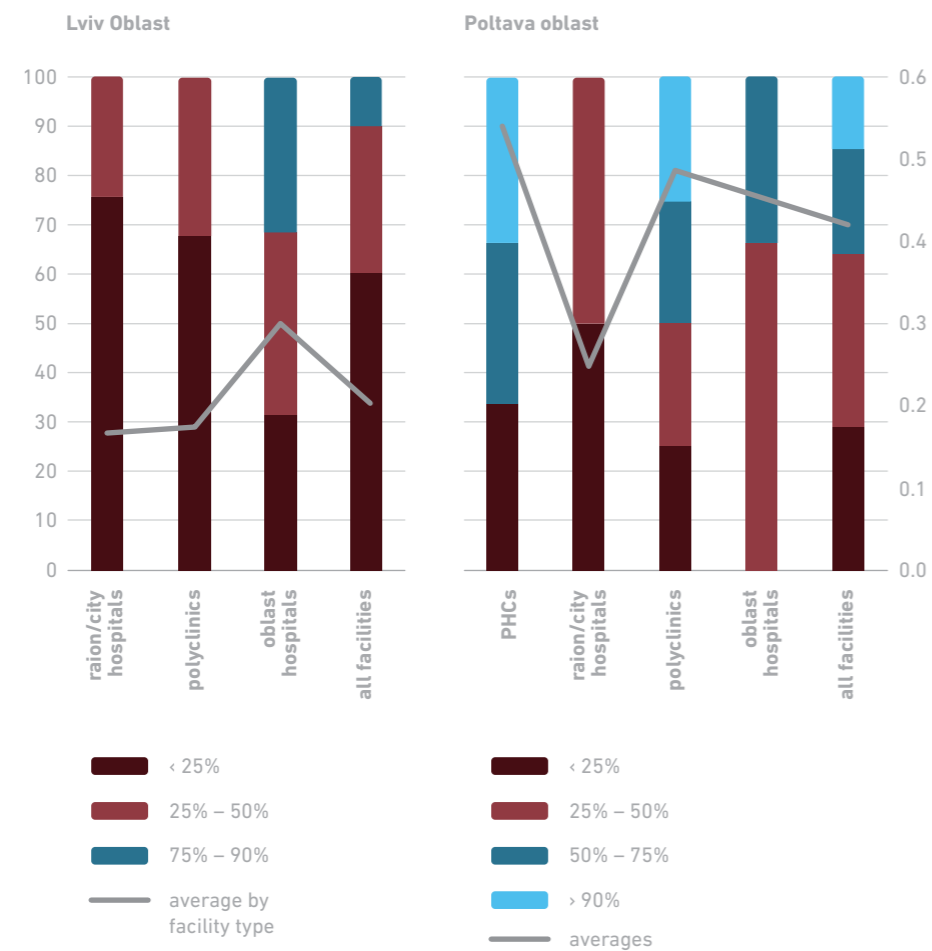


Figure 15. Donetsk and Luhansk oblasts, coverage of needs by facility budget (facility managers' reports)



Figure 16. Share of drug needs covered by facility budget (physicians' answers)

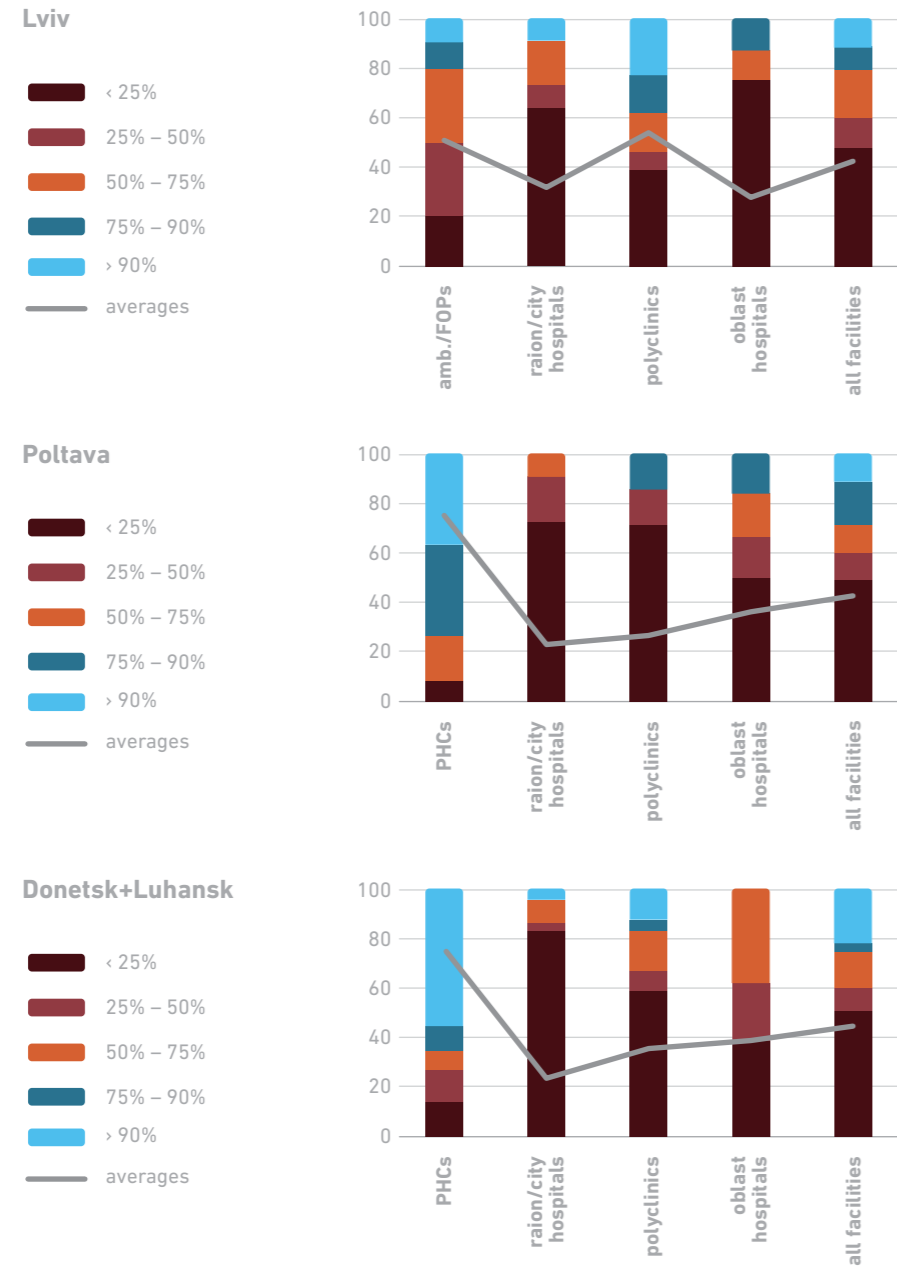


Figure 17. Share of medical supply needs covered by facility budget (physicians' answers)

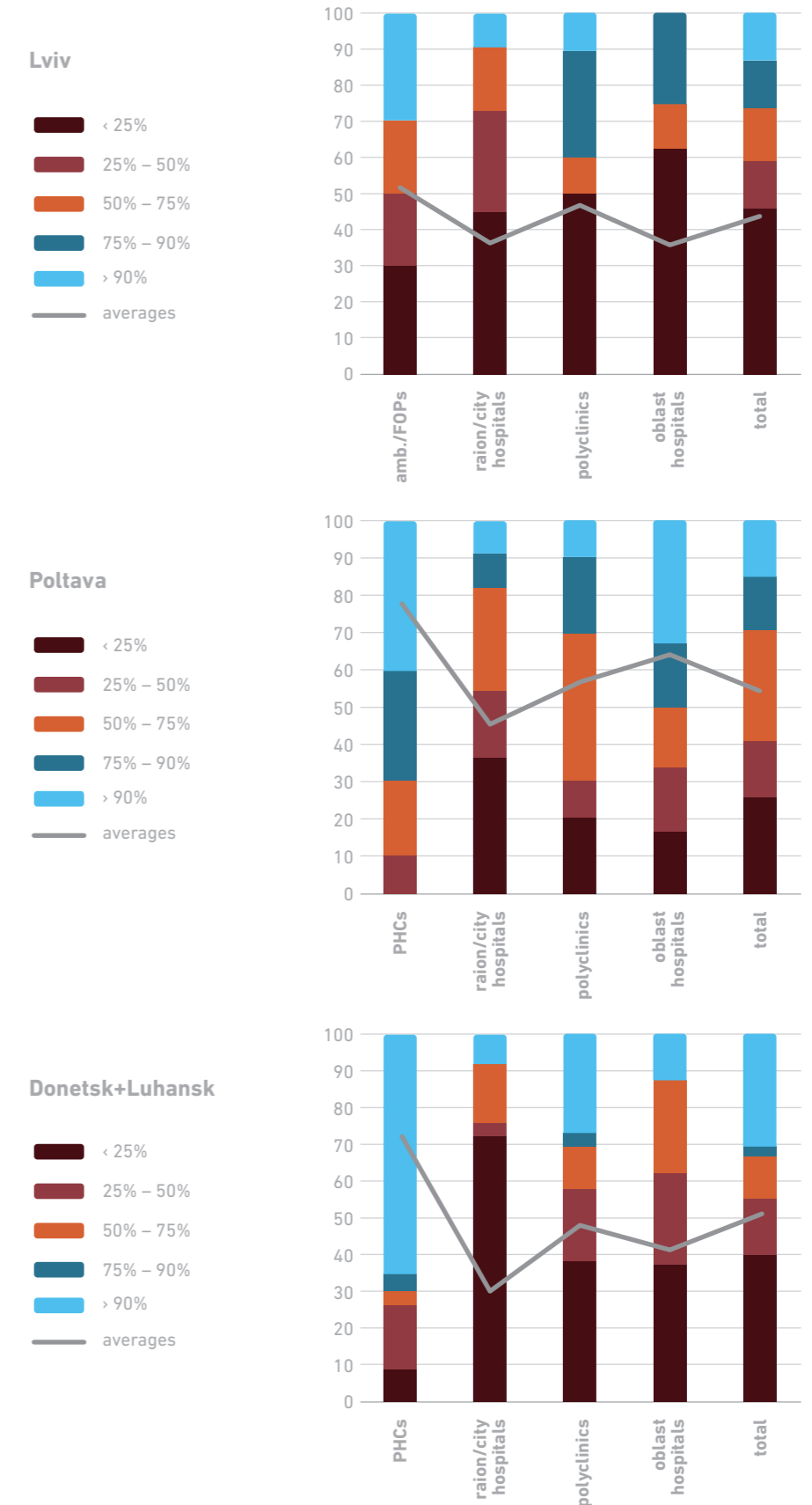
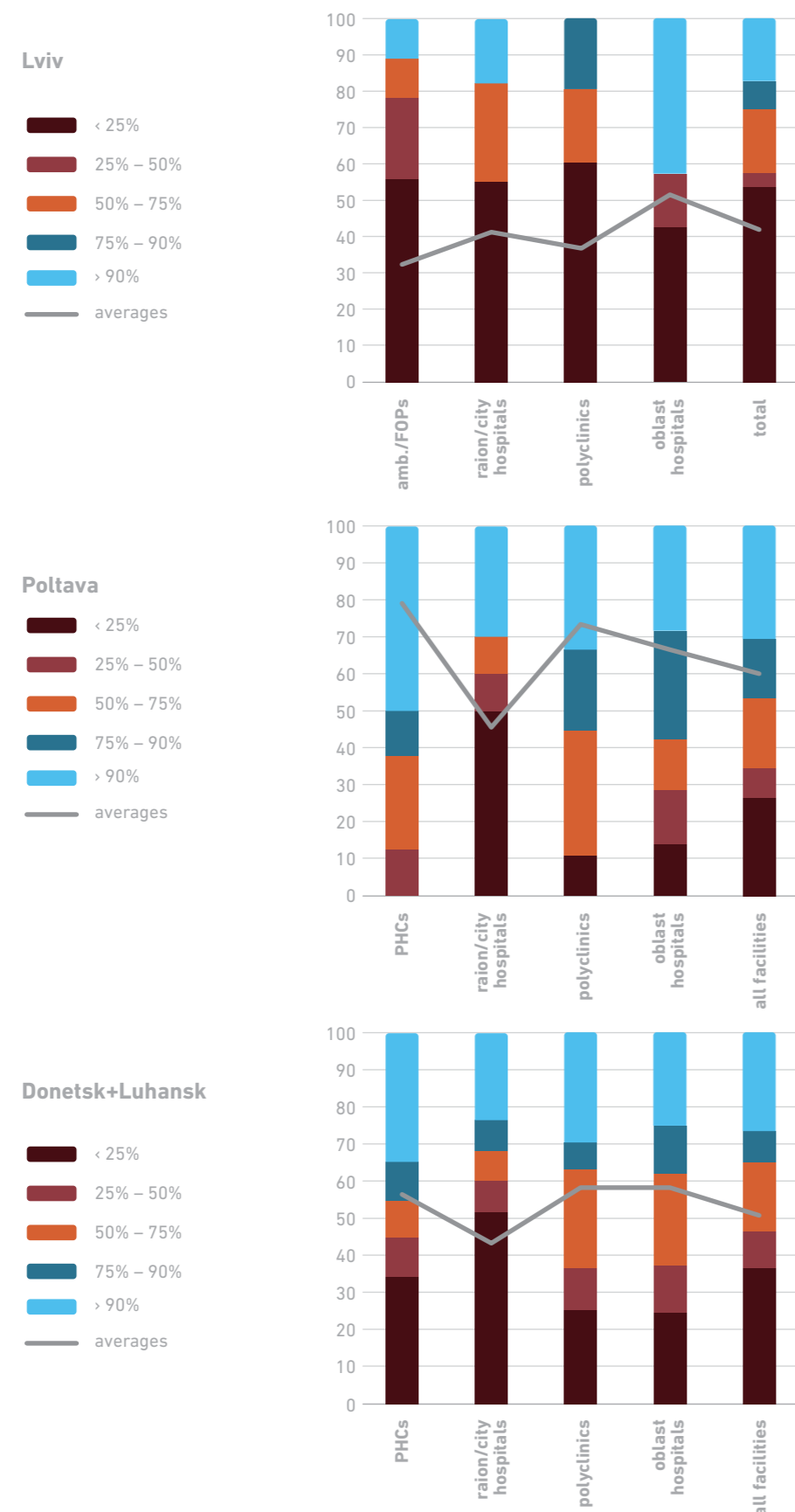


Figure 18. Share of equipment covered by facility budget (physicians' answers)



We observe in Figures 16–18 that primary-level facilities (PHCs, ambulatories, FOPs) appear to be better supplied with medical supplies and equipment relative to their needs compared to higher level facilities. However, as mentioned above, this appears to be due mainly to lower needs. Indeed, physicians in polyclinics and ambulatories/FOPs report simply having to prescribe drugs, without direct provision from the facility. PHCs, hence, only require availability of basic medical supplies (e.g., bandages, cotton balls) and emergency kits, which are usually available. Coverage of needs also differs by type of drugs and departments. Intensive care, prenatal, and newborn care are reported to be better covered because of being priorities in local officials' and physician-managers' budget allocation. Furthermore, physicians report coverage above 90 percent for essential lifesaving drugs, while nonessential drugs are reportedly covered at less than 20 percent, and expensive drugs (e.g., chemotherapy) at less than 5 percent of needs.

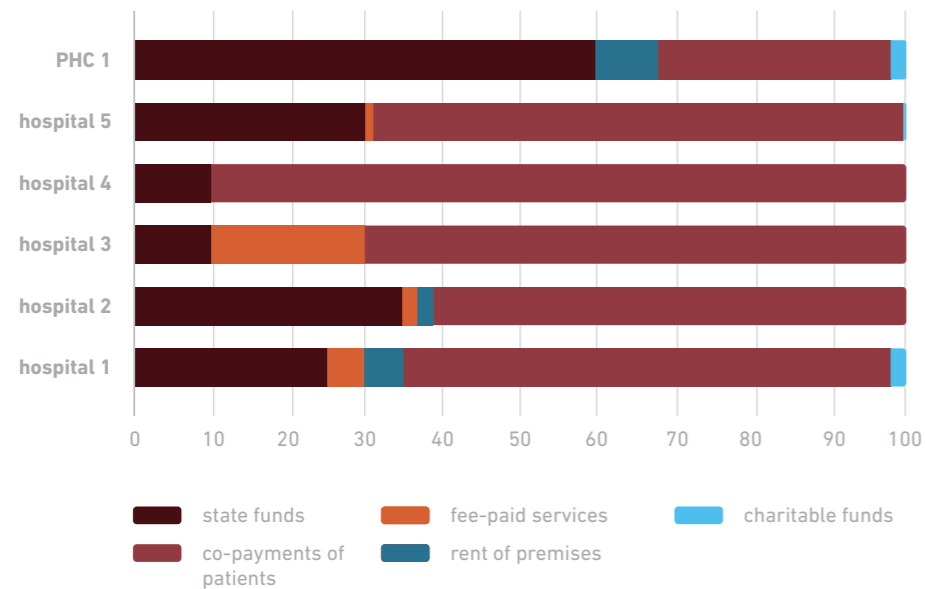
Provision of medical supplies is reportedly better covered than drugs, given their usual lower cost. Across sampled oblasts, drug needs coverage by facility budget is about 40 percent. For medical supplies, reported coverage in Lviv is the lowest among studied regions—below 50 percent, and the highest it is in Poltava oblast (about 60 percent).

Equipment presents the highest coverage of needs. However, estimation of equipment provisions differs substantially between physicians-managers and frontline physicians with the former reporting coverage at about 30 percent of needs compared to about 40 percent to 60 percent by physicians. This could be due to the fact that physicians-managers have a wider perspective and knowledge of potential services than new equipment could allow, such as extended diagnostics currently provided only by private facilities. While some basic equipment is present in all facilities, physicians often complain that equipment is obsolete or has high maintenance costs. Since equipment financing occurs after all other necessary expenses are covered, the medical subvention is often exhausted and equipment is financed by local budgets (if the funds are available) or delivered in kind by charitable organizations. Thus, facilities cannot plan an advance purchase of necessary equipment, and very often a piece of equipment is purchased only when some equipment is broken and cannot be repaired.

All polyclinics complained about absence of vaccines, which were not provided until the fall of 2016. One rayon official in Poltava oblast reported that they had to purchase TB vaccine using rayon budget funds, and officials from two rayons in Lviv oblast reported vaccine purchases by physicians in Poland (such as anti-rabies vaccines), who then provided patients with a fee.

A few physicians-managers were asked to evaluate coverage of the total cost of treatment from different sources. According to their estimates, about 70 percent of the cost of treatment is covered by patients (Figure 19). They explain that patients buy drugs and medical materials (except for urgent cases), while hospitals pay for communal services and salaries of medical staff. This figure provides another piece evidence on the share of need covered by actual facility budgets.

Figure 19. Of total cost of treatment, share covered from different sources



Shortage of financing, drugs and supplies

Physicians-managers and physicians were also asked more specifically about the frequency of shortages in financing, materials, and drugs. As emphasized above, Lviv oblast health facilities appear relatively less supplied relative to their needs than in Poltava oblast, while tertiary-level facilities experience more frequent shortages than other categories, potentially because of greater needs and the use of more expensive drugs to treat more serious cases (Figure 20).

In Donetsk and Luhansk oblasts, questions on the frequency of shortages over the last two years were asked separately for financing, drugs, and other supplies (Figures 21–22). Note that only answers for financial resources and drugs are presented, given that answers for other supplies were very similar to those of drugs.

Figure 20. How often did you face shortage of financial resources, drugs, vaccines, or other medical supplies in 2015? (physicians-managers)

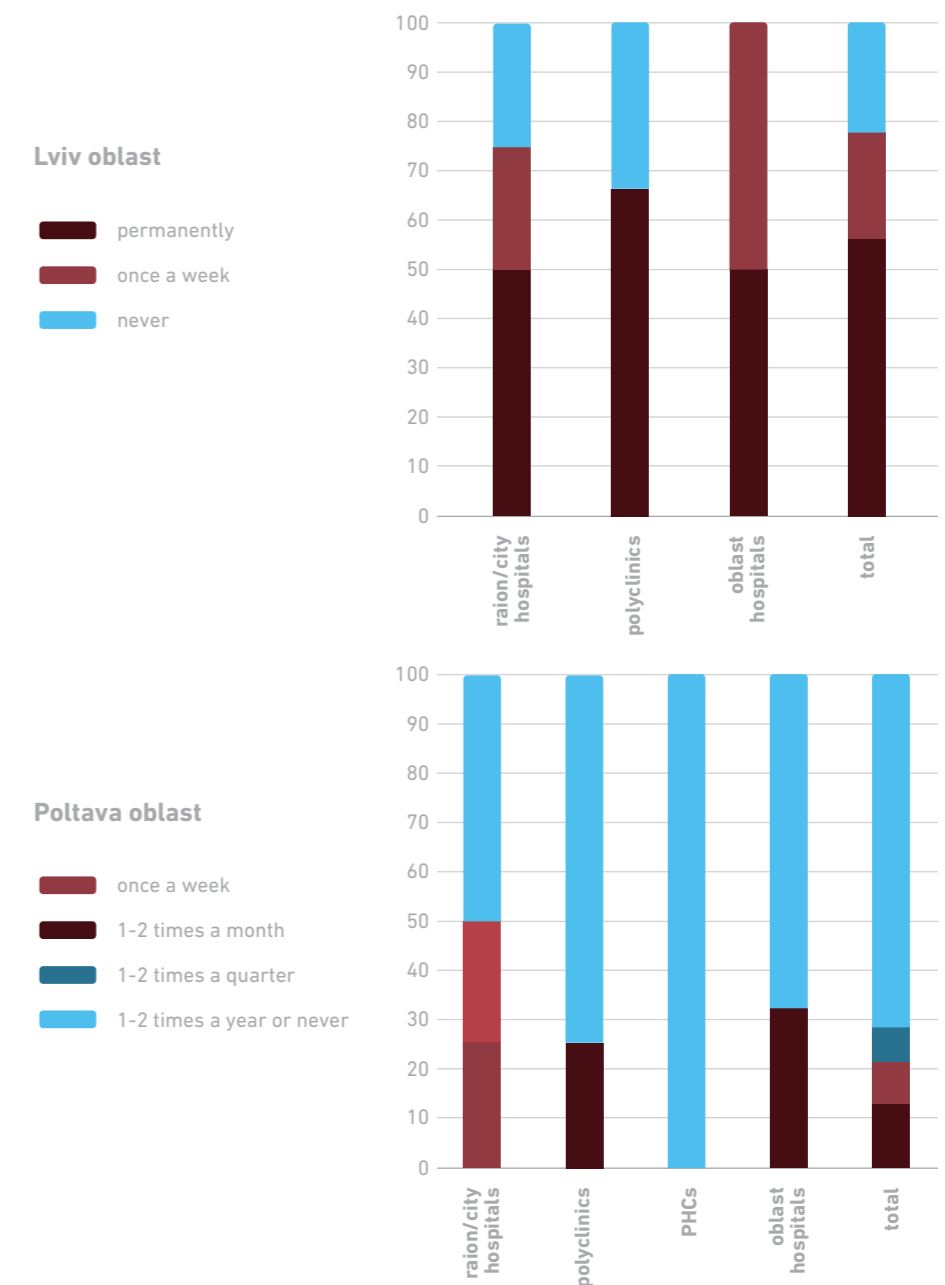


Figure 21. Donetsk and Luhansk oblasts: Frequency of shortage of financial resources (physicians-managers perspective)

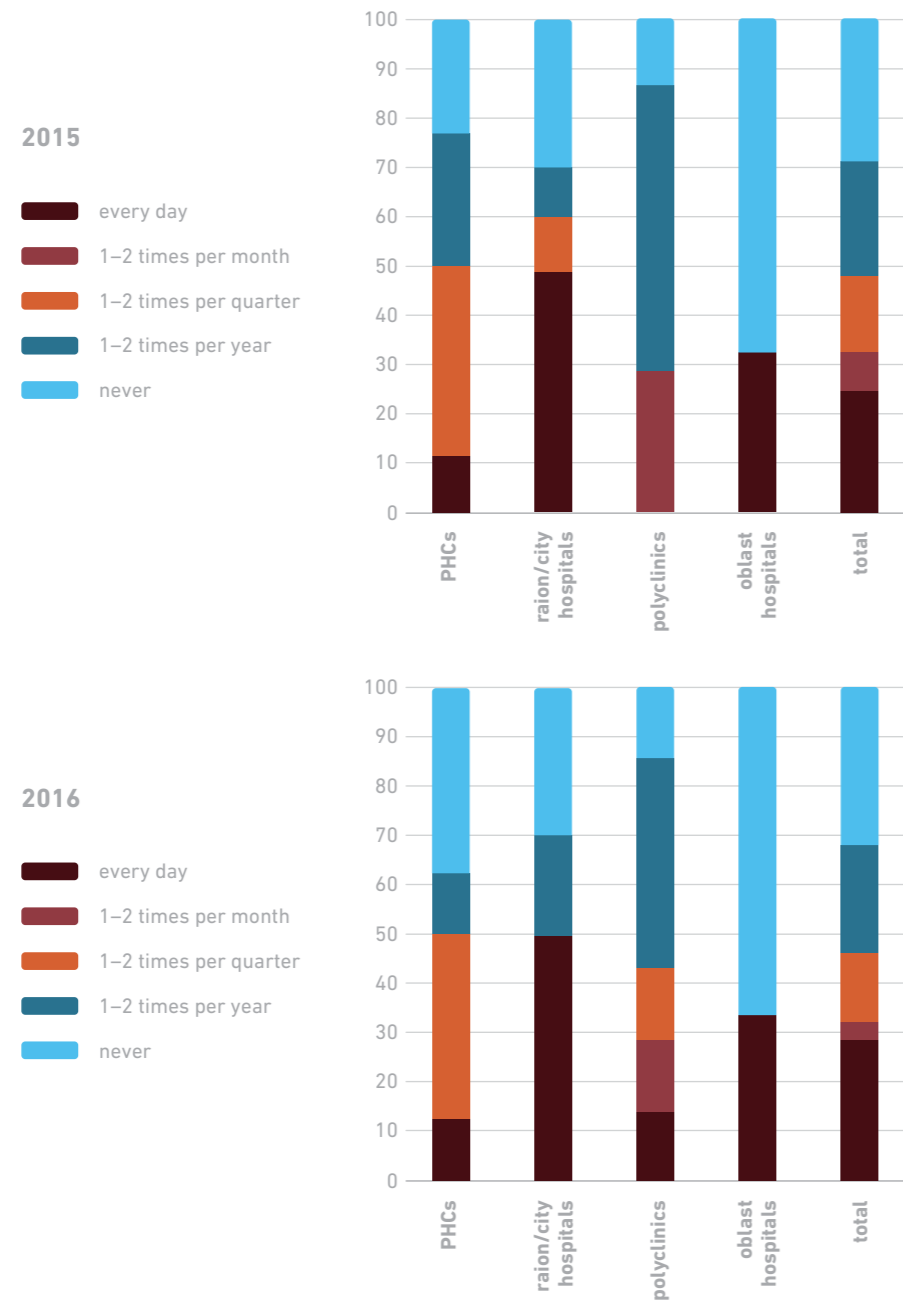
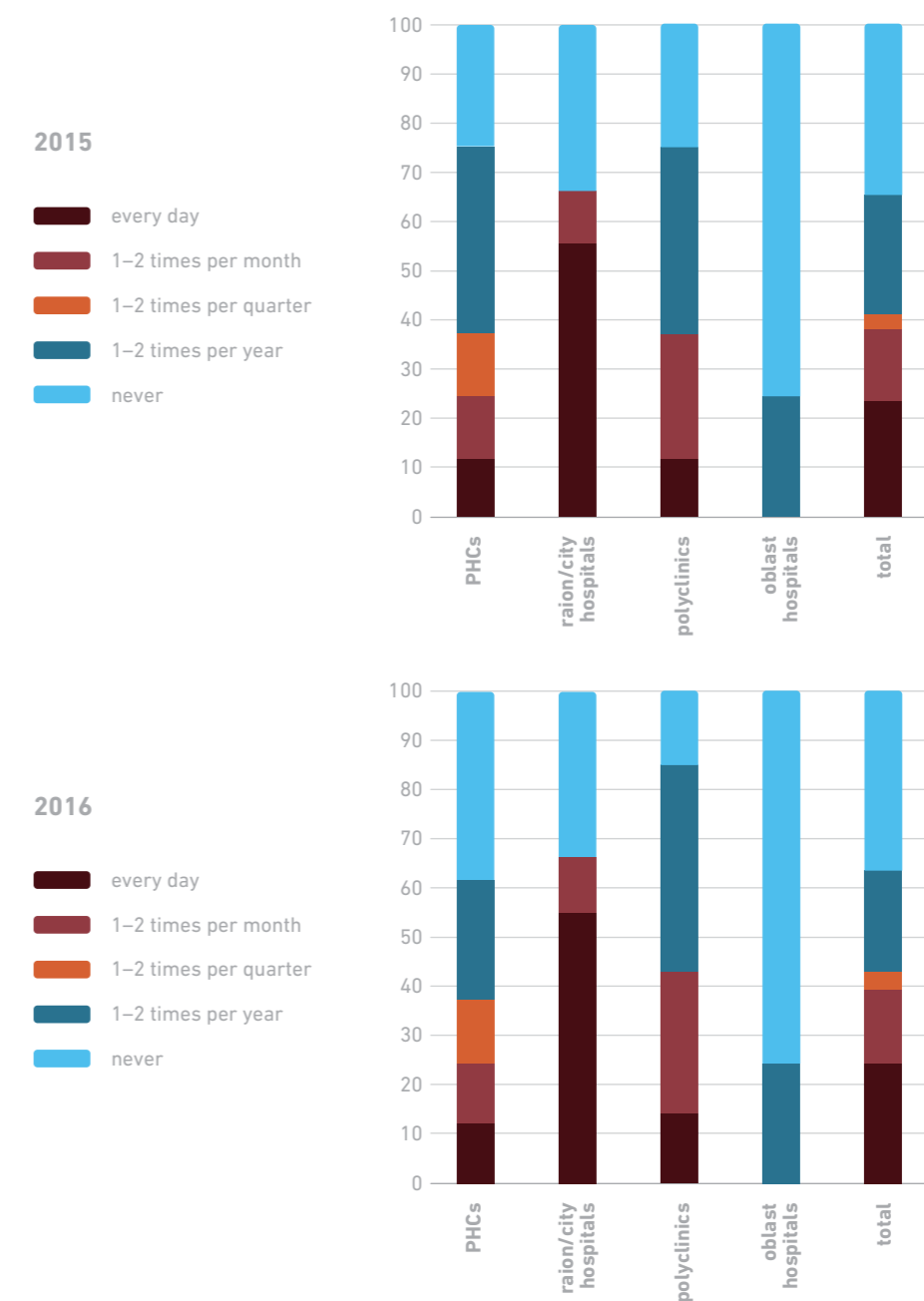
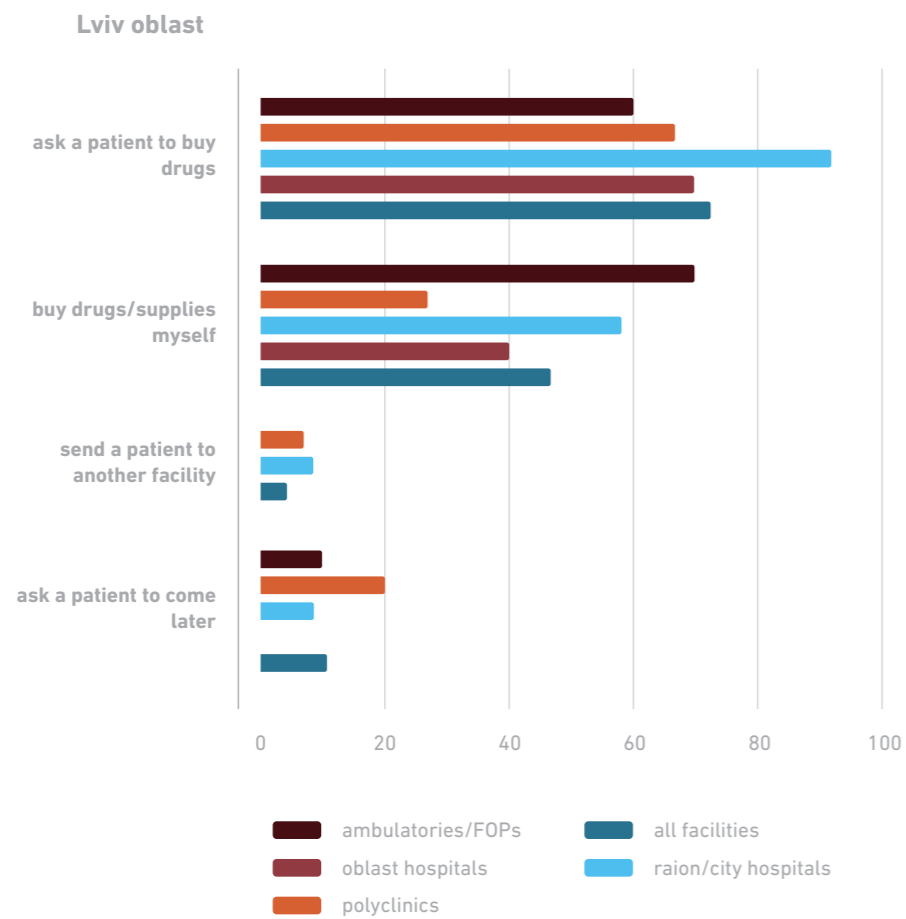


Figure 22. Donetsk and Luhansk oblasts: frequency of shortage of drugs (physicians-managers perspective)

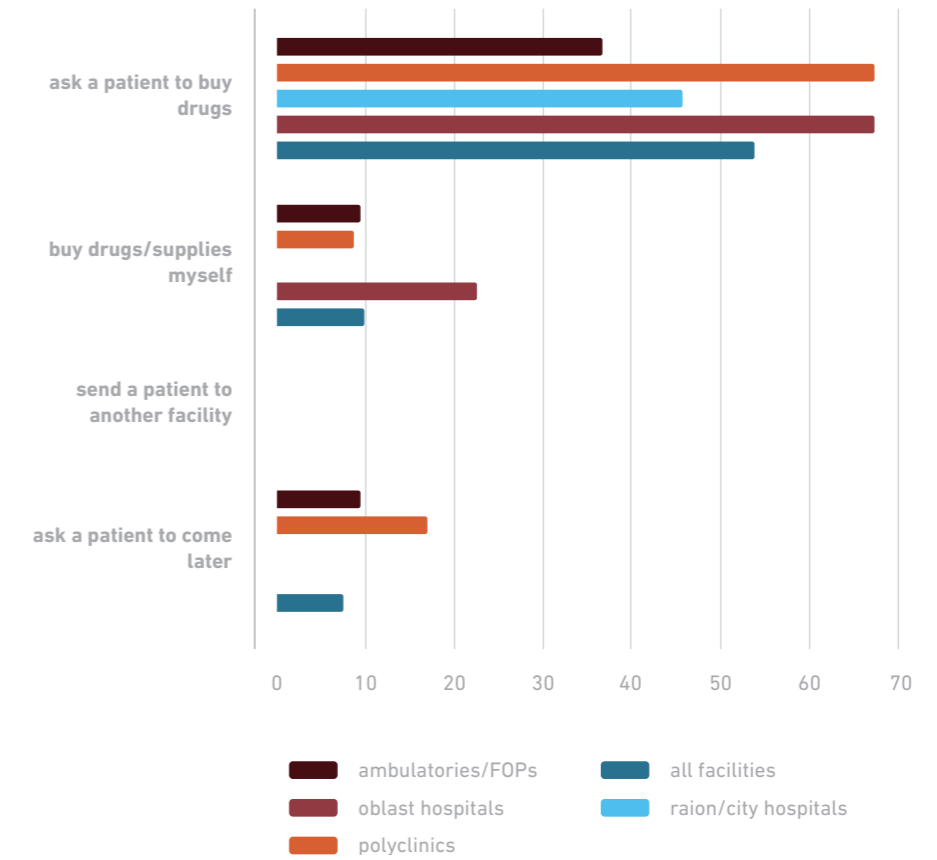


Various strategies are used by facilities to deal with drug shortages. Weekly requests or complaints (calls or letters) from facilities to obtain drug supplies are reported by about one-third of rayon/city officials. Other than formal and informal administrative requests, about 60 percent of sampled physicians request patients to purchase their own drugs when facing drug shortages. Alternatively, physicians report buying drugs for patients or their department. In Lviv oblast, about half of respondents make use of this approach compared to one-fourth in Donetsk and Luhansk, and only 10 percent in Poltava. About one-tenth of patients are asked to return later or are sent to another physician/facility when drugs are not available on site (Figure 23).

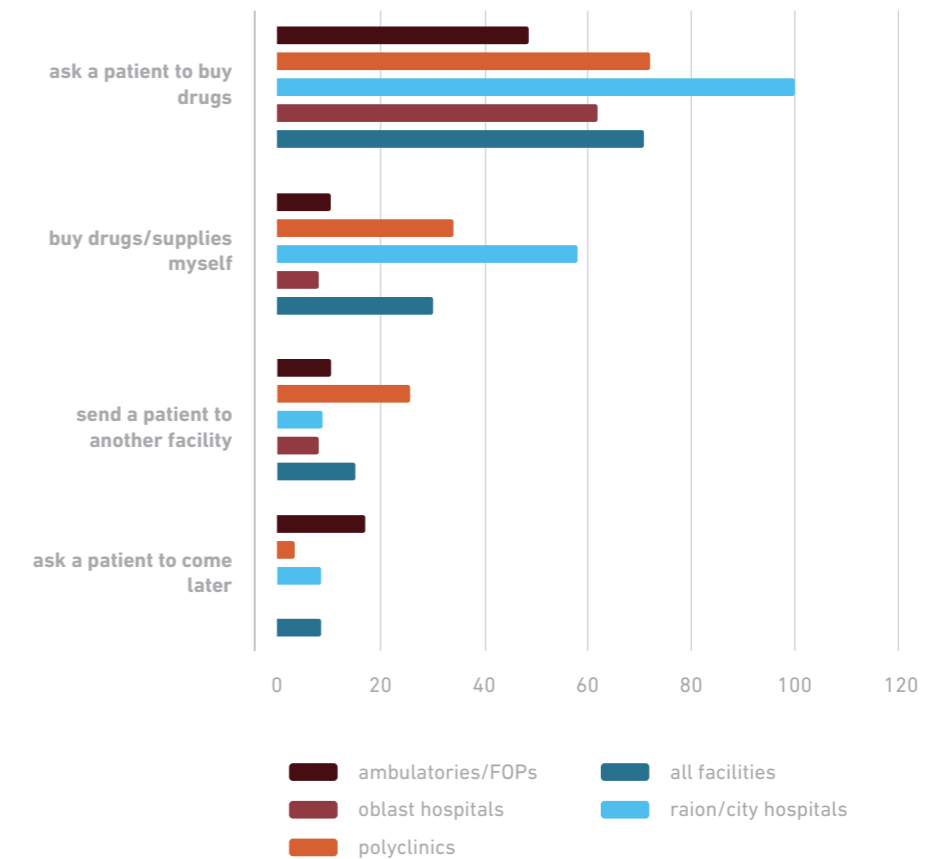
Figure 23. In case of shortages, options physicians choose (by percent)



Donetsk and Luhansk oblasts



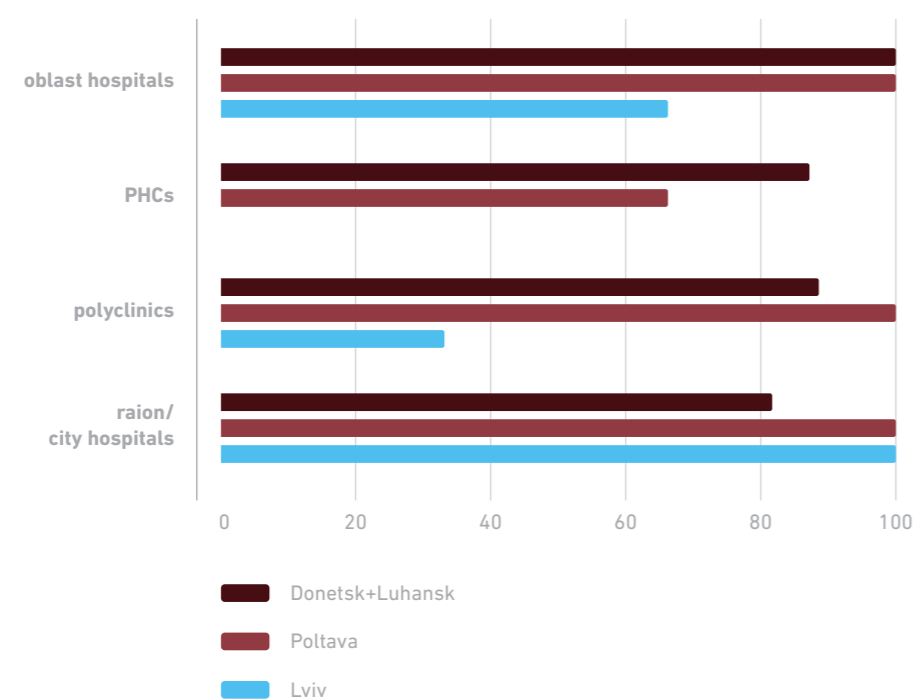
Poltava oblast



Existence of Emergency Reserves

Given the drug budget constraint, facilities tend to prioritize their purchasing of medications based on perceived needs to react to emergencies. Facilities reported that they first buy essential lifesaving drugs for emergency cases. Practically all facilities keep a reserve of such emergency drugs (Figure 24). The majority of facility managers report that the reserve is replenished as needed, when drugs are consumed or expire.

Figure 24. Do you have a reserve of [emergency] drugs? Share of “yes” answers of physicians-managers



B. DELAYS AND INEFFICIENCIES

In this section, we examine the presence of delays and inefficiencies using data from the PETS interviews in the four sampled regions, as well as data on Treasury transactions in one region, Poltava oblast.

Delays and corresponding inefficiencies may come from two main sources: financing bodies and health facilities themselves. In the former case, financing bodies may delay disbursement of funds, creating potential wage arrears and supply interruption. In the latter case, facilities may inefficiently plan expenditures leading, for instance, to delay in procurement or a contrary accumulation of drug stocks.

Information from PETS interviews

Facility respondents and local officials reported that there were considerable delays in 2013 and 2014 in nonwage financing disbursed by the Treasury, but that transfers were on schedule in 2015 and 2016. Salaries, as well as local budget transfers, were reported on schedule in 2015 and 2016, although there were delays of salaries in 2014.

Considerable delays are reported with regard to centralized drug deliveries in 2015, which could be explained by a transition period associated with the introduction of new rules of procurement through international organizations (e.g., UNDP).

In particular, two-thirds of physicians-managers from Lviv oblast and 36 percent in Poltava oblast reported delays of either funds disbursement or of centralized supplies of drugs or other goods in 2015. Drugs were most often delayed (36 percent of answers) followed by financial resources (28 percent of answers).

Only three physicians-managers reported provision of funds delays on the side of the Treasury; these delays happened 1–2 times a year and lasted about 7–9 days. In particular, at the end of 2016 there was a hacker attack on the Ukrainian Treasury, due to which all transactions were frozen for several days.

Since interviews in Luhansk and Donetsk oblasts were conducted at the end of 2016, physicians-managers there were asked about 2016, and the question was more detailed. Their answers are presented in Table 5.

Table 5. Were there delays in disbursement of finances, drugs, or other supplies during 2016? Share of “yes” answers of physicians-managers in Donetsk and Luhansk oblasts

	FINANCES	DRUGS	OTHER SUPPLIES
From central budget	22	56	22
From oblast budget	15.6	25	19
From rayon/ municipal/ hromada budget	12.5	9	9

All polyclinics and maternity houses report the absence of centralized delivery of vaccines during the last two years. The situation was reported as threatening public health with, in particular, a shortage of TB and anti-rabies vaccines. Improvements in vaccine supply was reported to have taken place toward the end of 2016.

Information from Treasury transactions

In addition to delays reported in PETS interviews, a case study was realized in Poltava oblast using Treasury transactions comparing actual and planned levels of transfers to facilities. To assess budget execution and delays in the flow transfers toward facilities, more than 50,000 financial transactions from the Treasury toward each facility in Poltava

oblast in 2015 were compared to monthly budget planning. The results of this analysis are presented below. The presence of delays in transferred amounts is assessed using the deviation between actual and planned monthly expenditures (in percentage of planned expenditure) on (i) wages and salaries, and (ii) medication.

As an illustration, Table 6 presents measurement of budget execution and delays in wage transfers for the case of a Central Rayon Hospital in Poltava oblast. It shows actual wage reception, planned monthly wage budget, and deviations between the two in 2014 and 2015. We observe that in 2015 important salary delays were present in January (-62.8 percent), followed by an excess monthly reception of 21.6 percent in February. This excess transfer did not compensate for the previous month underspending leaving a gap of 4.2 percent of expenditure transfer compared to the planned budget. In 2014, delays in salary expenditure transfer were observed during the first 10 months, then fully compensated by surplus budget reception during the last two months of the year.

Table 6. Actual and planned monthly budget inflows (salaries): illustration for a Central Rayon Hospital, thousand UAH (2014 and 2015)

	2014			2015		
	PLANNED	ACTUAL	DEVIATION, PERCENT	PLANNED	ACTUAL	DEVIATION, PERCENT
Jan	1,218	1,217	0%	1,283	478	-62.8%
Feb	1,228	1,191	-3.0%	1,334	1,623	21.6%
Mar	1,292	1,273	-1.5%	1,322	1,298	-1.8%
Apr	1,305	1,302	-0.2%	1,373	1,479	7.7%
May	1,450	1,389	-4.2%	1,474	1,511	2.5%
Jun	1,463	1,460	-0.2%	1,416	1,420	0.3%
Jul	1,402	1,339	-4.5%	1,301	1,301	0.0%
Aug	1,273	1,179	-7.4%	1,209	1,209	0.0%
Sep	1,229	1,073	-12.7%	2,037	1,244	-39.0%
Oct	1,139	1,097	-3.7%	1,530	1,966	28.5%
Nov	1,000	1,169	16.9%	1,562	1,771	13.4%
Dec	1,246	1,558	25.0%	2,206	1,999	-9.4%
Total	15,245	15,245	0.0%	18,048	17,298	-4.2%
Average absolute monthly deviation			6.6%			15.6%

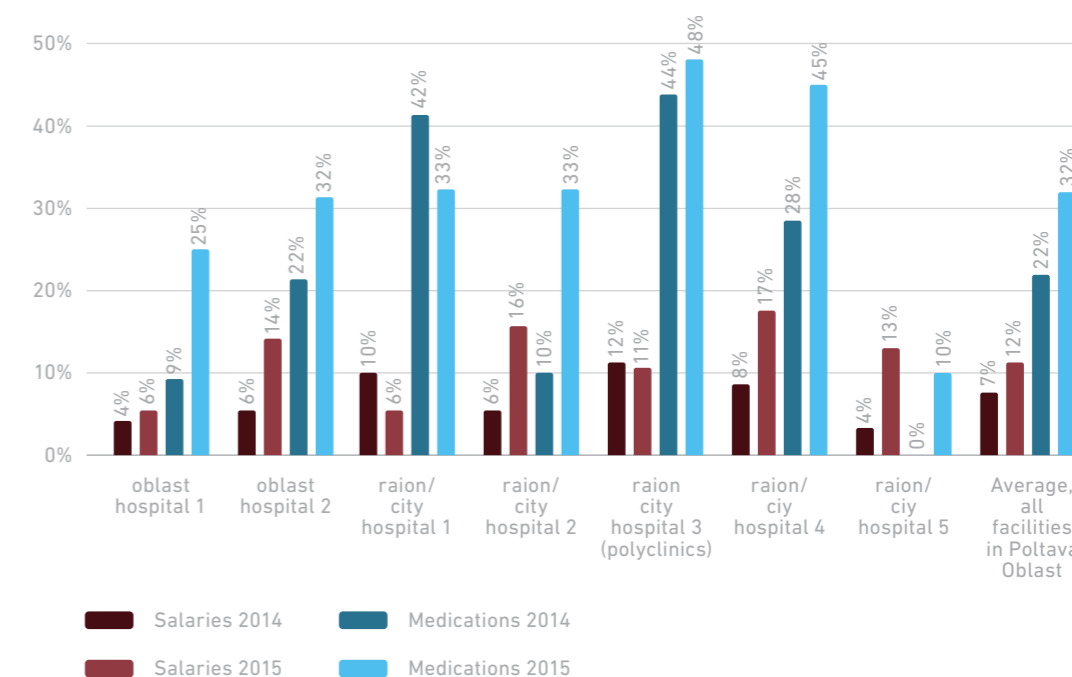
Note: Deviations between actual and planned expenditures are computed for each month as: $\text{Deviation}_{\text{month } i} = (\text{Actual Expenditure}_{\text{month } i} - \text{Planned Expenditure}_{\text{month } i}) * 100 / \text{Planned Expenditure}_{\text{month } i}$

As an indicator of potential inefficiency in budget execution and delays, we use the average monthly deviations in transfers—both positive and negative. It is measured as the sum, in absolute value, of monthly deviation relative to planned transfers (as a proportion of planned transfers). We observe average deviation of 6.6 percent and 15.6 percent in 2014 and 2015 respectively, indicating relatively important variations in monthly transfers, especially in 2015 (Table 10).

Figure 25 presents the average monthly deviation (in absolute value) of salaries and medication for Poltava oblast, for each sampled facility in 2014 and 2015. We observe substantial monthly deviations between actual and planned transfers, especially in 2015, with average deviation from planned expenditure of 32.2 percent on medication and 11.8 percent on salaries during the year.

The delays and budget execution problems illustrated in the case of the Central Rayon Hospital seem also to be observed overall across facilities in Poltava region, and at an even larger scale with regard to the medication budget. Indeed, average deviations (in absolute value) between actual and planned monthly inflows of medication budget were 32.2 percent in 2015 (22.2 percent in 2014). Average differences in salary reception across the region were 11.8 percent in 2015 (7 percent in 2014). This evidence may be indicative of inefficient planning and disbursement of financial resources to health facilities in the oblast.

Figure 25. Average monthly deviations of actual and planned monthly budget inflows (salaries and medication) by facilities: Poltava oblast (2014 and 2015)



Source: Authors from Treasury data.

Deviation in percentage in yearly transfer in 2014 and 2015, for each facility type, for Poltava oblast is presented in Table 7 presents salary and medication budgets.

Negative deviation indicates underspending for each budget items.

Overall, we observe underspending of the budget for both years, especially with regard to the medication budget (2.7 percent and 1.2 percent in 2014 and 2015, respectively), while underspending of the wages budget was less than 1 percent for both years. Important variations are observed across health facilities within the oblast, with actual vs planned medications transfers varying between -14.4 percent to 10.7 percent and salaries from -4.2 percent to 2.3 percent (2015).

Table 7. Difference between actual and planned annual budget inflows (salaries and medication), by facilities: Poltava oblast (2014 and 2015)

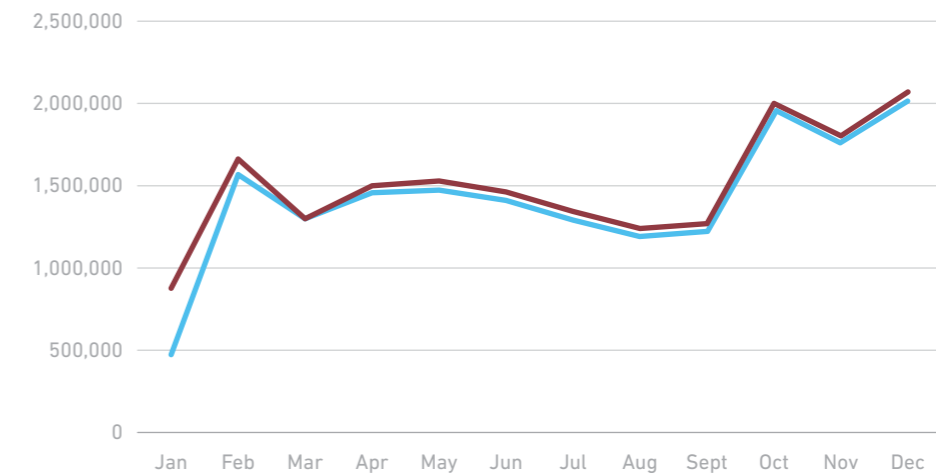
Facility	SALARIES		MEDICATIONS	
	2014	2015	2014	2015
Rayon/city hospital 1	2.0%	-3.5%	-11.0%	10.7%
Oblast hospital 1	0.0%	0.0%	0.0%	0.9%
Oblast Hospital 2	0.6%	0.0%	0.0%	-14.4%
Rayon/city hospital 2	0.0%	-4.2%	-8.0%	-6.0%
Rayon/city hospital 3 (polyclinics)	-3.0%	2.3%	0.0%	0.0%
Rayon/city hospital 4	0.0%	0.0%	0.0%	0.8%
Rayon/city hospital 5	-3.7%	-0.7%	0.0%	0.0%
Average	-0.6%	-0.9%	-2.7%	-1.2%

Source: Authors from Treasury data.

Turning now to deviations, at the facility level, between actual budget reception and expenditure, Figure 26 presents an illustration for the selected Central rayon hospital in the Poltava oblast of the monthly reception of the wage budget (blue line) and wage expenditure. We observe that expenditure for salaries almost coincide with budget reception in 2015, except for January.

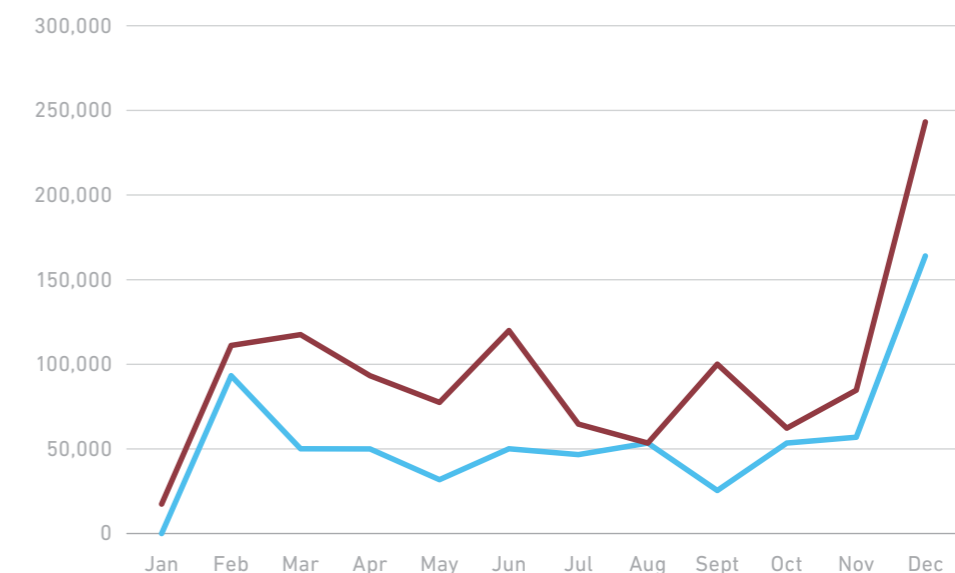
With regard to the medication budget of the selected Central rayon hospital (Figure 27), we observe that expenditures outpace actual reception in 2015, indicating that the medication budget (from MoH and local governments) is supplemented by other sources of financing. Indeed, facilities generate revenues from sales of services and goods (e.g., out-of-pocket fees, charitable fund contributions, rental fees, etc.). Many of such inflows do not have assigned economic classification codes (e.g., 2220: "Drugs and materials"), but may be used by hospitals to purchase medications.

Figure 26. Monthly actual budget allocation (blue line) and expenditure (red line) (salary), illustration for a Central Rayon Hospital (2015)



Source: Own calculations from Treasury data.

Figure 27. Monthly actual budget allocation (blue line) and expenditure (red line) (medication), illustration for a Central Rayon Hospital (2015)

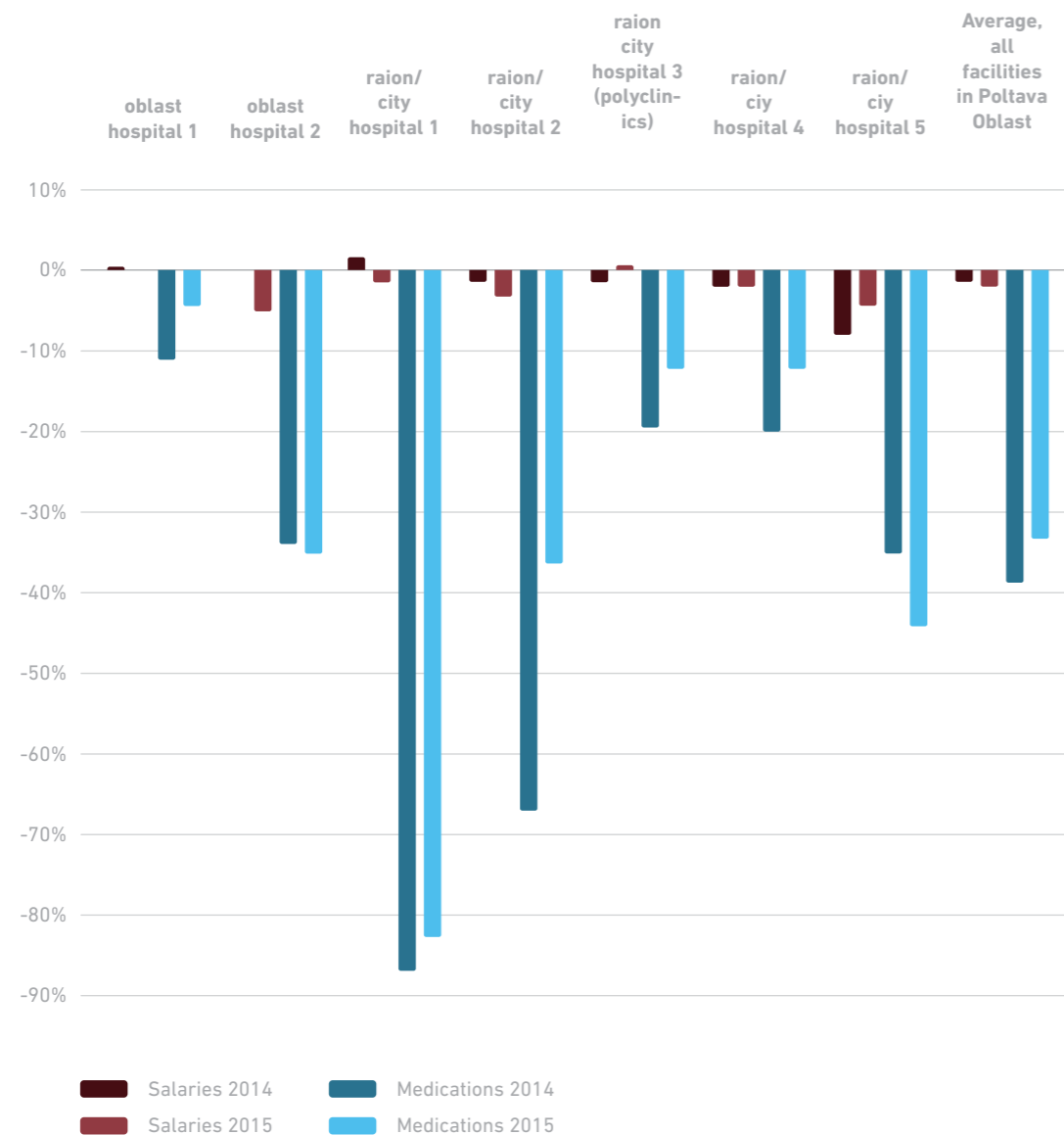


Source: Own calculations from Treasury data.

For all sampled health facilities in Poltava oblast, the ratio of budget allocation to expenditure by facilities is constructed, by facility types for salaries and medication in 2014 and 2015 (Figure 28). As observed, salary budget reception and expenditure balance relatively well, with reception at the facility level on average 1 percent to 2 percent below expenditure. However, medication budget reception covers only about two-thirds of medication expenditure among Poltava facilities, and in some cases (rayon city hospital

1) less than one-fifth. This could be explained by the fact that while salaries (and utilities) are covered by medical subvention, medications are purchased partly through self-generated funds. In the case of Poltava oblast hospital 1, which hosts a cardiology unit, priority purchases of emergency drugs could explain the greater public financing observed.

Figure 28. Difference of actual reception and expenditure at the facility level, in percent (Poltava oblast)



Note: Negative numbers indicate that the facility spent less on budgetary item than it received. Positive number indicate that, in addition, the facility used some other sources of funding.

Overall, substantial deviations and delays observed between actual and planned spending in Poltava region may signal the need for improved budgeting and allocation practices for health facilities. Furthermore, the problem of public underfinancing is especially apparent with regard to medication expenditure. Government support covers about two-thirds of facility actual expenditures on drug spending, with user fees and other sources providing complementary funding. A problem of proper classification of expenditure categories was also uncovered, as many revenue inflows (from nongovernment sources) do not have assigned economic codes.

These potential inefficiencies associated with planning and allocation problems are probably even more acute in reality relative to actual expenditure, given that health facilities generally hold unaccounted for bank accounts. These funds are not reported or accounted for in the Treasury data used for this exercise. In that context, proper control by the state over public health facilities activities and expenditures is far from adequate.

C. PROCUREMENTS

As discussed earlier (see section Budget Planning and Execution), a share of medication is centrally supplied in kind to health facilities. Hospitals in particular receive medications through various state-level programs (e.g., drugs for cancer treatment). Deliveries of those drugs are reportedly plagued by frequent delays, especially in 2015.

However, overall medications used at health facility levels are mostly purchased and procured by facilities themselves, using funding coming generally from central and local budgets.

Oblast and rayon officials, as well as physicians-managers, report that when procuring drugs, several hospitals split drug procurement into smaller orders. Doing so, they seek to avoid public tenders, which are associated with longer procedures and delivery periods (more than 2 months). Overall, the most important items procured by facilities are communal services (i.e., water and plumbing, electricity, telephone, etc).

With regard to the new e-procurement system Prozorro, some facilities report having started using Prozorro even before it became mandatory on August 1, 2016. About two-thirds of surveyed facilities in Lviv oblast, a half in Donetsk and Luhansk oblasts, and 40 percent in Poltava oblast report an early use of the e-procurement system (see Table 8). More than half of physician and public officials (city/raion/oblast administration) report savings using Prozorro.

However, facility managers and officials also expressed a number of concerns regarding the e-procurement system. These include (i) quality of goods supplied: given that firms within Prozorro compete only on price, quality of goods offered is hard to control; (ii) reliability of suppliers: since most firms can enter competition in Prozorro, respondents expressed concerns that some dubious firms may ultimately win tenders, but would be unable to meet conditions; cases of Prozorro winners unable to supply the needed quantities and tenders having to be rerun were cited; (iii) conditions of delivery:

some drugs have to be shipped under defined conditions (e.g., cold chain), and some respondents expressed doubts about the ability of suppliers to respect these conditions; and (iv) economy of scale: small facilities have difficulties attracting suppliers since they face higher transaction (and delivery) costs. Sixty percent of facilities in Donetsk and Luhansk oblasts, 50 percent in Poltava oblast and 33 percent in Lviv oblast, mostly small ones, experience hardship in attracting suppliers because of relatively large transaction costs. Framework agreements, when some agency (i.e., rayon or oblast administration or a centralized procurement agency) procures drugs for several facilities, could mitigate this problem.

Table 8. “Early” usage and perspectives on Prozorro, by rayons/cities and facilities (in percentage)

	LVIV	POLTAVA	DONETSK + LUHANSK
Rayons/cities using prozorro BEFORE 01.08.2017 (%)	60	67	64
AND had some economy with Prozorro	100	100	29
AND are optimistic about Prozorro	100	100	14
# of observations	5	3	11
Facilities using Prozorro BEFORE 01.08.2017 (%)	67	33	50
AND had some economy with Prozorro	50	100	100
AND are optimistic about Prozorro	0	100	43
# of observations	6	9	14

6. HUMAN RESOURCE MANAGEMENT

In this chapter, we examine human resource use at the facility level, examining first physicians' time, salary aspirations, and then evidence of moonlighting.

A. USE OF PHYSICIANS' TIME

Physicians interviewed at facility levels report working on average about 170 hours per month, (42–43 hours per week). Such a reported workload is significantly longer than official guidelines of 33 to 38.5 hours per week for physicians. Between oblasts, physicians in Lviv report working the least number of hours, with an average about 150 hours per month compared to 170 hours in Poltava and about 180 hours in Donetsk and Luhansk oblasts. Across facility types, the longest workload is reported by physicians in Donetsk and Luhansk oblasts rayon/city hospitals with 231 hours per month on average, and the least for the same facility type hospital in Lviv with about 140 hours (180 hours in Poltava). Among these three regions, Poltava oblast presents the narrowest distribution of physicians working time, while Lviv shows the greatest variation (Figure 27).

Could physician's time be perceived as used efficiently? The answer to this question is probably no given in particular that (i) neither patients nor physicians respect the health system entry point, and (ii) available time for patients' health is severely reduced by heavy paperwork and bureaucratic requirements

Patients' entry point

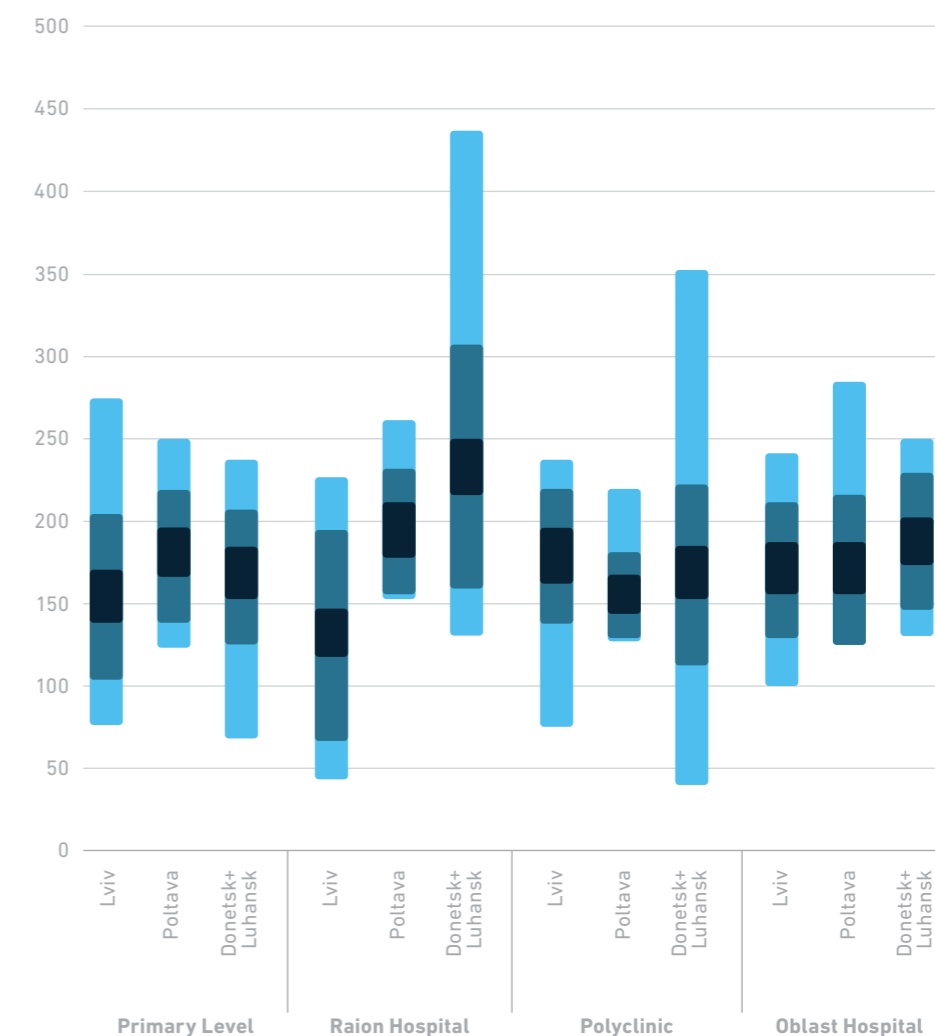
Patients often do not respect the National Health Policy recommendation that PHCs should be the entry point of patients in the health system. Hospitals' emergency and inpatient departments admit walk-in patients who have not sought care in lower-level facilities. In addition, patients tend to consult specialists without prior generalist's referrals. Indeed, approximately 90 percent of physicians in Lviv oblast working in hospitals' inpatient departments report admitting patients who have not been referred by a family physician or by a lower-level facility (e.g., polyclinics). In the other sampled regions, this practice is reported by about 70 percent of the hospital physicians interviewed. Patients' noncompliance of entry points places pressure on hospital resources, inducing inefficient use of time of highly qualified physicians and infrastructure. In particular, it often leads to physicians having to work overtime, with about 40 percent of physicians in Lviv and Poltava reporting working overtime every day or frequently (Figure 28).

Some cases of entry point noncompliance involve patients who were previously treated at the hospital and continue to be supervised by the same physician.

Physicians who are sharing time between a hospital and an adjacent polyclinic, report admitting their patients at the hospital as well. Patients not wanting to wait in lines in polyclinics sometimes seek care directly in hospitals. Furthermore, physicians report patient admittance outside of polyclinics opening hours or those arriving from distant locations.

Time spent on paperwork

Figure 29. Reported physicians working time per month, by facility types and oblast



Note: Black presents mean, dark blue is mean +/- one st.dev., light blue present min and max

In addition to a greater load from entry point misalignments, time spent on paperwork absorbs a non-negligible share of a physician's workday, reducing available health care services to be provided. On average, physicians report spending about 30 percent of their working time in facilities on activities not directly related to treating patients.

These activities include writing illness histories and various reports—for example, on usage of insulin, but also related to various reporting systems. In particular, strict control systems on medication and other medical supply usage are reported at the facility level, which involves keeping track of these inputs in various journals (some physicians mention up to 10 to 20 journals to regularly update). While nurses usually take care of this reporting, some physicians share this burden, which takes a substantial amount of time and sometimes requires completion after their normal workday.

Time spent on paperwork and reporting varies among specialties and departments, with physicians in intensive care units spending up to 60 percent of their time on paperwork compared to about 10 to 20 percent for physicians in polyclinics, and hospitals' inpatient departments and family physicians somewhere in the middle.

Reduced paperwork as well as making use of information technologies, such as computers, could lead to improved quality of care according to a majority of managers and physicians (Figures 31 and 32). However, as emphasized by some respondents, introduction of computers could have the perverse effect of even increasing overall required reporting time in an environment where information technologies have not yet been integrated as part of an overall technology system (e.g., e-health), and in this context could lead to duplication of paper and electronic reporting.

Figure 30. How often do you work overtime?

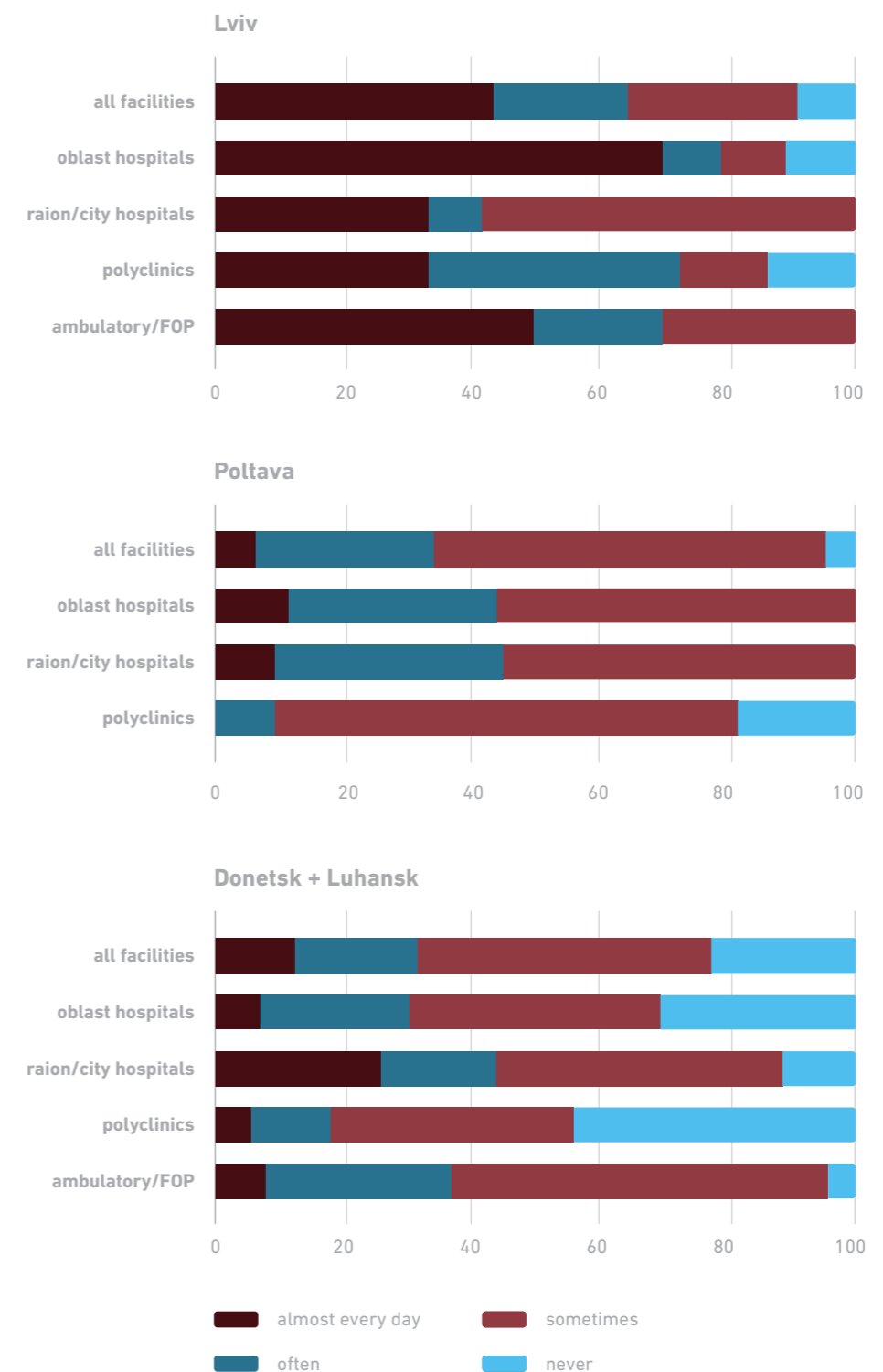


Figure 31. Would you be able to provide better treatment if someone took on paperwork?

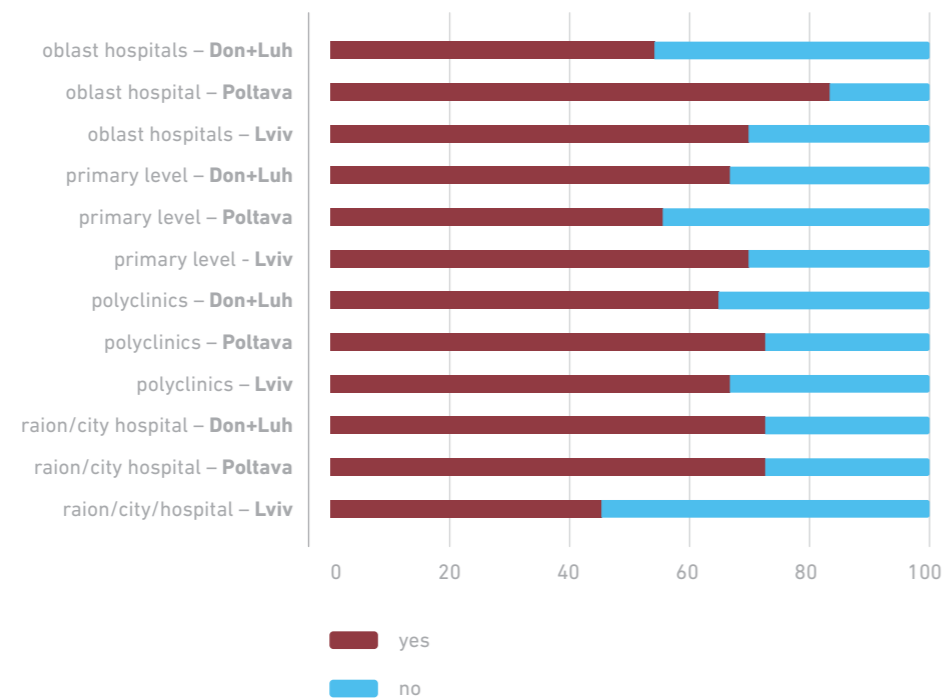
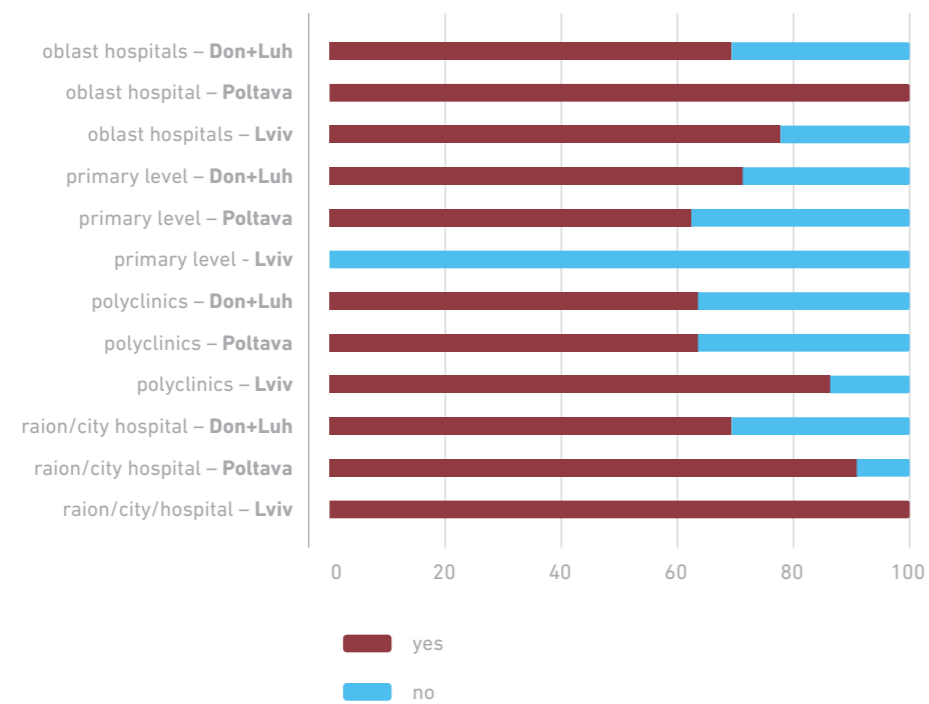


Figure 32. Would you be able to provide better treatment if you were provided a computer?



Patient consultation time

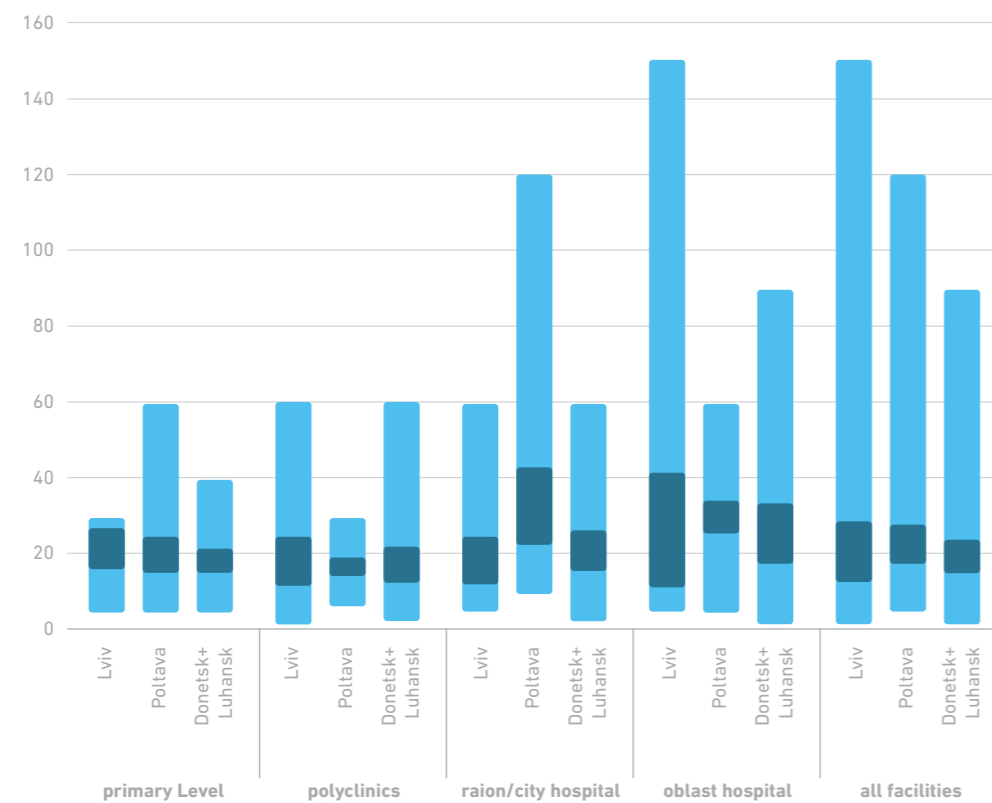
On average, physicians report spending between 15 and 30 minutes per patient visit, with slightly longer consultations in hospitals and shorter ones in outpatient clinics (Figure 33). In hospitals, about 70 percent of physicians report currently being able to devote sufficient consultation time per patient, while in outpatient clinics, about half view their available consultation time as insufficient. Physicians in polyclinics in particular view the 12 minutes guidelines per patient as insufficient to provide quality care.

Thus, physicians often work overtime; at the same time, half of them report having too little time per patient, which affects health care service quality.

Two main factors could be associated with inefficient use of physicians' time in the Ukrainian context:

- i Responsibilities between different levels of health care are blurred and rarely known by patients. In that context, patients often prefer seeking care directly to secondary level hospitals rather than through his/her family physician, both in an effort to save time and to potentially receive better treatment. Physicians tend to accept this practice because admitting these bypassing patients provides them with extra [unofficial] earnings.
- ii The absence of an electronic identification system leads several physicians to provide consultations and prescriptions for the same illnesses episodes. In addition, the absence of appointment time for patients generates long waiting hours for consultations.

Figure 33. Average consultation time per patient (in minutes), by facility types and oblasts (physicians' responses)



Note: Physicians were asked to provide minimal and maximal times that they spend on examination of one patient. Light blue bar present minimum and maximum of obtained responses, dark blue bar present means of obtained responses (i.e., lower boundary of rectangle is mean of minimum time per service, upper boundary of rectangle is mean of responses on maximal time with one patient).

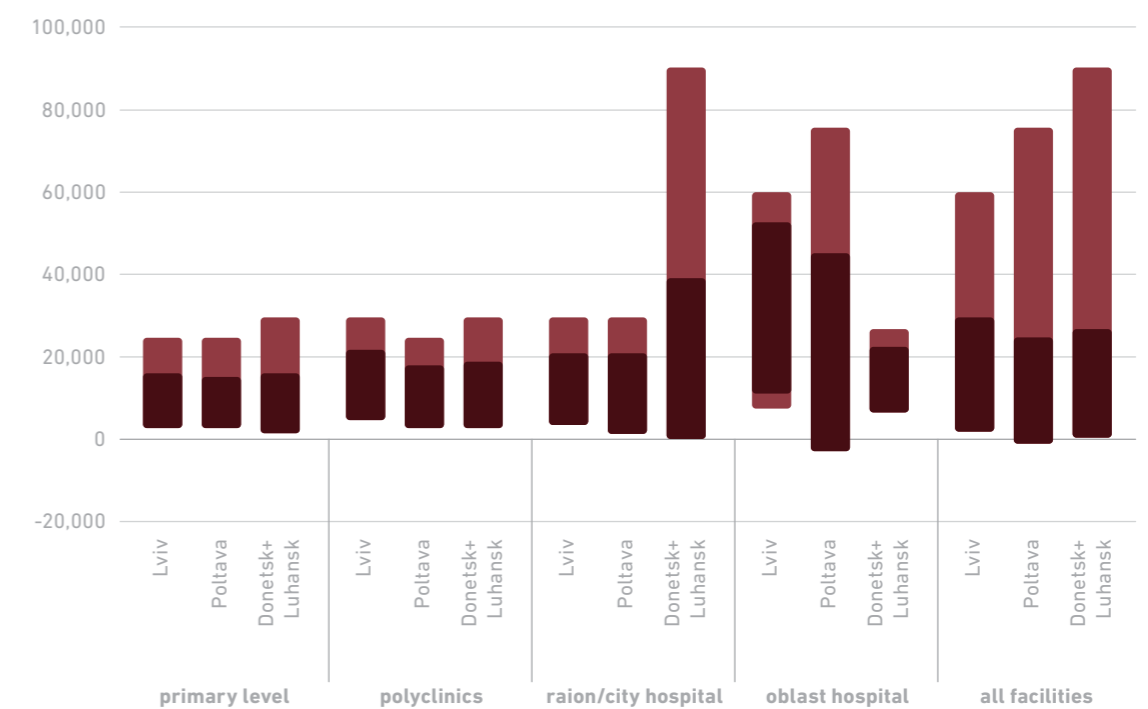
Among potential remedies are: the introduction of information technology (IT) into the sector, with simultaneous training of physicians who do not have strong computer skills; strengthening of the primary care level; and referral of family physician/generalist a necessary condition for admission to a higher level facility.

B. PHYSICIANS' SALARIES AND COPING MECHANISMS

Physicians were asked their view on a fair or decent salary for their position.

Physicians, as expected, reported noncompetitive official salaries in the sector. Physician's opinion on a fair salary ranged from UAH 4,500 (US\$174) to UAH 180,000 (US\$7,086) per month, with an average UAH 16,600 (US\$654) per month. This is almost five times the average official salary for health care personnel. Wage aspirations of physicians working in primary-level facilities and polyclinics are somewhat lower than those in hospitals (Figure 34).

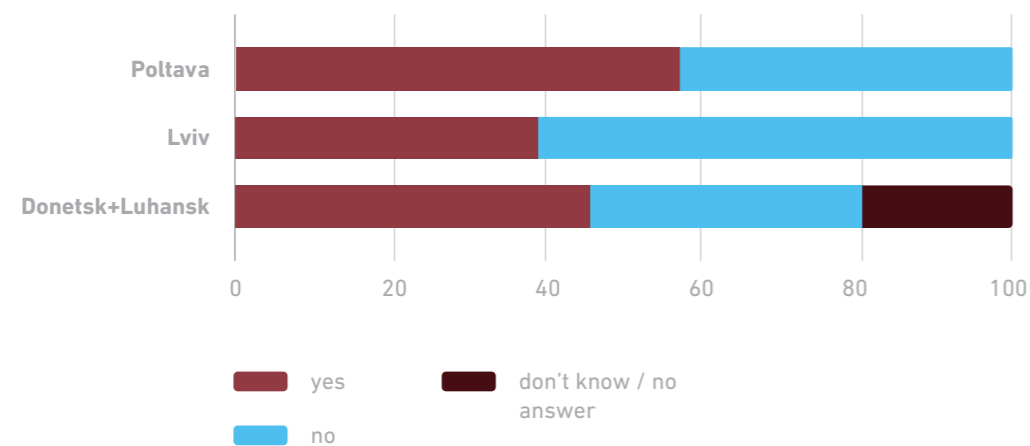
Figure 34. Fair salary: What would be the decent salary for a person in your position? (UAH per month).



Note: Two outliers (UAH 180,000 per month) were excluded. Lighter red bars present min and max, dark red bars present mean ± 1 standard deviation..

Furthermore, a question in the survey asked physicians about the potential effect of a salary increase on their services. Almost half of the physicians in outpatient departments and clinics report that in the presence of an important salary increase, they would admit more patients (Figure 35). However, about 40 percent report currently using all their available time and that the increase would have no effect on productivity. These answers do not differ significantly by oblasts.

Figure 35. If tomorrow your salary rises five times, would you agree to serve twice as many patients? (physicians' answers)



Perception of unfairness in compensation may induce physicians and other health workers to adopt coping mechanisms to get what they think they deserve. Among the coping mechanisms identified in the literature (Akerlof and Yellen 1998; Dabalen and Wane 2008), are in particular moonlighting and informal charges, which are examined here.

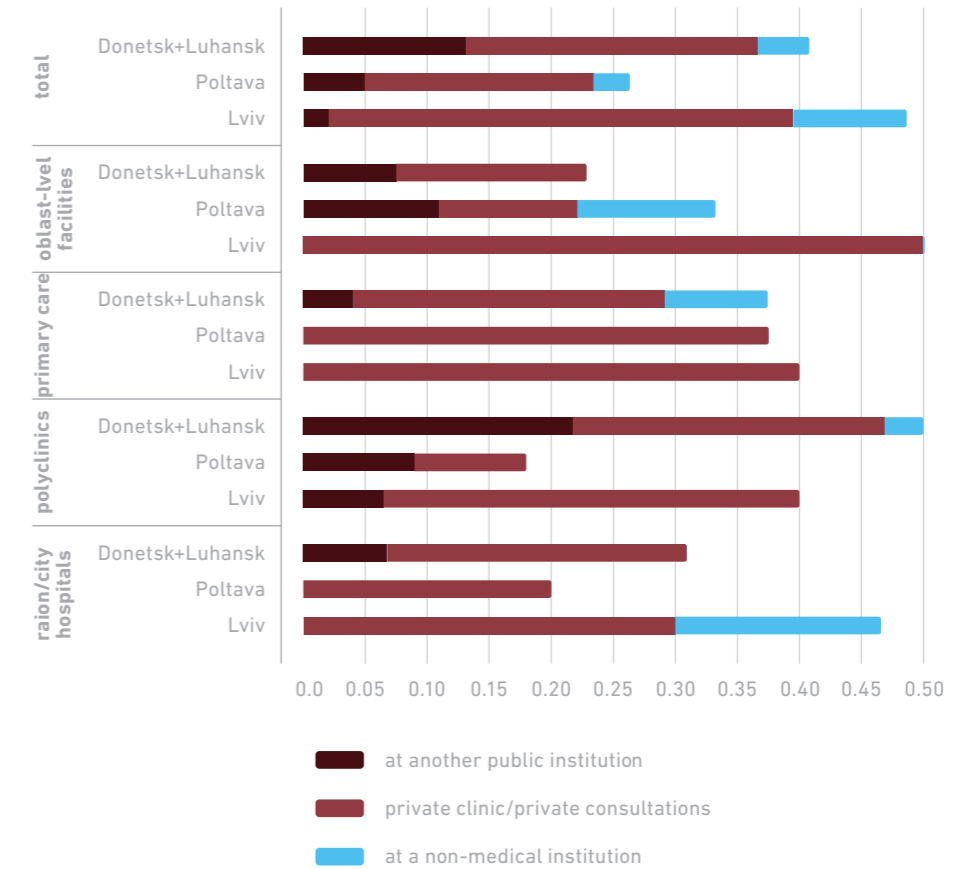
C. MOONLIGHTING OR SECONDARY JOBS

It is quite common for health workers in Ukraine to have a secondary employment to supplement their low income at another medical (e.g., a private clinic) or nonmedical institution. According to the survey, the highest rate of moonlighting is observed in Lviv, with almost 50 percent of physicians reporting working outside the facility, mainly in private clinics (Figure 36). Physicians in Poltava oblast report the lowest level of moonlighting with about 28 percent admitting they have a secondary employment. In Donetsk and Luhansk oblasts, the share of medical workers whose secondary employment is found in another public health facility is relatively higher—probably because there are fewer opportunities in the private sector. Reported nonmedical work is mostly subsistence farming.

It should be noted that in Ukraine, it is not illegal for physicians working in public facilities to work in another job, as long as they work the required number of hours at their public facility. Required number of hours are determined by physicians' FTE numbers. Facility managers are aware that physicians have secondary employment.

Despite being legal, moonlighting has potential effects on health workers absenteeism and productivity. While the survey did not collect information on absenteeism, it included questions on late arrivals at work, as well as presence of control mechanisms.

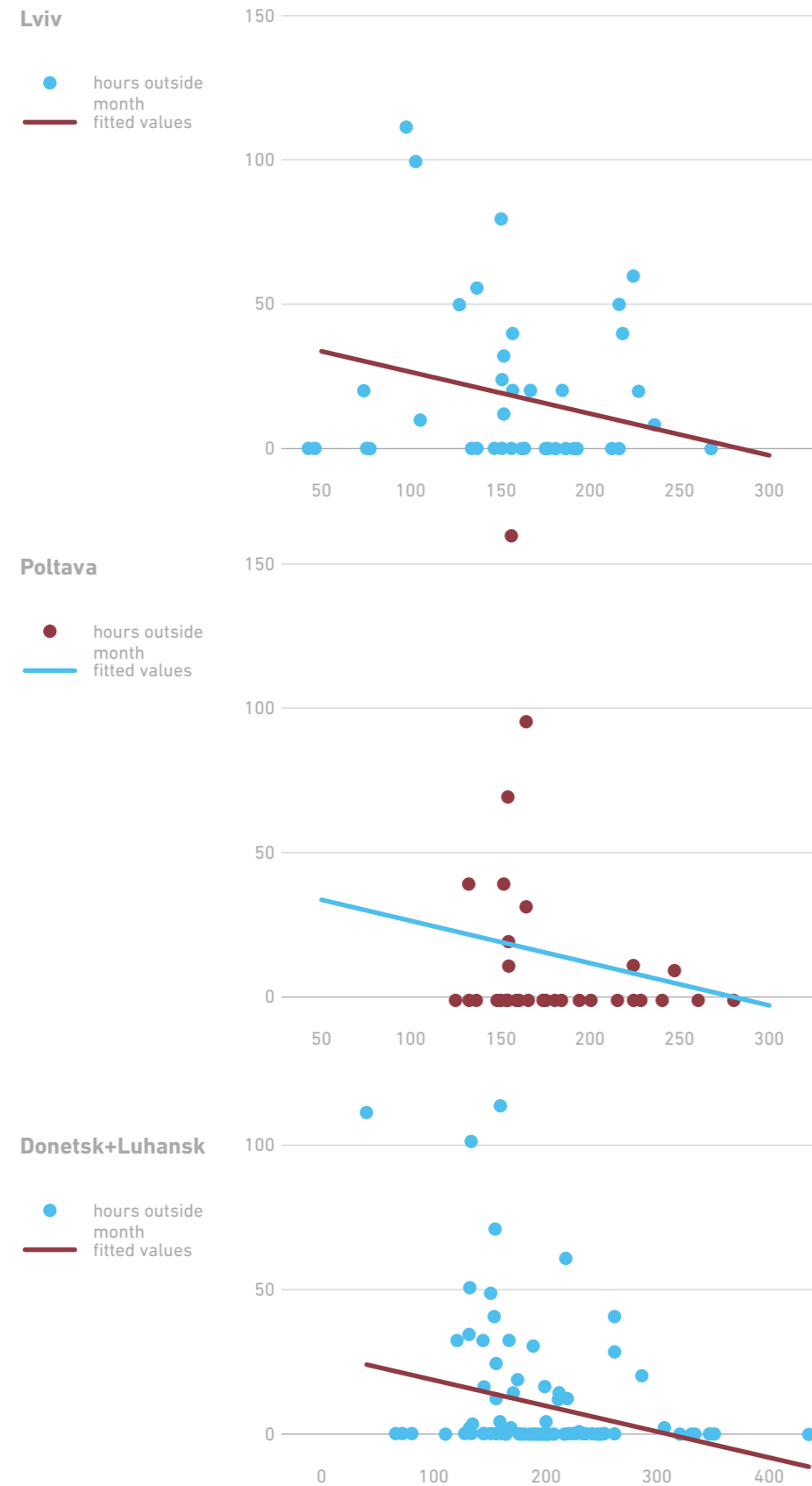
Figure 36. Share of physicians who report having another job, by facility type and oblast



Most managers report using some form of control of presence of physicians at the workplace. This could take the form of journals of presence or timesheets, but there are no standardized mechanisms in place across facilities and regions. Those who do not have an opportunity to personally control presence (e.g., PHCs managers responsible for several village ambulatories or FOPs) control presence by phone, and make weekly visits to facilities.

Late arrivals are reported to be relatively rare (ranging from 0 to 10 percent). Still, much higher rates are reported in a certain number of facilities. For instance, in a rayon hospital in Lviv oblast, the facility manager reports late arrivals for about 50 percent of physicians, 10 percent of nurses, and about 30 percent of administrative staff. In another rayon hospital in Poltava oblast, these late arrivals are reported to affect 50 percent of physicians and 25 percent of other staff.

Figure 37. Correlation between working hours per month at the main job (X axis) and supplementary job (Y axis), (physicians' answers)



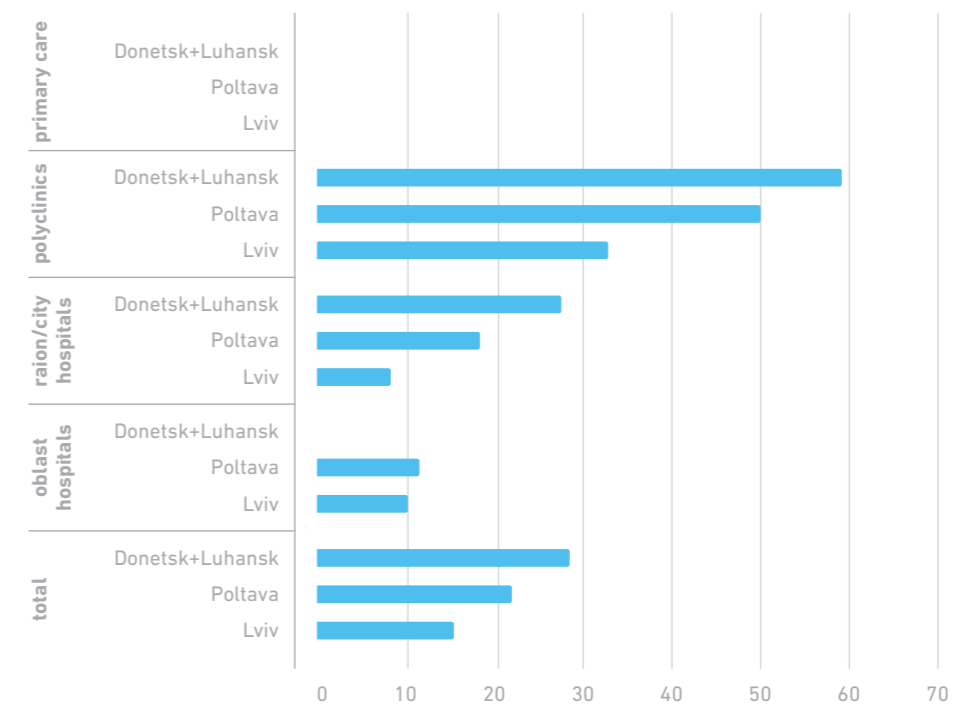
A negative significant relationship is observed between the number of hours worked by the physician in the additional employment and hours worked at the main job (Figure 37). The more an employee moonlights, the less hours are reported in his main employment. This negative significant correlation is observed in the three regions.

Charging patients for treatment and parallel financing of health care

Although public health care services are officially free in Ukraine, patients tend to incur costs when seeking care. This section looks at the reported prevalence of these informal charges in the perspective of the facility managers and physicians. It examines in particular the parallel financing structures developed as a response to low workers' wages and budget shortages.

A parallel financing system has developed to compensate for low wages and gaps between facilities' needs and public funding. Some part of the parallel financing system is legal, such as official out-of-pocket payment from patients for some uncovered services (e.g., tests) and likarniana kasa (a quasi-insurance scheme). Another part is not legitimate and is constituted of gifts, in cash and nature, from patients. These informal payments by patients are either channeled through a so-called "charitable funds" or paid directly by patients to the health worker. Up to now, the magnitude and patterns of these informal payments have not been well documented, and mostly not accounted for.

Figure 38. Existence of out-of-pocket fees for some services at the facility (percent of physicians who report existence of fees), by facility types and oblasts (physicians' answers)

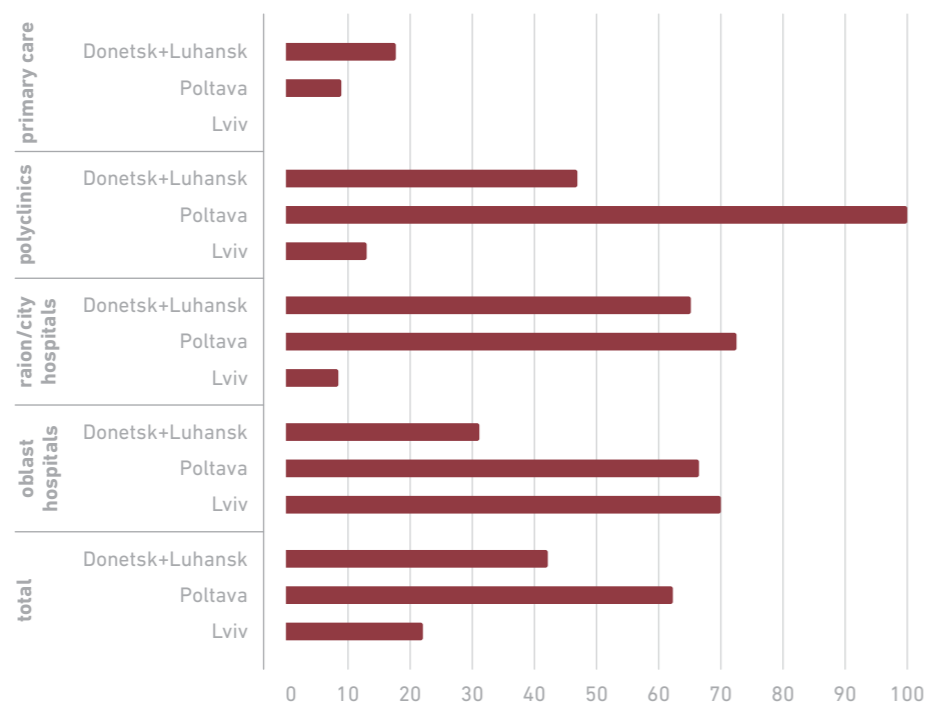


With regard to official fees, the survey included questions for physicians about official out-of-pocket fees charged to patients for services provided at the facility level. Figure 38 summarizes the prevalence of official fees reported by physicians by type of facilities and regions. Paid services are reported not to occur in PHC facilities and rarely in oblast hospitals. However, in polyclinics, official fees for services are reported by one-third to two-thirds of respondents, as well as by 10 percent to 30 percent of respondents in rayon hospitals.

The most common out-of-pocket fees for services reported at the facility level are for medical examinations (e.g., annual health check of employees), and laboratory analysis (e.g., blood test, urine test). Furthermore, physicians report requesting additional payments for patients arriving from other cities/oblasts. These fees are justified by the necessity to pay for communal services while this patient stays at a hospital (since medical subvention is calculated based on the number of people in a given area, it does not cover services for people from other areas, and the mechanism for mutual payments between oblasts and rayons is not flawless). This practice creates a potential additional barrier to health care access for internally displaced people from Eastern Ukraine.

Official fee-for-service payments by patients are typically reportedly received as a “charity” via a special account. Moreover, price lists for paid services are approved by local councils, and some hospitals even view these funds as that they belong to the local council. This situation only encourages informal payments from financially able visitors.

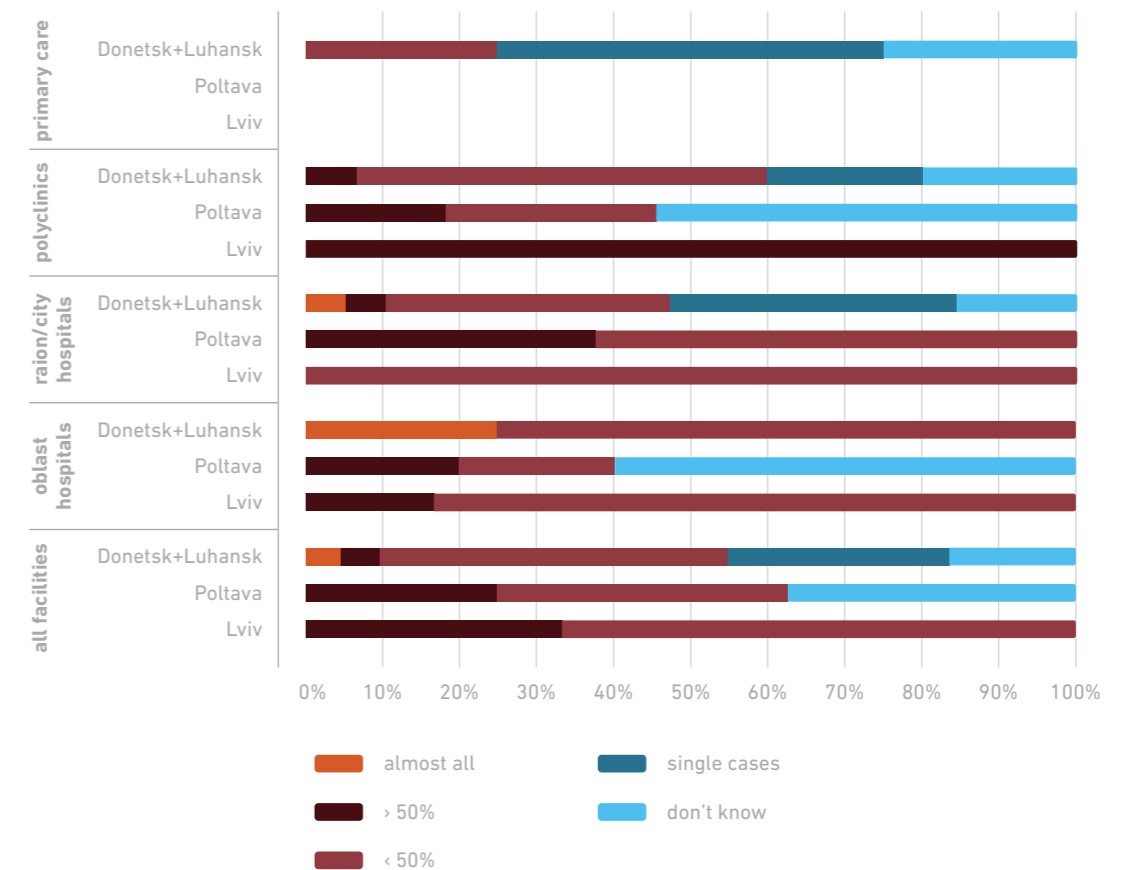
Figure 39. Existence of charitable fund at the facility (physicians’ answers)



With regard to informal payments, physicians-managers were asked about the existence of a “charitable fund” in which patients are required to contribute informal payments to receive services at the facility level. Figure 39 summarizes the answers. Although a much lower share of hospitals offer paid services as compared to polyclinics, hospitals especially tend to have “charitable funds” collecting patients’ informal contributions for services. Physicians from Lviv, except those practicing at the oblast hospital, are less likely to report existence of a charitable account at their facility than in the other sampled oblasts.

According to physicians-managers, up to 50 percent of patients provide informal payments through a contribution to the charitable fund at the facility level (Figure 40). Physicians from Donetsk and Luhansk oblasts report lower prevalence of such contributions compared to the other oblasts.

Figure 40. Share of patients contributing to the charitable fund (physicians’ answers reporting existence of a charitable account at their facility)



In addition to patient's informal contribution to the facility's charitable fund, some physicians admitted receiving informal payments directly from patients. Although there was no specific question in the survey on these direct informal payments by patients, according to physicians' answers in semi-structured discussions, these informal payments equal or even exceed physicians' official salary.

Revenues accruing to the "charitable account" can represent from one-twentieth to as much as one-fifth of a facilities' budget (Figure 41 and Figure 42). According to physicians surveyed, patient's contributions per visit generally do not exceed UAH 300, with a minimum ranging from UAH 5–10 in Donetsk, Luhansk, and Poltava oblasts to about UAH 50 in Lviv oblast.

Figure 41. Composition of revenues reported by some physicians-managers in Lviv and Poltava oblasts (here "other funds" imply charitable funds, likarniana kasa, and others)

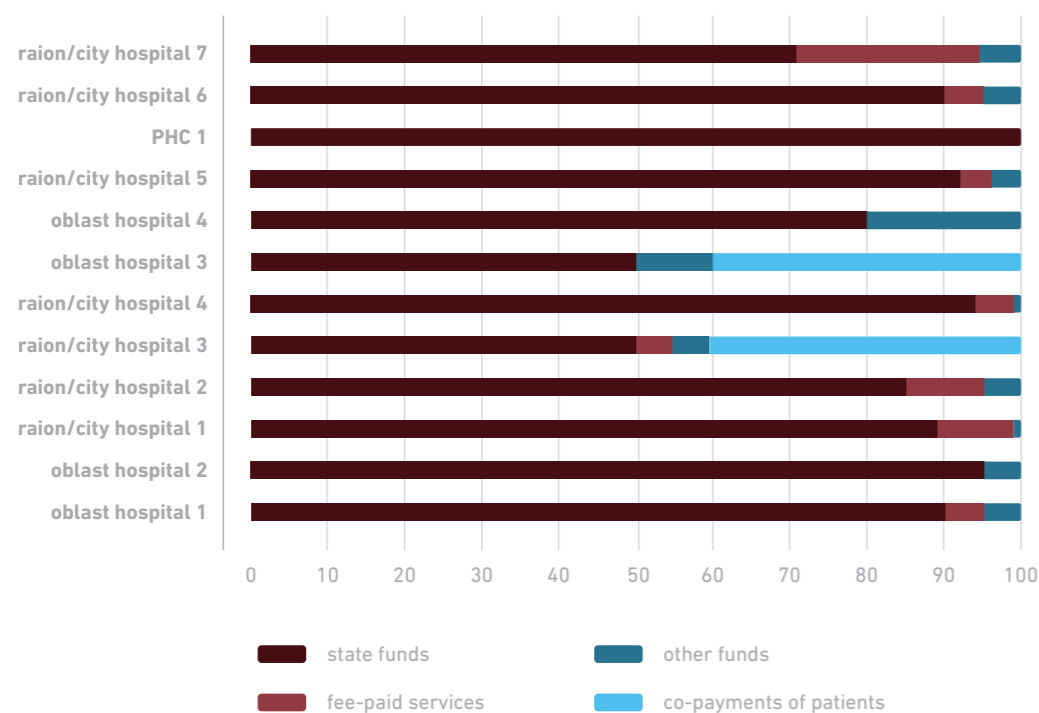
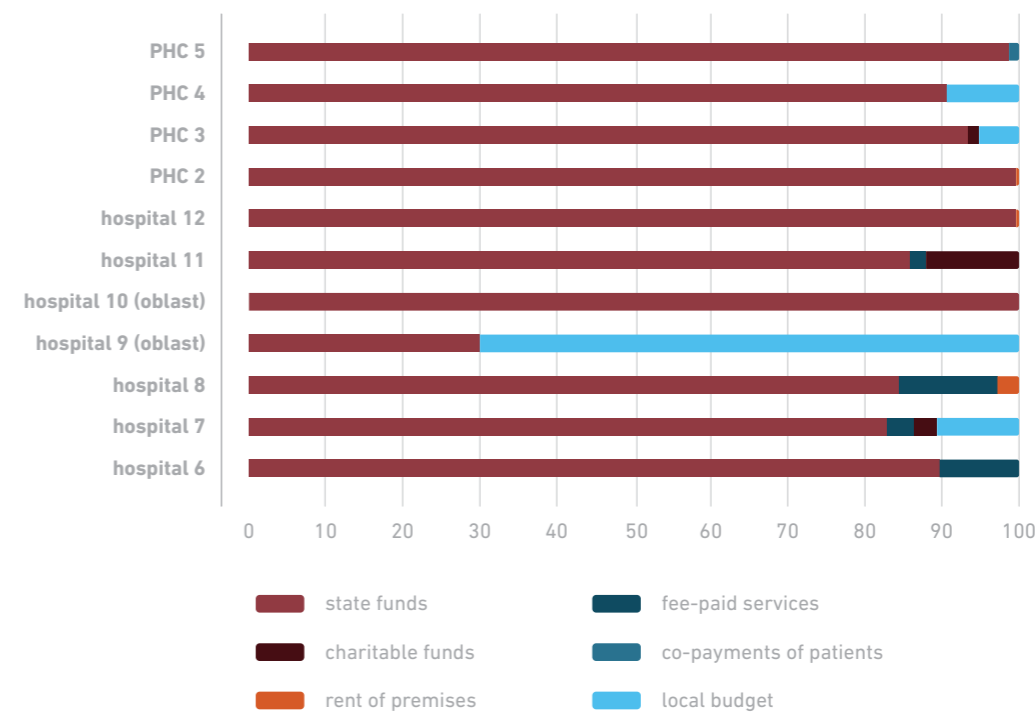


Figure 42. Composition of revenues reported by some physicians-managers in Donetsk and Luhansk oblasts



The management and use of facilities "charitable accounts" and other self-generated funds remain unregulated, and it remains unclear how patients' specific contributions are determined. According to the survey, physicians working at hospitals report that patients' informal out-of-pocket payments to the charitable accounts do not depend on level or quality of services received, while on the contrary a majority of polyclinics' physicians believe that level of patient's informal fees are function of service received. Hence, in that sense, patients' informal "charitable contributions" in polyclinics could be viewed as a replacement of a service fee.

Despite their importance, few of the revenues accruing to the facility "charitable fund" are formally accounted for at the facility level or reported in official treasury accounts. Figures 39 and 40 show that facilities officially declare very small amounts of own earnings, with formal out-of-pocket payments (fee-for-services) and own revenues (including "charitable fund"), officially representing between 1 percent and 15 percent of total revenues among facility types.

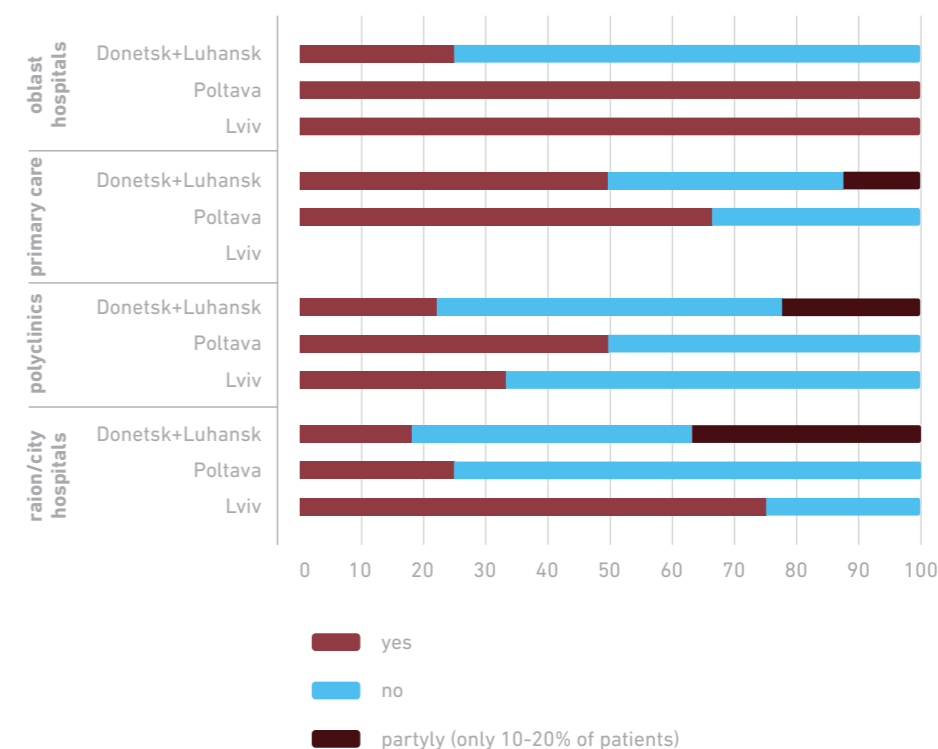
The level and usage of resources accruing to this parallel out-of-pocket fee system remain unclear. While the funds in the charitable account are reported to generally be used for the maintenance of equipment and infrastructure, the purchase of essential medication, or staff bonuses, given the absence of accountability and transparency in these additionally collected resources, including various informal direct payments, the potential misuse of these resources and rent captured by health personnel cannot be discounted.

The non-transparent parallel out-of-pocket fee systems can have a negative impact on patients' access to care. Even when asked to pay for a service officially to the health facility cashier, patients might not be able to differentiate between what is legally required and what is technically optional (informal). Furthermore, while it is not known exactly how much additional funds patients are requested to contribute, and whether such informal contributions are compulsory to obtain access to health care services, the prevalence of a parallel financing system raises the question of equitable access to health care and its quality.

Furthermore, neither patients nor physicians think that it is immoral for physicians to receive payments directly from the patients. Most physicians do not think that they should abstain from looking for other sources of revenues (both formal and informal). Another implication of this situation is that young graduates are usually reluctant to work at facilities in small towns or villages where it is harder to find a supplementary source of income. Because of this, the medical specialty is the only one where so-called "distribution" —mandatory allocation to the first job after graduation—existed until the end of 2016. There is anecdotal evidence that young people leave their first jobs and move to larger cities as soon as they find a job there. If the situation does not change, the future of the health care in small towns and rural areas seems quite dismal.

Over 50 percent of physicians in Lviv and Poltava oblasts think that patients could pay for additional services, such as extended diagnostics, improved conditions at a hospital, or physician home visits (Figure 43). Only about a quarter of physicians in Donetsk and Luhansk oblasts share this belief; they explain that patients at their regions are very poor.

Figure 43. Do you think patients are ready to pay for additional services? (physicians-managers answers)²



7. FACILITIES' COST AND PRODUCTIVITY

This section presents an analysis of costs of services and productivity using facility-level data from the same sample of facilities in Lviv and Poltava oblasts. It first examines types and volumes of services provided by sampled facilities. Second, it looks at productivity indicators across different types of facilities, and reviews variation in costs of services using step-down cost allocation.

To analyze productivity and costs across different types of facilities and medical specialties, we focus on the analysis of selected indicators of productivity and cost. We also pay attention to the utilization levels to test the assumption that higher productivity will be observed in facilities that patients trust more. For the analysis of productivity, these indicators include: (i) health facility productivity (such as the number of patients treated for various types of illnesses), and (ii) staff productivity (such as number of patients per employee or qualified employees, for various types of illnesses). For the analysis of costs, we compare the cost of a visit to outpatient facilities, cost of the diagnostics test, or cost of the case treated in an inpatient facility, as relevant.

Key findings of this section include observations of high variability in utilization rates of health care services across providers, and large variation in terms of staff productivity and costs of services across facility types (city, rayon, oblast levels) in two regions.

Types of facilities and services

The sample of facilities was analyzed using available accounting data on expenditures and the use of resources, performance data on the number of patients visits, diagnostics and clinical procedures, bed-days, and hospital cases treated at the level of departments or separate units of facilities. In total, data of 970 units in 17 health care providers were analyzed, of which 490 units were in Poltava oblast and 480 units in Lviv oblast. These units included 221 administrative and auxiliary divisions, 183 PHC divisions, 149 diagnostics departments, 262 polyclinics, and 148 hospital departments.

Allocation of human resources across facilities and departments

The team of researchers analyzed distribution of personnel in different types of divisions of our sample. Table 9 summarizes allocation of personnel by the type of staff positions and shows that most staff positions are engaged in the provision of inpatient care.

Allocation of human resources across facilities of different types is not even (see Table 15). Overall, more people are employed in Poltava facilities of our sample compared to facilities in the Lviv oblast sample. In Lviv oblast's sample of facilities, physicians are more concentrated in city facilities, but for nurses the tendency is reversed. In Poltava oblast, in contrast, more physicians are working in rayon hospitals, and the same is observed for nurses.

Table 9. Distribution of staff positions in sampled facilities

TYPE OF DIVISION	MANAGERS	PHYSICIANS AND INTERNS	NURSES	TOTAL STAFF POSITIONS	% SHARE OF TOTAL STAFF IN SAMPLED FACILITIES
Administrative and auxiliary	55	50 + 9	109	1,633	16%
PHC	26	141 + 8	416	771	8%
Diagnostics and procedural	6	328 + 24	822	1,605	16%
Polyclinics	4	637 + 10	667	1,586	16%
Inpatient	16	847 + 27	2,003	4,514	45%
Total	107	2003 + 77	4,017	10,108	100%

More similarities can be seen in oblast-level general hospitals and polyclinics in terms of human resources engaged: almost equal numbers of physicians and nurses are working there, if calculated per 1,000 population of each oblast. However, in Poltava, more staff per 1,000 are working in the oblast hospital if all staff positions are taken together (0.69 versus 0.59 per 1,000). On the rayon level, there is a lot of similarity among both regions in terms of staff allocation for rayon polyclinics. In rayon and city hospitals more physicians and nurses are observed working in Poltava oblast facilities (0.56 and 1.45 per 1,000 in rayons; 0.37 and 0.96 in cities) compared to Lviv oblast (0.31 and 1.07 per 1,000 in rayons; 0.21 and 0.62 in cities). An interesting concentration of staff is seen in Lviv city polyclinics, probably at the expense of the PHC facilities. Considerably more staff engaged in Poltava oblast PHCs are observed compared with Lviv oblast. This can be explained by a separation of PHC institutions in Poltava oblast from polyclinics and hospitals, while in Lviv oblast this process is still ongoing.

Table 10. Allocation of personnel in facilities per 1,000 population

TYPE OF FACILITY	REGION	PHYSICIANS PER 1,000	NURSES PER 1,000	TOTAL STAFF PER 1,000
oblast hospital	Lviv oblast	0.12	0.27	0.59
	Poltava oblast	0.15	0.30	0.69
oblast polyclinics	Lviv oblast	0.02	0.02	0.05
	Poltava oblast	0.02	0.003	0.05
rayon hospital	Lviv oblast	0.31	1.07	2.43
	Poltava oblast	0.56	1.45	3.12
city hospital	Lviv oblast	0.21	0.62	1.45
	Poltava oblast	0.92	1.20	2.53
PHC	Lviv oblast	0.30	1.01	1.82
	Poltava oblast	0.84	2.01	3.88

Performance and productivity

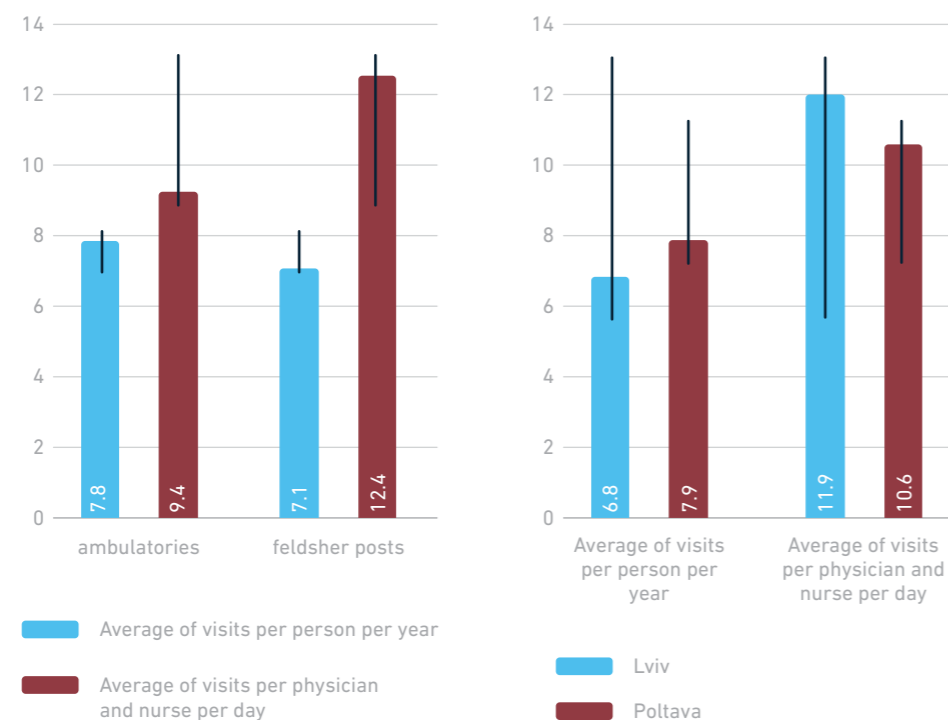
The report compares productivity among facilities by examining performance indicators at the level of departments in outpatient, inpatient, and diagnostics divisions. The researchers rely on reported numbers of staff without a possibility to confirm their accuracy.

PHC

Productivity at the PHC facilities is measured by the number of patients' visits received during the year together by both nurse and physician, to avoid mismatches in facilities where no physicians are working. We also look at the numbers of visits per year per person living in the catchment area, taking utilizations levels as a proxy for productivity for PHC facilities. The comparison of utilization and productivity for PHC facilities gives a more accurate picture of whether higher productivity is determined by higher utilization rates, since medical personnel working in PHC usually are the first point of care for patients living in a specific area.

Figure 44. Average utilization and workload at PHCs, by type (error bars for standard deviation)

Figure 45. Average utilization and workload at PHCs, by oblast (error bars for standard deviation)



On average, we observe that people living in the catchment area of sampled PHC facilities were making about 7.4 visits to PHC per year, and PHC facilities were seeing on average 11.2 patients per working day. There was no significant difference between the numbers of visits to PHC ambulatories and feldsher posts (see Figure 44). We also found only weak correlation ($r=0.32$) between the frequency of visits per patient per year and load of patients per physician and nurse in PHC facilities. We note that there are slightly less visits per person in Lviv but given lower staff availability, the number of visits per staff is higher (Figure 45).

Interestingly, the reported number of 7.4 visits to PHCs per person per year are rather high. The number of visits per patient per year in the United States was approximately 1.6 in 2013, in England the crude rate of 5.4 consultations at PHCs per person per year was reported in 2008. We assume that the count of visits might have included remote consultations with patients or interactions for administrative purposes (e.g., to set up appointment, extend prescriptions, etc.). In this case, the load of visits per physician and nurse per day might be lower.

Polyclinics

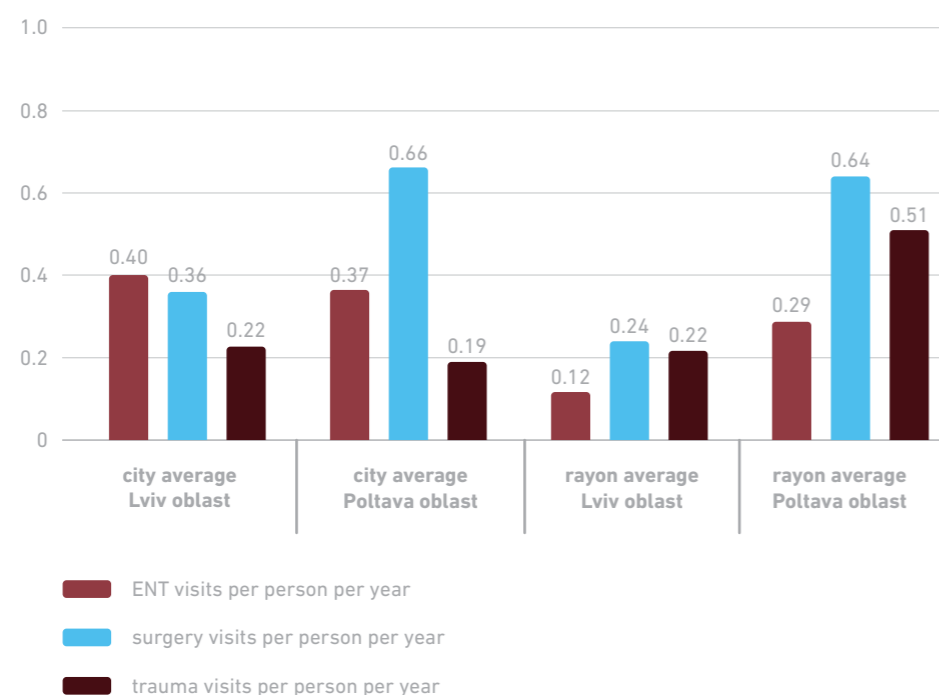
We analyze utilization and productivity of outpatient care overall in city and rayon facilities within both oblasts. Utilization of polyclinics services in Lviv oblast facilities is higher in cities than in rayon facilities (5.9 visits per person per year in city facilities versus 2.9 visits in rayons). In Poltava oblast, polyclinics facilities utilization was similar for cities and rayons, but productivity of physicians in terms of patients seen per working day is the highest in Poltava rayon polyclinics with 31.4 visits per physician daily (see Table 11).

Table 11. Comparison of utilization of care in polyclinics in cities and rayons of Lviv and Poltava oblasts

OUTPATIENT CARE IN CITIES	LVIV OBLAST	POLTAVA OBLAST
Polyclinic visits	768,681	555,256
Visits per person per year in polyclinics	5.9	4.1
Polyclinics visits per physician per day	23.8	20.0
Outpatient care in rayons		
Polyclinics	573,726	580,470
Visits per person per year in polyclinics	2.9	4.6
Polyclinics visits per physician per day	19.9	31.4

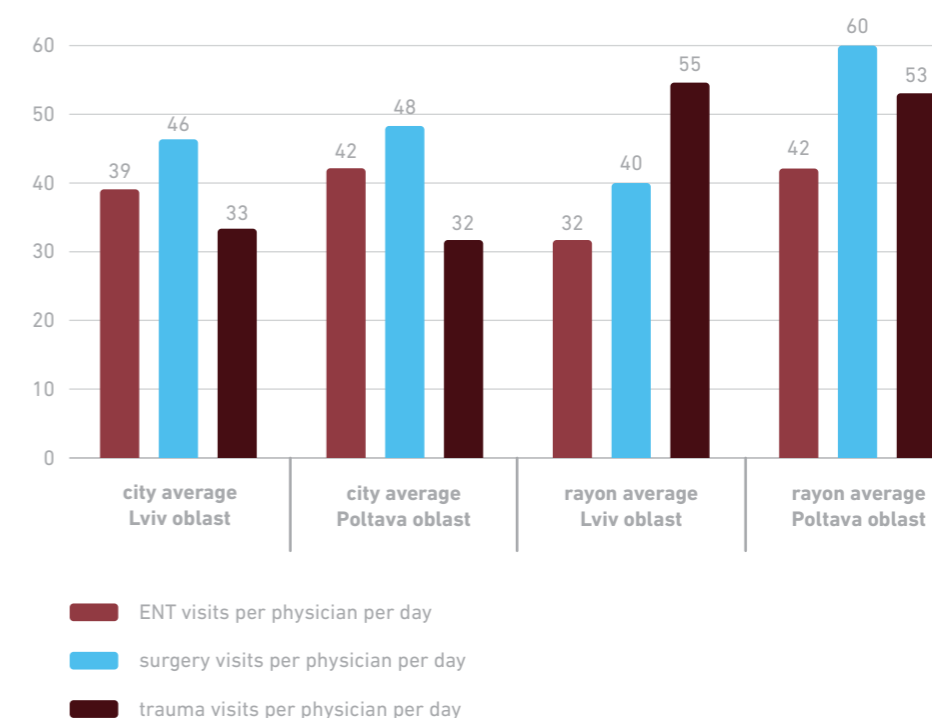
We also observe an important variation in the utilization rates of outpatient polyclinics services across different service providers. In one city, polyclinics of Lviv oblast and one rayon polyclinic in Poltava oblast, we observe much higher utilization rates compared to other polyclinics facilities. Figure 46 shows variation in utilization as measured in terms of visits per person annually to physicians, by type of facility, for three specialties: surgery, traumatology, and otolaryngology (ear, nose, and throat [ENT] specialty).

Figure 46. Numbers of visits per person living in the catchment area to polyclinics specialists per year, by facility type



The productivity of specialists in polyclinics as measured by number of patients seen daily also presents significant variations. For comparability purposes, the same three specialties are examined as for utilization rates (Figure 47). The specialist working in one facility could see more than 1.5 times more patients a day on average compared to a peer in the other facility: for example, trauma visits in rayon facilities in Lviv and Poltava compared with city facilities (55 and 53 visits per day in rayons versus 33 and 32 visits per day in cities), and 60 visits per day to surgery specialists in Poltava rayon facilities versus 40 visits in Lviv rayons. It should be noted that some reported frequencies do not seem realistic. For instance, it is unlikely that a physician can see more than 50 patients per day, because this would mean that one consultation would last less than 8 minutes on average, provided that physician spends all working time on patients' consultations. One of the possible explanations for high reported levels of visits is that a significant number of these visits is more a formality visit that does not imply medical examination or consultation, as for example, formal employee checkup rounds. For such rounds physicians reported spending 3–5 minutes per patient.

Figure 47. Number of patients seen by physician per day in different polyclinics facilities of the sample



In oblast level polyclinics, we observe higher utilization in a Poltava oblast hospital compared to the similar hospital in Lviv oblast (0.9 versus 0.5 visits per person per year). Figure 48 (right panel) shows that similar utilization rates are only typical to ENT, ophthalmology specialties, endocrinology, and traumatology. The productivity of outpatient divisions in oblast hospitals is similar for both oblast hospitals, with most visible difference observed in endocrinology consultations (39 visits per day in Lviv oblast polyclinics versus 16 visits in the Poltava oblast facility), and surgery (8 visits per day in Lviv oblast versus 21 visits in the Poltava oblast polyclinics).

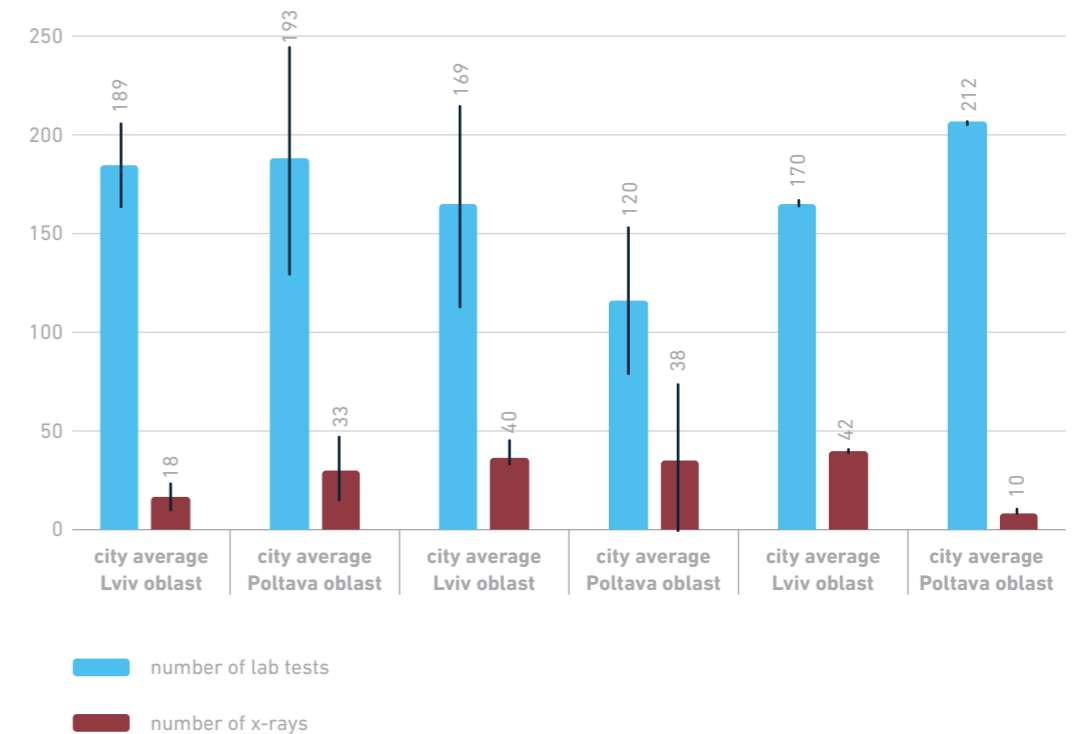
Figure 48. Comparison of visits per one person per year to outpatient specialists in polyclinics and productivity of specialists in terms of patients seen per day in Lviv and Poltava oblast hospitals



Diagnostics and clinical procedures departments

The variation in productivity for diagnostics and clinical procedure departments is significant in terms of numbers of diagnostics and laboratory examinations per medical personnel employed in these departments. We illustrate these variations with two parameters: number of laboratory tests in clinical laboratories and number of x-ray examinations in sampled facilities. Figure 49 presents the numbers of tests conducted per day per medical staff position in different facilities for these two types of diagnostics procedures.

Figure 49. Numbers of laboratory and x-ray examinations per medical personnel per day in different facilities (error bars for standard deviation)



Hospitals

For the analysis of hospitals productivity, we first review average utilization rates and numbers of cases treated per physician annually in each facility. The average number of cases treated per 1,000 population living in the catchment area varied a lot across all types of facilities (see Table 12). The difference between the least and highest utilization rates in city and rayon hospitals was more than threefold. There was a slightly higher utilization of oblast hospital care in Poltava compared to Lviv oblast. In terms of productivity measured as an average number of inpatient care cases per physician annually, the highest productivity of 477 cases was observed in the smallest rayon in

Poltava oblast, and the lowest average productivity of 136 was present in the largest city hospital of the same oblast sample, which also has the second highest utilization of hospital care.

Table 12. Utilization and productivity rates in hospital facilities of the sample

REGION	TYPE OF FACILITY	CASES PER 1,000 POPULATION	CASES PER PHYSICIAN
Lviv oblast	city	123	267
Poltava oblast	city	141	136
Poltava oblast	city	49	367
Lviv oblast	rayon	98	334
Lviv oblast	rayon	132	326
Lviv oblast	rayon	163	308
Poltava oblast	rayon	108	167
Poltava oblast	rayon	123	217
Poltava oblast	rayon	113	477
Lviv oblast	oblast general	15	119
Poltava oblast	oblast general	19	108
Lviv oblast	oblast specialized (oncology)	8	198
Poltava oblast	oblast specialized (cardiology)	3	383

Additional attention was paid to the analysis of the productivity within selected specialized departments of hospitals in cities and rayons within the sample. Four main inpatient departments were selected: neurology, ob/gyn, therapy, and surgery. We observed variation in productivity across facilities, but also across specialties within facilities (see Table 13). In particular, we observed that in one rayon facility in Lviv oblast one neurologist on average has treated 720 cases per year, or 4 times the average load for such a specialist; the surgery specialist in the same facility treated 709 cases per year compared to the average of 146 cases. In one Poltava city facility 473 cases were treated by ob/gyn specialists on average while in all other facilities the average was two to three times lower.

Table 13. Productivity of physicians working in inpatient facilities, number of cases treated per physician per year

REGION	TYPE OF FACILITY	NEUROLOGY	OB/GYN	SURGERY	THERAPY
Poltava oblast	city	251	153	112	
Poltava oblast	city		473		619
Poltava oblast	rayon	294		209	354
Lviv oblast	rayon	191	205	158	525
Lviv oblast	rayon	145			204
Lviv oblast	city	208			46
Lviv oblast	rayon		118	339	482
Lviv oblast	rayon	720		709	67
Poltava oblast	rayon	190			614
	average	173	180	146	157

Service costs

We analyze cost structure and unit costs in sampled facilities using the step-down cost allocation principle. In this regard, we reviewed costs at the level of departments in outpatient, inpatient, and diagnostic divisions. Costs are based on formal expenditures reported by health care facilities, without accounting for informal patient contributions paid at the point of care or to "charitable" accounts associated with providers. Another limitation is that the cost accounting only captured recurrent costs; depreciation of assets is not included in our calculation, which might have significantly reduced our cost estimates.

We observe in the costs structure presented in Table 14 that wages represent the largest share in clinical divisions' direct expenditures. Wage expenditures share is lower in oblast level facilities, mainly because of the higher share of medications and supplies in these facilities. A relatively small share of direct expenditure goes to utilities (3 percent for polyclinics, 4 percent for hospitals, and 9 percent for PHCs on average). The share of additional indirect expenditures (including costs of administrative units; internal services such as laundry, food, etc.; and costs of diagnostics and procedures department) varied significantly across facilities, with most additional expenditures observed in polyclinics. This can be explained by high indirect expenditures on diagnostics and procedural services allocated to specialized inpatient and polyclinics departments.

Table 14. Budget structure of the clinical divisions of the sampled facilities

OBLAST	LOCATION	TYPE	% SALARIES BUDGET IN DIRECT COSTS	% MEDICATIONS BUDGET IN DIRECT COSTS	% UTILITIES BUDGET IN DIRECT COST	% ADDITIONAL INDIRECT ALLOCATION
Lviv	city	hospitals	79%	2%	2%	33%
	rayon	hospitals	86%	7%	9%	35%
	oblast	hospitals	55%	27%	3%	31%
Poltava	city	hospitals	61%	21%	5%	41%
	rayon	hospitals	85%	11%	14%	39%
	oblast	hospitals	32%	60%	2%	21%
Average		hospitals	50%	38%	4%	29%
Lviv	city	polyclinics	78%	14%	1%	40%
	rayon	polyclinics	83%	2%	4%	38%
	oblast	polyclinics	48%	36%	4%	30%
Poltava	city	polyclinics	76%	4%	2%	51%
	rayon	polyclinics	79%	9%	7%	41%
	oblast	polyclinics	76%	5%	3%	58%
Average		polyclinics	73%	12%	3%	43%
Lviv	city	PHCs	83%	10%	1%	28%
	rayon	PHCs	87%	2%	7%	15%
Poltava	rayon	PHCs	75%	4%	13%	10%
Average		PHCs	82%	3%	9%	15%

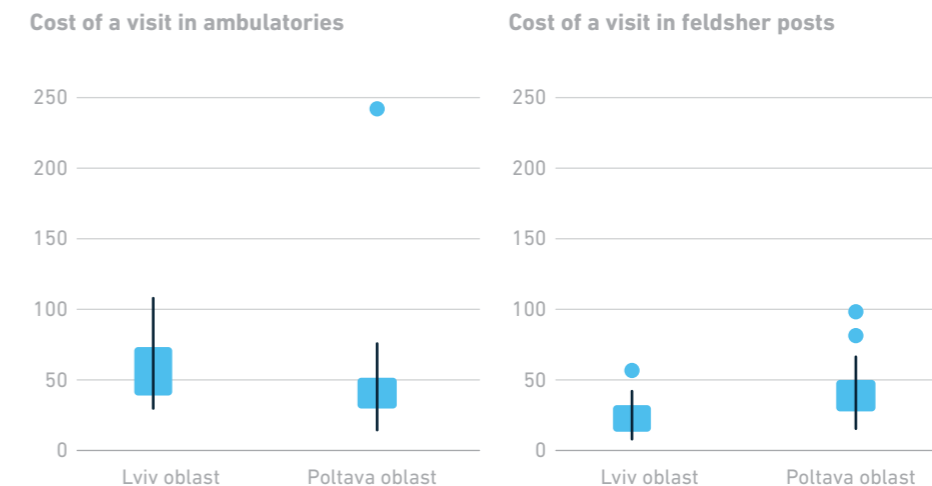
We further analyze costs of specific services in various sampled facility types.

PHC

At the PHC level, we analyze separately cost of visits to feldsher points and PHC ambulatories in both oblasts (Figure 50).

We observe that the average cost of ambulatory visits is significantly higher in Lviv ambulatories compared to Poltava facilities (59 UAH and 46 UAH per visit, respectively). The variation in costs is high (24 UAH in Lviv oblast, 27 UAH in Poltava oblast). We observe a correlation of -0.48 between the number of patients seen per day by medical staff in ambulatories and visit cost, which supports the assumption that more productive ambulatories are also more efficient.

Figure 50. Cost of visit to PHCs in two oblasts



Feldsher posts' costs by visits vary significantly with facilities in Lviv, presenting on average lower costs than those in Poltava (25 UAH and 41 UAH, respectively) (see Figure 50). Feldsher's costs per visit vary from 12 UAH to 57 UAH per visit (or sixfold). The relation between the productivity of patients seen per medical staff per day and cost of the visit in feldsher posts is less strong: the correlation coefficient is -0.36.

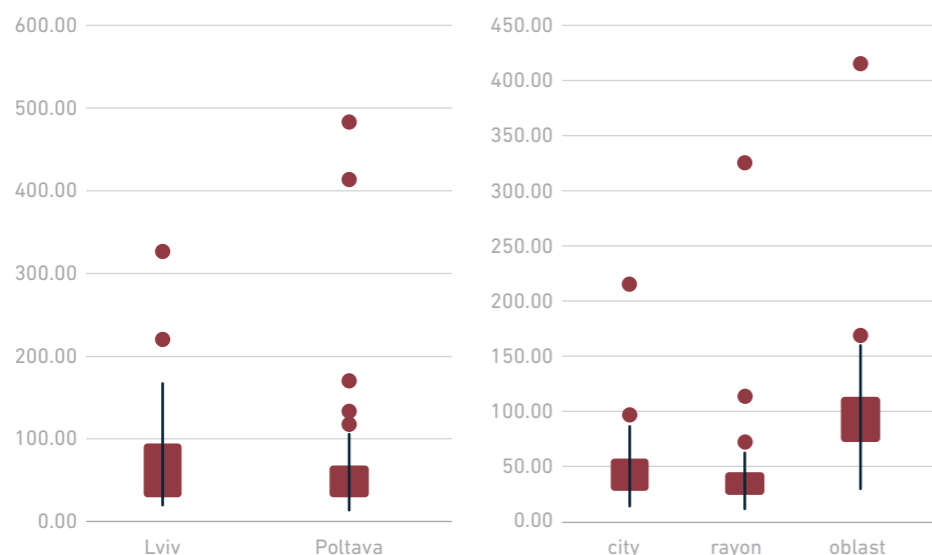
Interestingly, the costs of a visit to either ambulatory or feldsher posts was on average relatively the same among Poltava PHC facilities, whereas there are significant variations across PHC among Lviv facilities. This implies that PHC service costs are relatively the same in ambulatories and FOPs in Poltava, while the cost of the feldsher post's visit is almost twice lower compared to ambulatory visits in Lviv.

Polyclinics

The analysis of costs in polyclinics focuses on cost of a visit to a specialist. Despite high variation across facilities, we observe relatively similar average costs for a polyclinic visit in Lviv and Poltava (42.6 UAH and 42.8 UAH respectively) (Figure 51). A greater difference is observed in the cost of the visit to oblast facilities (100 UAH) when compared to city and rayon level polyclinics (47 and 40 UAH respectively).

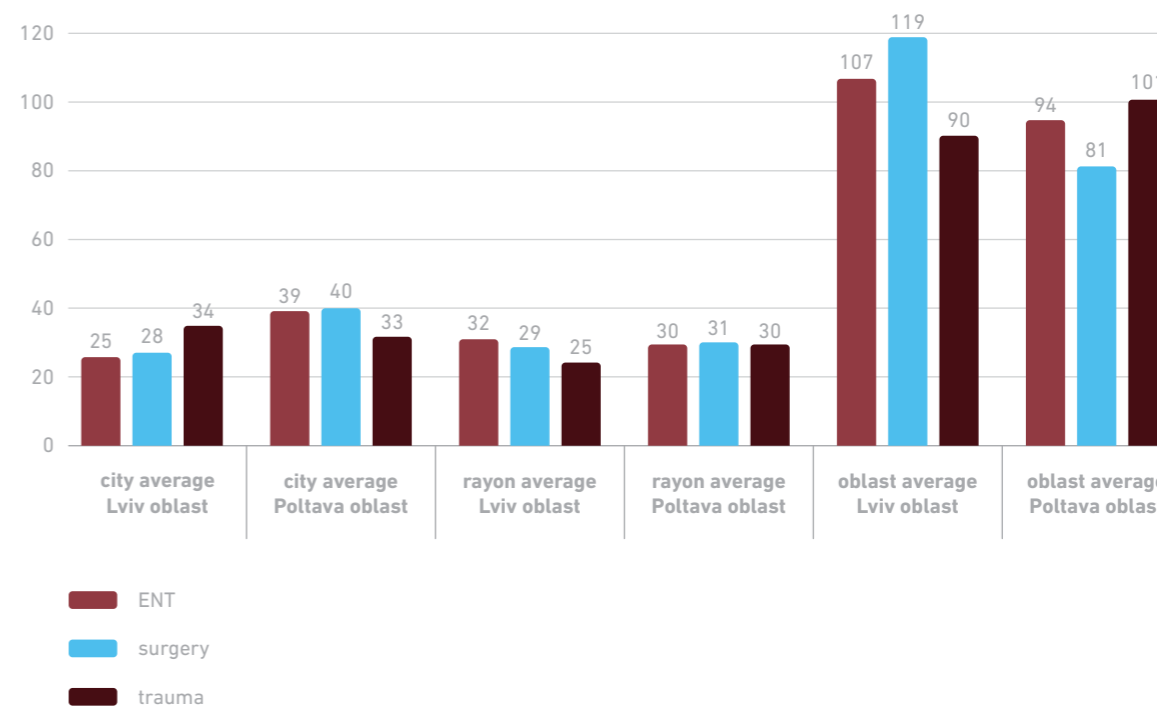
There were several outliers. Polyclinics departments with very low costs per visit (below 20 UAH) are all located in Poltava. The productivity and number of visits per physician per day in these departments varies from 63 to 78, which is very high. The small cost of a visit could be due to error or overreporting of visits. The outliers on the higher end were all related to a lower productivity in terms of patients seen per day. The correlation between the productivity of polyclinics departments and the cost of a consultation was -0.45.

Figure 51. Average cost of the patients' visit in polyclinics in two oblasts and by type of facility



As in the productivity section above, we analyze costs in three specialized polyclinics departments: ENT, surgery, and trauma. The variation of costs within three specialties between city, rayon, and oblast levels is presented in Figure 52. We observe that the distribution of the costs across facilities mostly followed the same pattern as the distribution of means overall: slightly higher costs in city facilities compared to rayon facilities, and averages on the oblast level close to the average of all visits in the polyclinics (i.e., 100 UAH). Comparison between regions shows that at the level of city and rayon facilities, costs are slightly lower in Lviv; however, at the oblast level the trend is the opposite, i.e., in Lviv oblast polyclinics the cost of a visit to specialists are higher than in Poltava oblast, with the exception for visits to trauma specialists.

Figure 52. Average costs of a visit to ENT, surgery, and trauma departments of polyclinics

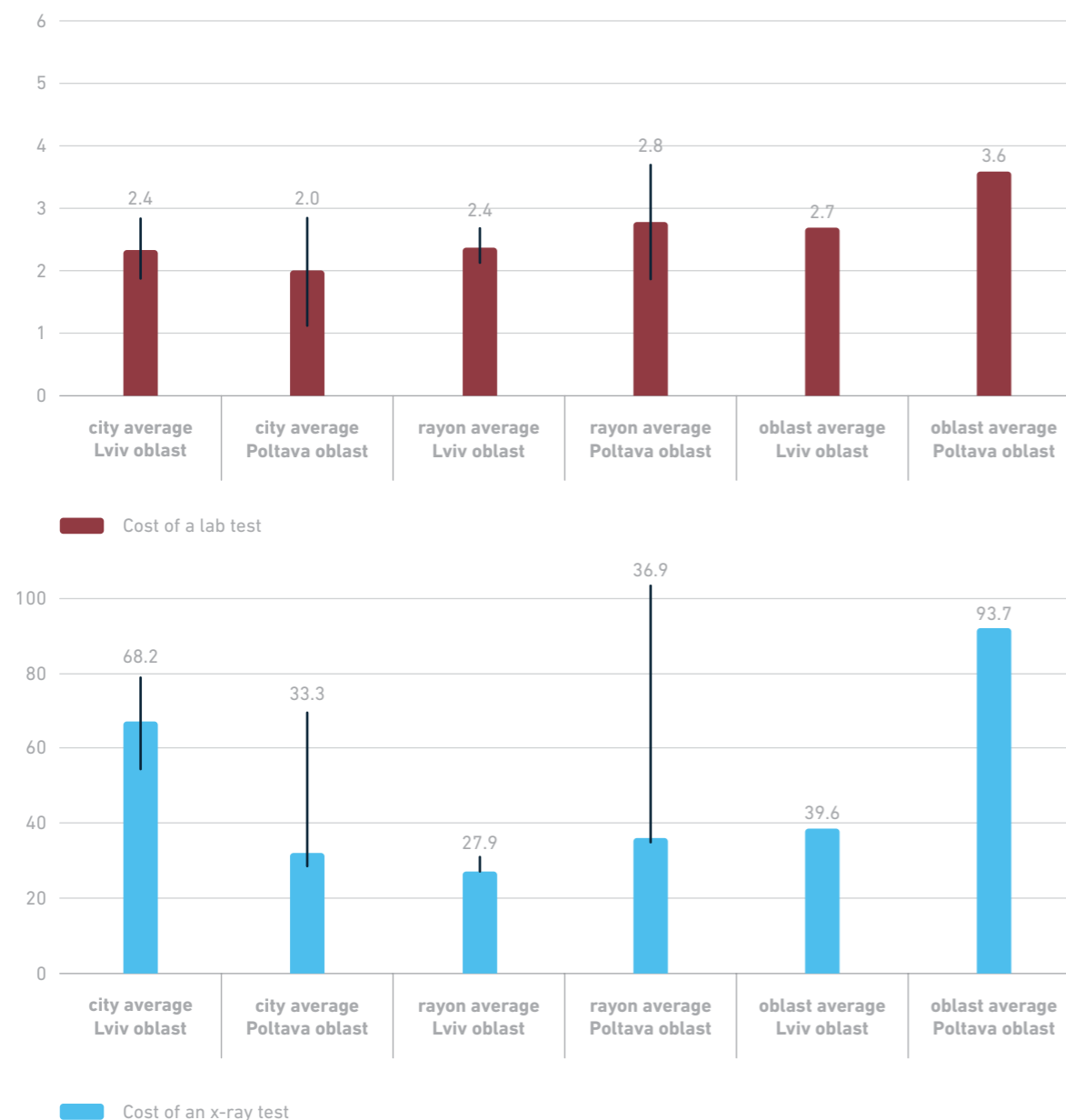


Diagnostics and procedures departments

Regarding the costs of the diagnostic procedures, the average cost for a laboratory test was on average 2.7 UAH for the whole sample, with relatively little variation across facilities (see Figure 53, left side). Two exceptions are observed. On average, laboratory costs in Poltava oblast city facilities are lower, although there was a lot of variation across facilities, and the average cost in the Poltava oblast hospital was the highest, even when compared to the similar facility in Lviv oblast.

The average cost of the x-ray examination was 60.3 UAH for the whole sample, based on the formal recurrent expenditures of x-ray departments (see Figure 53, right side). The variation of the average costs was significant (standard deviation of 40 UAH, min 26.7 UAH, max 162.3 UAH).

Figure 53. Average costs of diagnostic procedures in sampled facilities



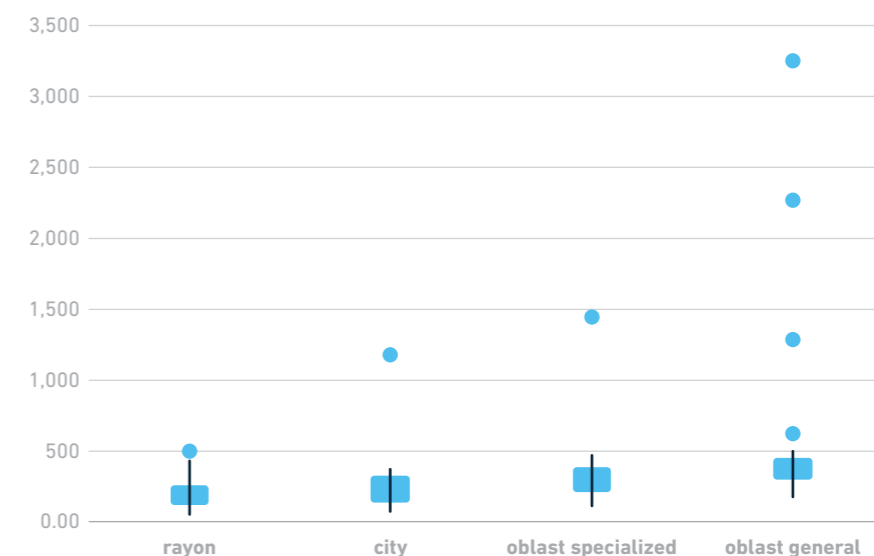
Hospitals

In the analysis of hospital costs, we examine the cost of a bed-day and a cost of a case treatment.

We observe in Figure 54 that the average cost of a bed day is lowest for rayon facilities at 208 UAH, with little variability. The average cost of a bed day in city facilities is 282 UAH, which could be explained by a more variety of specializations in city hospitals compared to rayon ones. The cost of a one-day stay in oblast specialized hospitals is on average 349 UAH compared to 509 UAH in oblast general hospitals on average, although

the median is 350 UAH. The most expensive hospital stay was in the cardio department (645 UAH), neonatal department (1,339 UAH), hematology (3,260 UAH), and hemodialysis departments (from 350 UAH and 626 UAH to 2,280 UAH) of the oblast general hospitals.

Figure 54. Average cost of a bed-day in sampled inpatient departments



The unitary cost of treatment in hospital departments is directly related with the average length of stay (ALOS) in these departments (correlation coefficient of 0.6). The average mean ALOS for our sampled hospitals was 13 days (median 10.3 days). By type of facility, it varies from 10.7 days in rayon hospitals, 10.6 in city hospitals, and 14.8 in oblast hospitals.

In rayon hospitals, the unitary cost of treatment is 2,256 UAH (2,471 UAH in city hospitals). The unitary cost in specialized oblast facilities is 4,286 UAH compared to 8,125 UAH in general oblast hospitals, with some extreme values influencing the mean (median 3,147 UAH).

With regard to costs of a case in different departments, Table 15 presents average cost for the main departments within sampled facilities. We observe that the treatment of a case in oblast level hospitals is often more than two times more expensive than in rayon and city hospitals, which can be explained by a higher complexity of cases treated at oblast level facilities. However, the costs are not very much different for the treatment of cases in ob/gyn departments with most expensive cost of a treatment in city facilities. Also, cost of treatment of cases in surgery and urology departments of city facilities (3,973 and 2,854 UAH) are close to those of oblast facilities (4,221 and 3,353 UAH respectively).

Figure 55. Average cost of case treatment in sampled inpatient departments

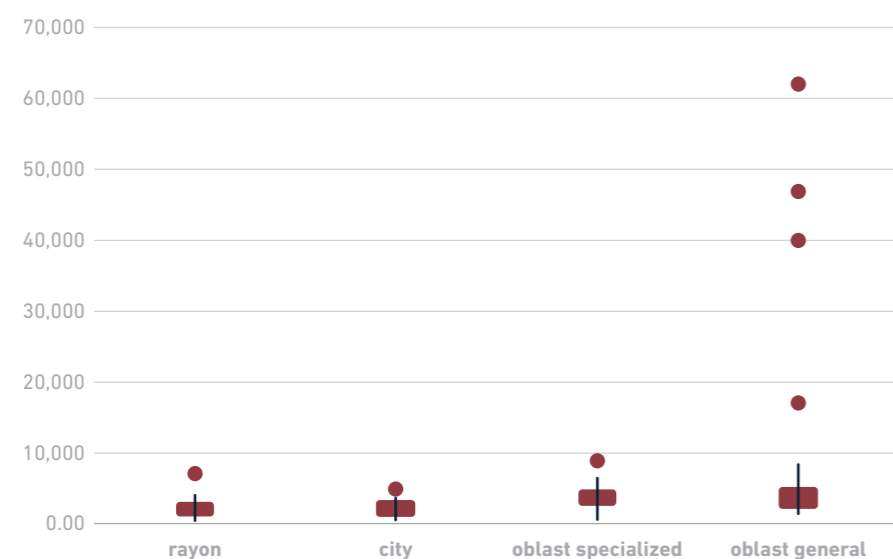


Table 15. Average cost of case treatment in sampled inpatient departments

TYPES OF HOSPITAL FACILITY / DEPARTMENT	CITY	RAYON	OBLAST GENERAL	AVERAGE FOR ALL TYPES	STD DEV FOR AVERAGE
Cardio	1,686	1,992	4,608	3,468	2,108
ENT		1,475	3,677	2,943	1,287
Neurology	1,887	1,570	4,390	2,267	1,646
Obstetrics / gynecology	3,462	3,356	3,129	3,303	883
Ophthalmology		1,532	2,167	2,009	340
Surgery	3,973	2,732	4,221	3,704	1,229
Therapy	1,630	1,562	3,803	1,806	849
Trauma		2,687	4,871	3,415	1,467
Urology	2,854	1,370	3,353	2,733	1,032

8. READINESS TO REFORM AND IMPACTS OF CONFLICT

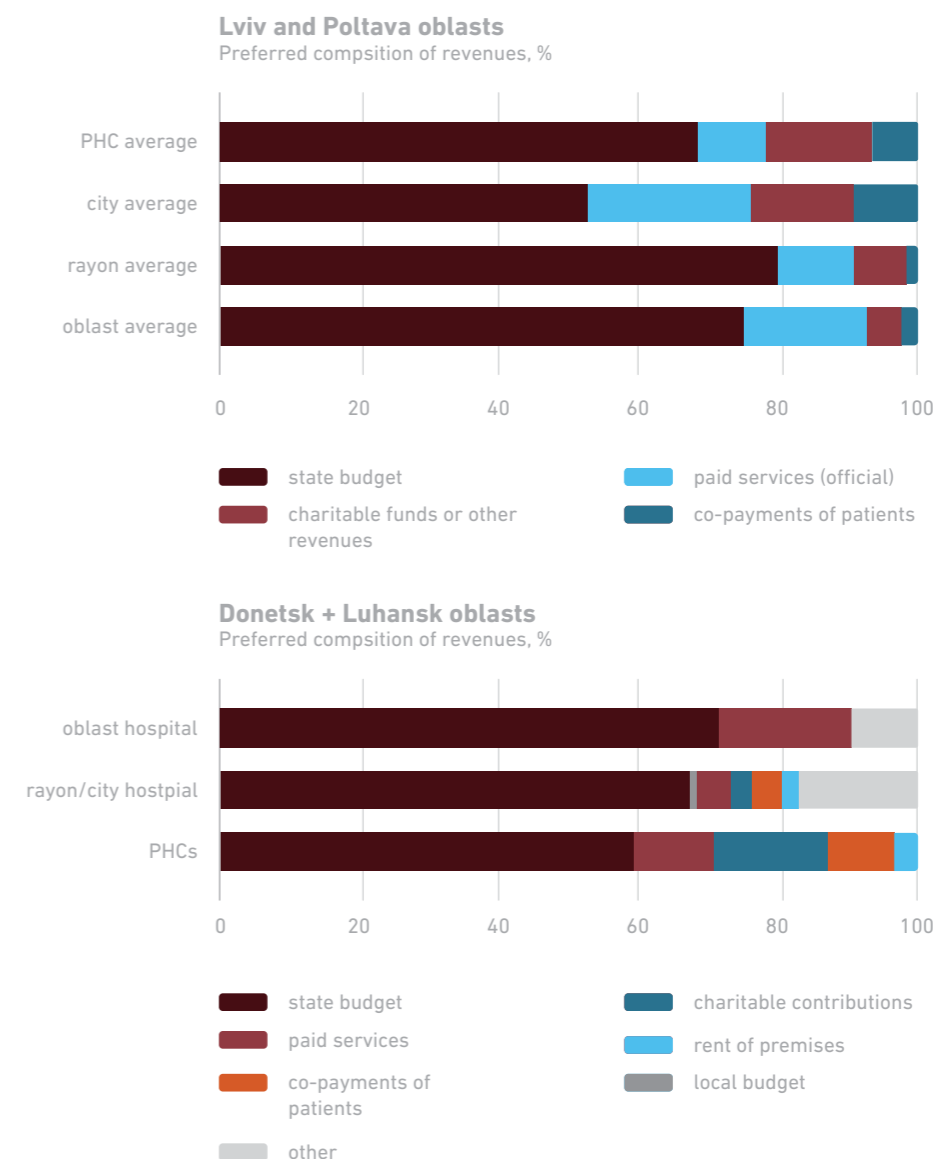
The survey included semi-structured question addressed to physicians and managers about their perspective on the current health care reform process in the country as well as identification of some impact of the armed conflict in Eastern Ukraine. This section first presents awareness of managers and physicians on the main reform agenda and then discusses implications of the armed conflict on facilities in Donetsk and Luhansk oblasts.

A. READINESS TO REFORM

Generally, physicians agree that the health care system in Ukraine should be reformed. Most often, they mention health insurance or some other form of cofinancing of medical services by patients and the need to abandon Article 49 of the Constitution, which states that health care in Ukraine should be free. Only a few physicians from emergency care departments think that their services should be fully financed by the state.

Physicians were asked to identify the optimal cost sharing arrangements among the various revenues sources. Figure 56 presents the “ideal” (or desired) distribution of revenues across facility types for Lviv and Poltava, as well as for Donetsk and Luhansk oblasts. This figure shows that facility managers have quite different perceptions on how facilities should be financed. They agree that the share of state-provided funds should be substantial—from 50 percent to 100 percent. However, various cost sharing arrangements are favored by a portion of managers, especially in hospitals.

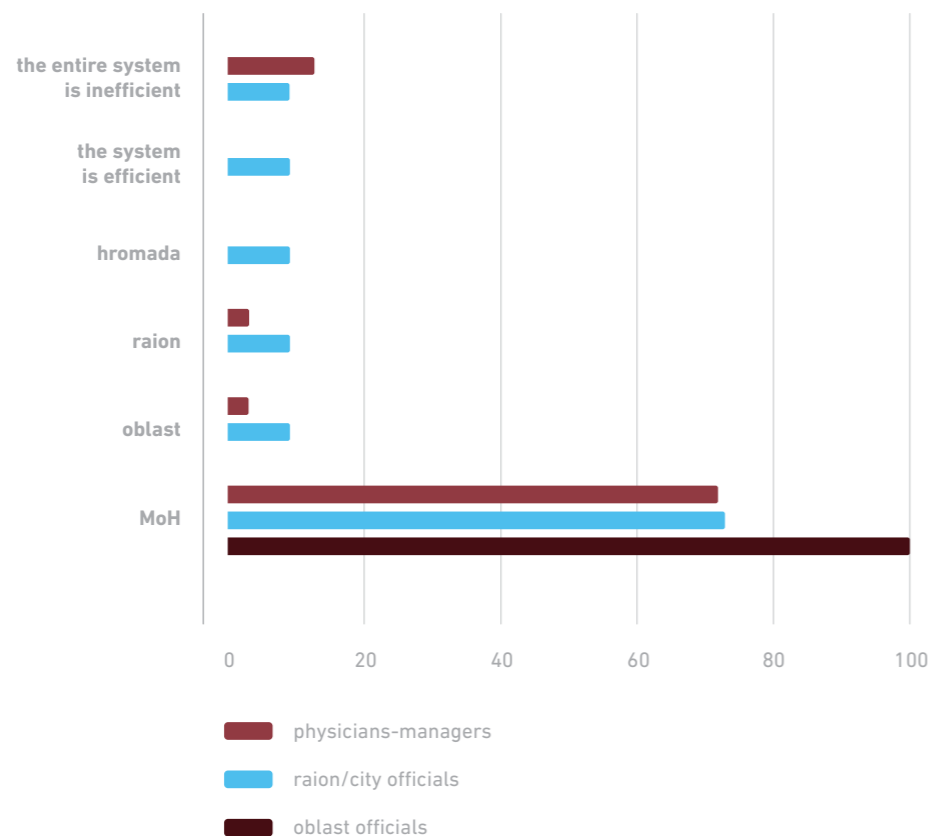
Figure 56. Optimal distribution of facilities’ revenue sources (physicians-managers perspective)



Note: “Other funds” refer to charitable funds, likarniana kasa, etc.

Local health official and physician-managers were also asked what administrative level in the health system is in their perspective currently the least efficient. A majority believe that greater inefficiencies lie at the central MOH level (Figure 57).

Figure 57. At which level is the health care system the least efficient? Shares of answers of officials and physicians-managers (this question was asked only in Donetsk and Luhansk oblasts)



Officials from oblast (4 respondents) and rayon/city (21 respondents) health care departments were asked a few questions on the setup of the health care system. Their answers are presented in Figure 56. Both rayon/city and oblast officials see potential for efficiency increase at higher levels of the system—MoH and oblast.

Oblast officials think that the lowest level of the health care budget should be the MoH, oblast, or rayon/city levels, while rayon/city-level officials are more supportive of transferring budgets to lower levels. The most common answer to this question is “hromada” (Figure 58). Probably since hromadas are very recent, the officials are cautious with their expectations. One person explains that there are both positive and negative sides to transferring health care responsibilities and budgets to hromadas. On the one hand, hromada knows better which services and which specialists its people need, on the other hand, hromada may not have sufficient revenues to finance these services, and hromada management may not be qualified enough to define the needs and efficiently provide the services.

“There should be so-called pooling, i.e. all financing of in-patient secondary and tertiary health care should be pooled. This would allow optimizing the network because some health care facilities are used with low intensity, especially during weekends”

– Oblast health care department representative

Oblast and rayon/city officials also believe that payment for service provided is a good idea (physicians at oblast-level hospitals mention diagnosis-related groups (DRGs) in this respect). They agree that the salaries of physicians should be differentiated according to the volume of services that they provide. Right now no surveyed facility has introduced DRGs, but over 50 percent of health care officials say they had some experience or have heard of DRGs (Figure 59).

“...Introduction of a legal notion of “medical service” would pull out of shadow huge resources. Some time ago we took the number of patients in our oblast, the data on protocols and the cost of treatment and received very rough estimates that the shadow turnover in the health care in the oblast is ... twice higher than the official health care budget...”

– Oblast health care department representative

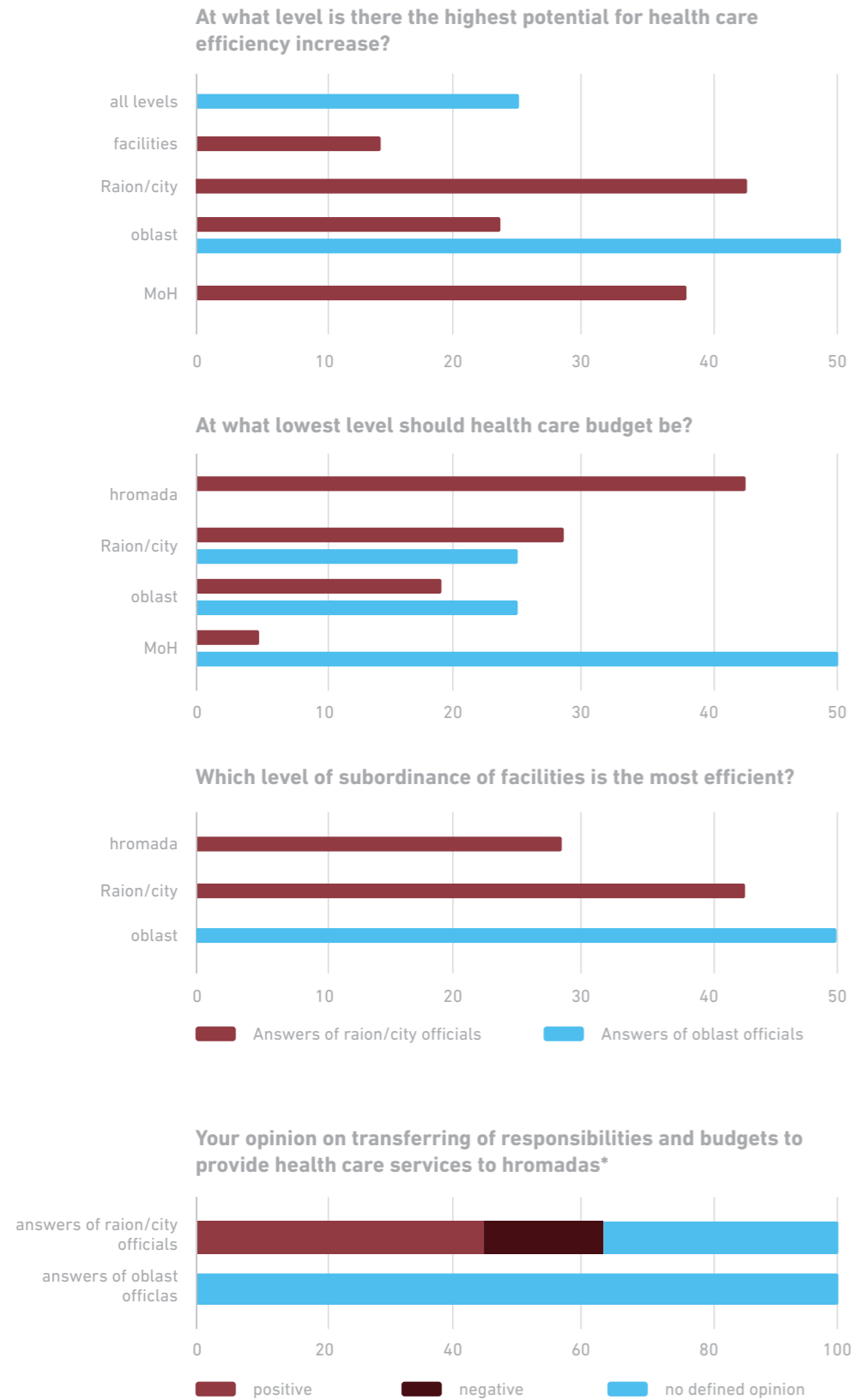
With regard to equity and accessibility considerations, informal payments for services should be discouraged and properly monitored. Still, as a way to attract more private funding for hospital development, including from insurance companies, regulated cofinancing systems could be considered. This may also improve the overall quality of services. Although not asked about this directly, almost every respondent mentions health insurance as a way to improve health care financing.

Figure 59 also suggests that the main components and concepts of new health care reform program have not been well disseminated among health officials and that further information in that regard would be beneficial.

Overall, decentralization reform is perceived as beneficial for better endowed constituencies (i.e., areas benefiting from higher tax revenues from profitable economic activities on their territory) and detrimental to poorer ones. For example, urban health facilities report that local budgets cover practically all their needs in drugs, while rural facilities report very little funding from local budgets.

With regard to hromadas’ budgets, when amalgamated the medical subvention is based on their population while the level of rayon hospital funding is reduced (see example presented in Figure 60). Because hromadas are not straightforward at funding rayon hospitals, clearer transfer formulas would be required, as well as between oblasts and rayons. Under a cofinancing or “pay for services” system, these issues would be less salient.

Figure 58. Opinions of oblast and rayon/city officials on health care system design



Note: *this question applies only to officials in Donetsk and Luhansk oblasts (2 oblast and 11 rayon/city officials)

Figure 59. Do you have experience with . . .

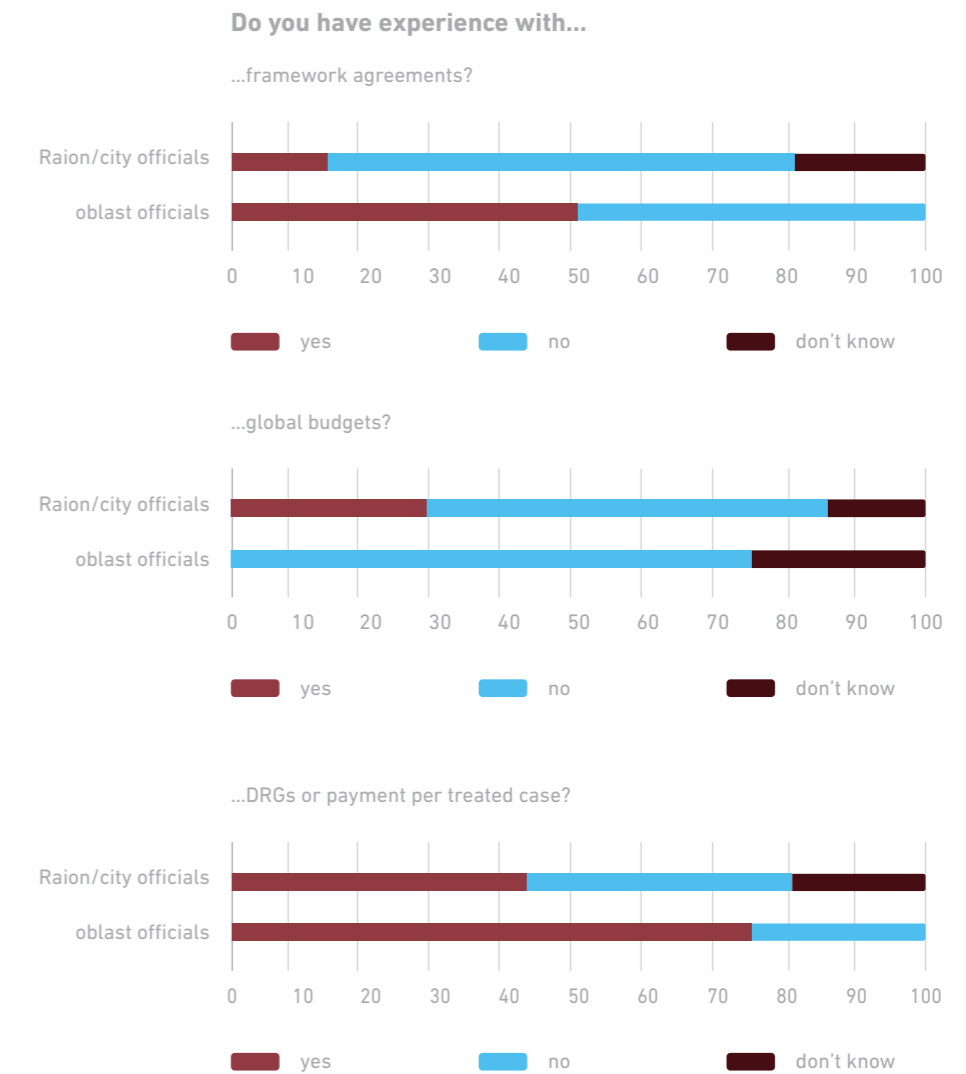
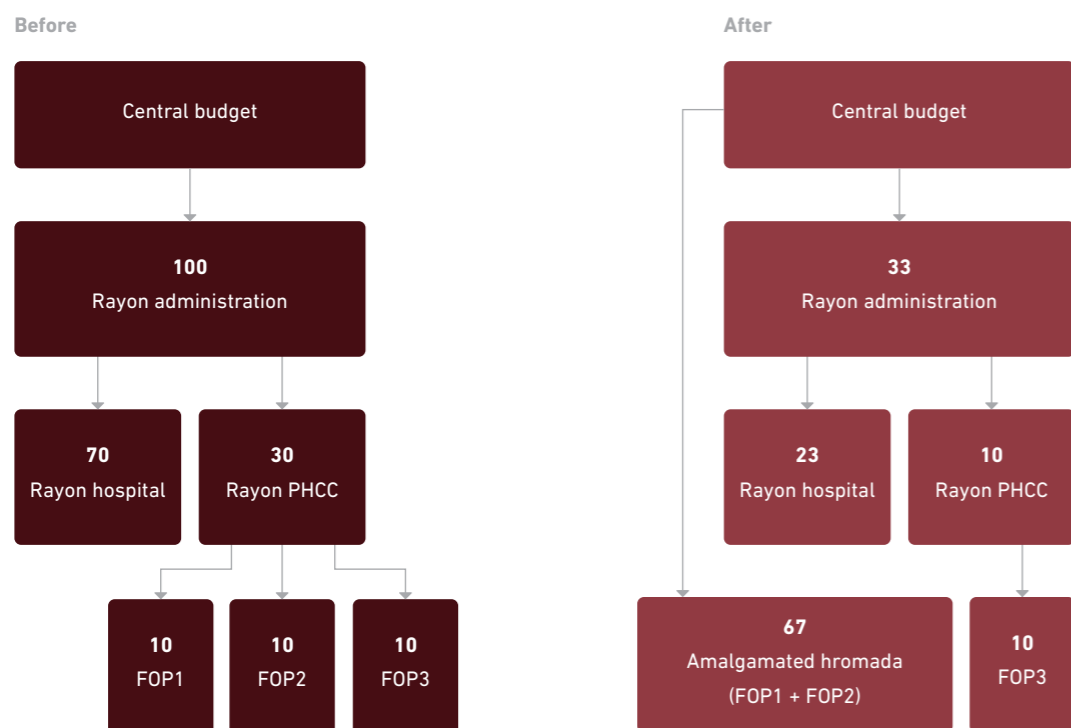


Figure 60. Shift in cash flow pattern when an amalgamated hromada is formed (a hypothetical example)



Note: 100 is the amount of medical subvention based on rayon population, and there are three villages of equal size in a rayon, two of which form an hromada

Physicians-managers mostly agree that “payment per treated case” should be introduced, with also a majority of physicians supporting this view, with some reservations. Some mention that service quality should be taken into account. In the case of chronic illnesses, how would such a “treated case” be measured? A few physicians believe that with such a system, primary level physicians would not tend to refer patients to higher levels in order not to share patients’ fees, which could affect patient care. For one physician, primary-level financing should be based not on treated cases, but on the number of cases that were treated at an early stage or prevented.

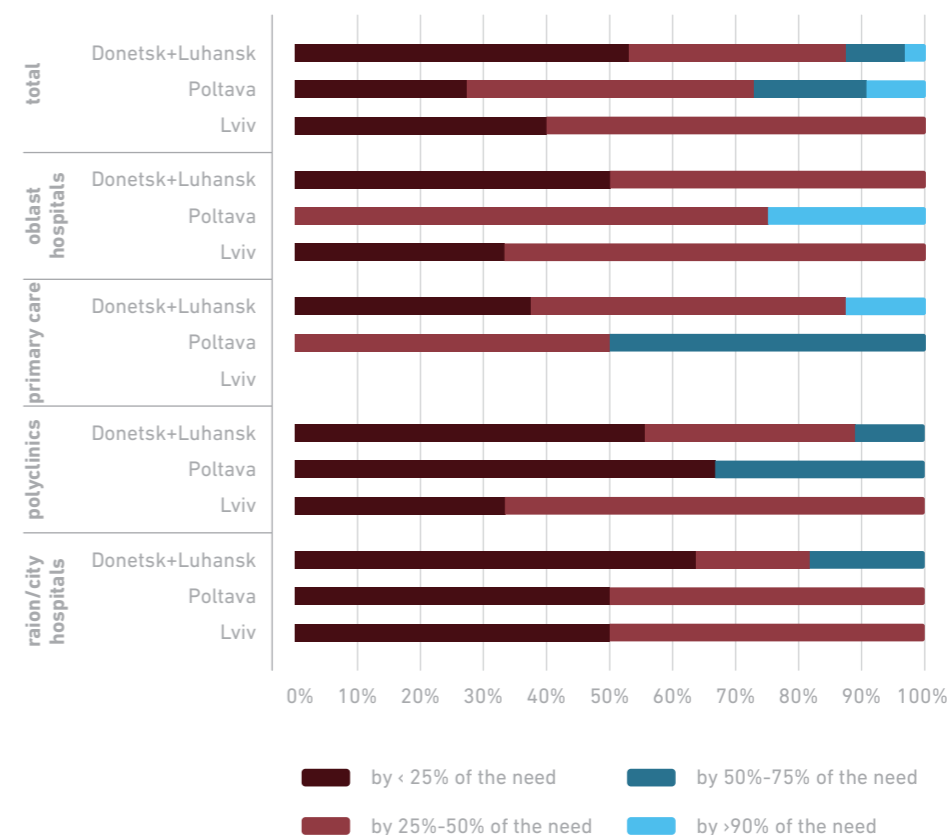
The likarniana kasa system in place in the Poltava oblast is well regarded by physicians in the oblast. Likarniana kasa, which is a type of voluntary local small insurance fund based on regular contribution by members, currently encompasses about 10 percent of the oblast population. The fund covers drug costs prescribed to its members. In that context, physicians could prescribe the most efficient drugs instead of simply the cheapest or those available at the facility.

When answering the questions on health care efficiency and financing, physicians often express opinions on health care reform in general. For instance, some physicians hold the view that the introduction of family physicians has been positive overall, while others

believe that separation of primary and secondary levels has worsened the situation. In that regard, some physicians report that family physicians prefer to send patients to secondary level facilities (even patients who do not need inpatient treatment), while others complain that family physicians treat patients themselves. Since family physicians cannot be “specialists in everything,” their treatment is inadequate and may worsen a patient’s condition. A physician from one rayon hospital said that in their rayon, separation of primary and secondary levels was a mistake—since their rayon (and hospital) is very small, all the physicians remained at the secondary level facility, while no physicians—only nurses and feldshers—were found at the primary level. All patients are hence treated at the hospital given the absence of physicians to make home visits. While this situation could exist in other small rayons, the creation of a district hospital should partly solve this problem.

Almost 90 percent of physicians-managers believe that the health care system is currently financed at less than half of its needs, and 40 percent believe that it receives less than a quarter of its required financing (Figure 61). We observe in particular that physicians-managers are more positive in their evaluation of health care financing in the Poltava oblast, while rayon/city level facilities report the lowest financing relative to their needs.

Figure 61. The believed level of the health care financing system in Ukraine (physicians-managers’ answers)



B. IMPACTS OF THE CONFLICT

The survey included some questions on the impact of the conflict on facilities' activities in Donetsk and Luhansk oblasts.

Physicians-managers and physicians in the two oblasts were asked in particular about perceived changes at their institutions since the beginning of the conflict. Figure 62 summarizes answers with regard to (a) financing of facilities, (b) medication availability, (c) staffing, and (d) demand for services.

Figure 62. Changes in parameters compared to the beginning of 2014, at your facility



As reported by facility managers and physicians, the conflict has impacted oblast hospitals and other types of facilities differently. While oblast hospitals have seen a decrease in financing, medication provision, staffing, and demand for services, lower level facilities, on the contrary, have seen during the same period an increase in financing, medication, and demand for services. More specifically, with regard to financing, PHCs, polyclinics and rayon hospitals have seen, in the perspective of physicians, a financing increase in 2015 compared to 2014, while financing for oblast hospitals has decreased.

With regard to medication availability, provision is reported to have improved in all facility types, except for oblast hospitals, which report worsening in the centralized provision of drugs. On the contrary in other facility types, improved centralized deliveries are reported as well as an increased stream of humanitarian aid—both from volunteers and international organizations.

As for staffing, most facilities report decreased availability in 2015. In about one-half of cases, this happened because physicians left the region. Some respondents also blame reorganization (either reduction of the number of beds or separation of primary levels) as a reason for staff decrease. A few physicians complained that because of low salaries, it is hard to attract young personnel. The only exception where staff has not systematically decreased is reported in polyclinics where, in a few cases, physicians arrived from occupied territories or volunteers supported the hospital.

With regard to patients' demand for services, about half of physicians report that the number of patients increased by less than a quarter, 36 percent—that it increased by 25–50 percent. Some physicians (11 percent) say that their facilities see the 50–100 percent increase in the number of patients; all these institutions are located in a large city which hosts a relocated hospital and a significant number of internally displaced persons (IDPs). Only 16 physicians from three city hospitals report a decrease in the number of patients (by no more than 50 percent).

The reasons for increases in the number of patients are (1) people arriving from the occupied territories and (2) IDPs. Very few facilities now serve soldiers, although they used to do this in 2014–2015. Now soldiers are served in specialized military hospitals. The reasons for lower number of patients is outflow of people from the territory as well as poverty—physicians say that people do not go to hospitals since they cannot pay for treatment anyway.

9. CONCLUSIONS AND RECOMMENDATIONS

As this report shows, the Ukrainian health system faces several inefficiency problems and would benefit from various reforms. The following conclusions could be drawn from the study.

With the information available, no direct leakage of public resources has been observed. Given that all official resources are managed through the treasury accounts system, the disbursement and spending of public resources tends to be accurately accounted for. However, access to expenditures data is not open, and much more extensive information would be necessary to draw a proper picture of expenditures in the health system.

Most resources allocated as part of the medical subvention mechanism are spent for service delivery. According to the State Consolidated Budget, 85 percent of public funding in the health sector was spent for various levels of care in 2015. The share of primary care expenditures is about 15 percent, while general and specialized hospitals expenditures account for about 64 percent.

Health care providers' budgets are mostly spent on covering wage and utility bills. Surveyed facilities complained about insufficient funding, explaining that medical subvention is mainly used to cover low staff salaries and utilities, leaving little to nothing for drugs. This small drug budget is mainly used by providers to keep stock of lifesaving and anesthesia drugs, while patients are required to pay for the other required drugs for their treatment. Equipment is mostly supplied on an ad hoc basis. When something is really broken, facility managers and regional authorities try to find some funds in the budget to replace it or fund raise among local businesses or charitable organizations.

Inputs-based planning based on historical trends allows no room for effective decision making on resource management. The backwards-looking budget planning process concentrates on planning inputs, often defined by norms. The need at the facility level to obtain budget approval from local authorities on any reallocation between budget lines does not provide sufficient room for reconsideration of public resource use.

Medical subvention is usually supplemented by funding from local budgets. However, these decentralized allocations are dependent on local political will and vary largely from one location to another. Local authorities are not officially mandated to co-finance health care, and their decisions to allocate additional medical subvention resources to health care are context specific. Usually, additional allocations from local budgets are used for capital investments, such as procurement of equipment and reconstruction of facilities,

or maintenance costs for medical equipment. Administrative units (municipalities and rayons) with larger revenues (i.e., those which have profitable enterprises in their territory) are able to provide more money for health care, while the poorer ones can provide practically nothing.

The existing system of planning health care budgets does not provide local authorities and hospitals with enough financial management power. Although the ultimate decision-making power on allocation of the medical subvention toward health providers rests within each local authority, little management discretion could be exercised given the extensive set of rules and norms in practice. For instance, state-level policy dictates the maximum number of hospital beds, defines planning of staff by organizing staffing norms, and specifies salary scales, etc. Although some of the norms are currently removed, past dependency and inertia in the financing system remain.

Despite the government's clearly stated responsibility to finance health care for citizens, a lot of uncertainties exist regarding funding level and stability. Health sector expenditures are defined on an annual basis in the state budget, and they are not fixed as a proportion of the total government spending. The recent economic crisis and conflict in East Ukraine affected budget allocation, decreasing spending on health to 8–9 percent of the total government expenditures in 2016 from 12 percent in 2013. Other uncertainties relate to the following factors: (i) final decision on the volume of medical subvention is communicated to oblasts, rayons, and cities in January–February of the actual year, after the state budget is adopted, which usually requires adjusting previous budgeting plans; (ii) facilities cannot properly plan centralized deliveries of medical products because they never know the expected delivery date of such supplies; and (iii) quite often provided funds are not enough to cover all of the facilities' needs, so salaries and utilities are first covered, followed by other priority needs.

Facilities cannot fully formalize their nonpublic revenues because they are limited by bureaucracy and complex regulations. Facilities have little power deciding the types of activities for which they can charge patients. The list of such activities is very limited and typically includes medical examinations, abortions, and dental services. There is no clarity on paid services and co-payment mechanisms. Furthermore, there is no incentive for facilities to account for additional nonpublic revenues.

Most importantly, there is a parallel financing system that has developed in response to rigid health spending norms, to fill the gap between public funding and needs. One part of this parallel system is not legal, including informal patients' out-of-pocket payments, while another part is somewhat legitimate. Being largely limited in the ability to charge fees legally (some physicians even place blame on the constitutional right to free health care), facilities and physicians chose to evolve in a somewhat grey zone—in which payments are made to a facility charitable account—or alternatively a black zone—where payments are made directly to physicians. The more legitimate scheme relies on different mechanisms such as the *likarniana kasa*, and legitimate charity donations. The share of shadow revenues can be significant in size. So far, its magnitude, patterns, and trends are not well documented. According to the survey, half of physician-managers and 41 percent

of physicians report that there is a charitable account at their facility, and that up to 50 percent of patients are contributing to that account. These charitable contributions may constitute between 10–30 percent of facilities' overall revenues.

As revenues and expenditures of the charitable funds are not accounted for in the state treasury, there is little information on volume and use of these additional funds.

There is also no common approach in establishing contributions to these funds; therefore, it is questionable whether contributions by patients are indeed voluntary. The size of the expected contribution varies by facilities. Based on survey's responses, this "charitable" contribution is often related to the services provided to a patient in polyclinics, while in hospitals it is more often a flat fee. Some facilities make additional earnings by leasing premises or participating in drug tests. This shadow financing system allows publicly owned and financed facilities to be used for fund generation and non-transparently use funds collected from citizens, who de jure should receive health care for free.

Introduction of IT solutions into the health care system could potentially greatly reduce inefficiencies along several lines.

Currently, all recording and reporting systems are semi-digital, still relying heavily on paper documents. Also, there is no publically available data on health facilities' spending and outputs, although they are publicly owned. Any request for data has to go through different managers' authorizations, since usually there is no easy electronic tracking of resources and expenditures. In particular, providers cannot properly keep account of the costs and performance of their different subdivisions. Therefore, greater reliance on electronic data exchange within facilities and across administrative levels could facilitate more efficient management of resources.

Remuneration schemes for physicians tend to discourage high-quality work, stimulate partial skill waste, and promote informal payments.

Facilities are limited in their ability to provide bonuses for personnel (i.e., local councils have to approve relevant changes in the budget), hence, salary is not related to performance. Furthermore, physician salaries are very low—a third lower than in the industrial sector—leading physicians to search for additional earnings through working overtime, accepting more than a full-time position, working at other institutions, or accepting informal payments. About half of physicians report being overloaded and that they would not be able to treat more patients even with a large salary increase. In that context, facilities would benefit from being granted more autonomy and being allowed to reallocate their budgets in order to pay personnel bonuses.

The allocation of human resources across regions and facility levels is uneven. A

concentration of health personnel is observed in hospitals. In Lviv oblast for instance, more physicians per capita are working in city facilities compared to rayon facilities, although in Poltava the distribution of physicians is more equal. On the contrary, allocation of nurses per capita is higher in rayon facilities.

The analysis of personnel productivity and service utilization showed a lot of variation. Large variance is observed in terms of utilization rates of outpatient services in the context of the high level of outpatient services utilization. PHC services in particular present a rather high utilization rate of 7.4 visits per capita per year, similar to PHC ambulatories and feldsher posts in both oblasts. PHC physician and nurses were each treating on average 11–12 patients per working day. The utilization of polyclinics outpatient care was highest in cities of Lviv oblast with 5.9 visits per capita per year, almost twice that of rayon polyclinics. The visits to polyclinic facilities in Poltava oblast range between 4.1 and 4.6. visits per capita.

Service accessibility between cities and rayons tend to differ. In particular, the utilization rate of laboratory tests and x-ray diagnostics is higher in cities. Also, the average number of cases treated per 1,000 population living in the catchment area varies significantly across facility types. The difference between the least and highest utilization rates in city and rayon hospitals was more than threefold.

Unit costs at facility and department levels show important variations mainly attributed to services provided.

Although much of the unit cost is explained by the wage component, the share of additional indirect expenditures (including costs of administrative units, internal services such as laundry, food, etc., and costs of the diagnostics and procedures department) varied significantly among facilities. At the PHC level, costs per visit can vary sixfold, especially at lowest level facilities (e.g., feldsher points); on average the cost of a visit to an ambulatory or feldsher post are similar. The unit cost of a visit to a policlinic at the rayon/municipality level is relatively similar across specialties and regions, with an outpatient consultation at an oblast level facility being almost 2.5 times higher than that at secondary level facilities. At hospitals, the cost of a treated case was largely dependent on the level of facility (secondary or tertiary) and ALOS.

A lack of understanding of proposed health financing reforms is observed among health personnel.

While many interviewed physicians are supportive of health financing reform, their knowledge of the actual reform contents is often limited. For instance, they often report that the main goal of the reform is to attract additional funding. Physicians believe that as a result of the reform patients will cofinance some services or that some insurance schemes will be introduced.

SUGGESTIONS AND RECOMMENDATIONS

In this section, we formulate various suggestions and recommendations to improve health financing and the use of public funds. Some of the recommendations are more strategic and need implementation of systemic reforms; others are more operational, and can be introduced at the lower levels—regional health administrations or health facilities.

The new health financing concept and health reforms bills developed by the MoH hold various promises. The reform suggests transforming the approach through which facilities are funded, moving away from financing inputs to financing outputs. Purchaser-provider split and implementation of contractual relations with health care providers should improve accountability of the resources spent in the sector.

The use of a results-based financing system is one of the key measures to address public health financing. Strategic purchasing as the effective mechanism of results-based financing will help to introduce competition between providers and better planning for expected deliverables. It will also help link payment to specific outputs of health care providers, which is presently one of the main factors of inefficiency in the sector.

More transparency and access to health data will help improve efficiency. In the course of implementation of the new financing mechanisms, it is important to ensure better access to public expenditure on health. Information should be available for all health facilities and units, allowing to track both resources spent and performance indicators. Access to data and benchmarking the performance of the various facilities is one of most effective mechanisms to improving service delivery efficiency.

More financial management freedom should be granted. A capitation-based financing at the primary health level and a global budgeting approach at other levels, with expected outputs specified at the early stages of strategic purchasing, can be an effective tool to move away from line-item budgeting. New financing mechanisms will also allow providers more freedom to manage resources: determining the number of staff and their salaries, controlling the load, and linking the intensity and volumes of care to other required inputs. A large potential for savings lies in optimization of facility networks, utilization of space within facilities, and utility payments. Improved financial management skills combined with routine use of simplified cost accounting tools can help providers better utilize available resources in the organization and management of facilities.

Facility managers could benefit from training and capacity building in financial management and forecasting methods for planning. In particular, in the context of ongoing conversion of hospitals into state or communal-owned organizations, it is essential that facility managers improve their managerial skills (among them planning and fundraising skills).

Implementing the e-Health system can also improve accountability in outputs and link costs to provided services. Currently, there is no electronic data exchange, thus information flow is often slow and non-transparent. IT solutions (such as electronic patient cards and electronic appointments, etc.) may be used as effective tools to reduce inefficiencies in planning, allocation of resources, and analyses of patients' outcomes.

The explicitly defined health benefit package will help to clearly link public resources to guaranteed services. One of the major inefficiencies that currently exists is the lack of clarity for patients of what services are covered by the public health system. This situation leads to implicit rationing, which takes place at the point of care. The explicitly defined list of diseases, interventions, drugs, and supplies should help reallocate resources and improve availability of guaranteed services. This should also help clarify for patients the guaranteed level of coverage by the state budget and reduce the uncertainty surrounding their expected contribution.

The implementation of contracting for health facilities should be done with the recognition that there is currently a wide variation in service costs incurred by facilities. In view of the existing variations, the determination of a price for contracting service providers may be difficult. Still, efficiency should be the priority in the optimization process of health care service provision.

Formalized co-payment mechanisms and voluntary insurance schemes could help to cover financial gaps. Given that the current funding gap to cover essential care will likely continue in the near future, voluntary private insurance could be a tool to increase resources in the sector and more adequately protect against catastrophic expenditures. The likarniana kasa, which represents the local insurance plan (i.e., sickness fund) for drugs, and which is financed by regular member contributions, is one example of a successful reform intervention in the health sector. The national and local level governments could potentially incentivize the use of other voluntary insurance mechanisms.

Further improvements in medication supplies and public procurements efficiency should be put forward. Prozorro, the new system of public procurement, allows more transparency in procurements as well as cost savings compared to the estimated price. However, despite these improvements, lack of medications is still one of the major reported problems at the facility level. Therefore, additional effort would be needed to improve planning and supplies of medication procured through national and regional funds. It would also prove useful to monitor drug stocks at facility levels to ensure drug availability for patients and medical professionals.

ANNEXES

ANNEX A. SAMPLE

In Lviv oblast:

- 1 1 Head of the Health Department at the Lviv Oblast State Administration;
- 2 4 Heads of city/raion health department/division and 1 Chairman of the corresponding Committee of the Raion Rada;
- 3 10 chiefs of the facility (including Physicians-managers/Deputy Physicians-managers) /Heads of polyclinic divisions/Heads of city and raion PHCCs); and
- 4 and 47 hospital/polyclinic's physicians/family physicians/nurses.

In Poltava oblast:

- 1 1 Head of the Health Department at the Poltava Oblast State Administration;
- 2 4 Heads (Deputy Heads) of city/raion health departments/divisions and 1 Chairman of the corresponding Committee of the Raion Rada;
- 3 15 chiefs of the facility (Chief Physicians/Deputy Chief Physicians) /polyclinic divisions/city or raion PHCCs; and
- 4 43 hospital/polyclinic's physicians/family physicians/medical assistants/nurses.

In Donetsk oblast:

- 1 1 Head of the Health Department at the Donetsk Oblast State Administration;
- 2 7 Heads of city/raion health department/division;
- 3 18 chiefs of the facility (including Physicians-managers/Deputy Physicians-managers) /Heads of polyclinic divisions/Heads of city and raion PHCCs); and
- 4 and 48 hospital/polyclinic's physicians/family physicians/nurses.

In Luhansk oblast:

- 1 1 Head of the Finance Department at the Luhansk Oblast State Administration;
- 2 2 heads of financial department of raion administration, 1 head of health department at city administration, 1 acting head of raion administration;
- 3 14 chiefs of the facility (Chief Physicians/Deputy Chief Physicians) /polyclinic divisions/city or raion PHCCs; and
- 4 50 hospital/polyclinic's physicians/family physicians/medical assistants/nurses.

Questionnaires were tested during the pilot stage, which included interviews with seven respondents (which are not a part of the sample) who were interviewed during the Rapid Data Assessment (RDA) stage.

ANNEX B. HEALTH CARE PROVISIONS AND EXPENDITURES IN THE STUDIED OBLASTS, 2015.

Table B1. Poltava oblast

PROVISIONS	UAH MILLION		PERCENT
	PLAN	ACTUAL	ACTUAL/ PLANV
Medical subvention	1 718,3	1 718,5	100
Subvention to purchase drugs and medical goods for emergency service	4,8	4,8	100
Subvention to purchase drugs for anesthesia	0,6	0,6	100
Subvention to reform local health care within IBRD project "Improving health care to serve people"	29,7	0,9	3
Contribution from local budgets	-	420,0	-
EXPENDITURES			
Health care (total), of it:	2 114,5	2 144,9	101,4
Hospitals	1 072,3	1 114,4	103,9
Specialized hospitals, incl. maternity hospitals	346,7	374,3	107,9
Sanatoriums	24,5	24,1	98,5
Emergency care	118,7	131,7	110,9
Polyclinics	79,0	80,9	102,5
PHCs and FOPs	293,6	283,3	96,5
Prevention	7,1	7,1	100,1
Diabetes treatment	44,0	27,6	62,7
Other	128,6	101,5	79,0

Source: Oblast treasury report.

Table B2. Luhansk oblast

PROVISIONS	UAH MILLION		PERCENT
	PLAN	ACTUAL	ACTUAL/ PLAN
Medical subvention	975,1	975,1	100,0
Subvention to purchase drugs and medical goods for emergency service	8,6	v	82,4
Subvention to purchase drugs for anesthesia	1,0	0,9	92,1
Contribution from local budgets	-	97,6	-
EXPENDITURES			
Health care (total), of it:	1 152,9	1 080,7	93,7
Hospitals	582,0	597,2	102,6
Specialized hospitals, incl. maternity hospitals	171,6	135,0	78,7
Sanatoriums	10,0	5,1	51,3
Emergency care	100,3	126,3	126,0
Polyclinics	8,9	5,8	65,5
PHCs and FOPs	145,2	136,5	94,0
Prevention	5,0	3,2	65,0
Diabetes treatment	61,1	12,1	19,8
Other	69,0	59,5	86,2

Source: Oblast treasury report.

Table B3. Donetsk oblast

PROVISIONS	UAH MILLION		PERCENT
	PLAN	ACTUAL	ACTUAL/ PLAN
Medical subvention	2 602,9	2 607,1	100,2
Subvention to purchase drugs and medical goods for emergency service	14,9	14,9	100,0
Subvention to purchase drugs for anesthesia	1,9	v,9	99,7
Contribution from local budgets	-	482,5	-
EXPENDITURES			
Health care (total), of it:	3 568,6	3 106,3	87,0
Hospitals	1 410,5	1 346,2	95,4
Specialized hospitals, incl. maternity hospitals	512,8	473,5	92,3
Sanatoriums	55,4	53,0	95,8
Emergency care	458,6	368,3	80,3
Polyclinics	120,1	112,6	93,8
PHCs and FOPs	571,4	505,4	88,4
Prevention	10,6	8,8	83,2
Diabetes treatment	153,4	74,3	48,4
Cancer treatment	0,3	0,3	91,5
Other	275,5	163,9	59,5

Source: Oblast treasury report.

ANNEX C. LEAKAGES AND INCONSISTENCIES

Table B4. Lviv oblast

PROVISIONS	UAH MILLION		PERCENT
	PLAN	ACTUAL	ACTUAL/ PLAN
Medical subvention	2,924.7	2,924.7	100.0
Subvention to purchase drugs and medical goods for emergency service	6.1	6.1	99.1
Subvention to purchase drugs for anesthesia	1.1	1.1	99.8
Contribution from local budgets	—	471.3	—
EXPENDITURES			
Health care (total), of it:	3,491.6	3,403.2	97.5
Hospitals	1,762.7	1,746.6	99.1
Specialized hospitals, incl. maternity hospitals	730.3	725.8	99.4
Sanatoriums	25.7	25.6	99.8
Emergency care	214.5	213.6	99.6
Polyclinics	399.1	393.6	98.6
PHCs and FOPs	76.8	75.0	97.7
Prevention	11.6	11.6	99.7
Diabetes treatment	65.3	40.1	61.4
Other	205.5	171.3	83.4

Source: Oblast treasury report.

Table C1. Leakage estimates and inconsistencies in financial reports—Lviv oblast, million UAH

	THE STATE TREASURY SERVICE (1)			LOCAL STATE ADMINISTRATIONS (2)			INCONSISTENCY: ((1)-(2))/(1), IN PERCENT		
	HEALTH EXPENDITURES	MEDICAL SUBVENTION, RECEIVED	MEDICAL SUBVENTION, USED	HEALTH EXPENDITURES	MEDICAL SUBVENTION, RECEIVED	MEDICAL SUBVENTION, USED	HEALTH EXPENDITURES	MEDICAL SUBVENTION, RECEIVED	MEDICAL SUBVENTION, USED
Lviv oblast	0.0	0.0	0.0	0.0	0.0	0.0	(0.12)	(2.53)	(2.59)
Oblast Budget	1,438.2	1,231.8	1,176.9	1,442.2	1,306.1	1,251.2	(0.28)	(6.03)	(6.31)
Boryslav City	37.6	29.0	28.9	37.6	29.0	28.9	0.00	—	—
Drohobych City	99.5	78.8	78.8	99.5	78.8	78.8	0.00	—	(0.00)
Lviv City	604.2	503.6	500.8	604.2	503.5	500.6	0.00	0.02	0.04
Morshyn City	11.8	5.5	5.5	11.8	5.5	5.5	—	—	—
Novyi Rozdil City	29.8	21.1	21.1	29.8	21.1	21.1	(0.00)	—	(0.00)
Sambir City	—	0.2	0.2	—	—	—	0	—	—
Stryi City	56.8	43.9	43.9	56.8	43.9	43.9	0.00	—	0.00
Truskavets City	30.2	20.2	20.2	30.2	20.2	20.2	—	(0.00)	—
Chervonohrad City	88.8	57.6	57.6	88.8	57.6	57.6	—	—	—
Brody rayon	44.8	39.2	39.2	44.8	39.2	39.2	0.00	—	(0.00)
Busk rayon	34.7	31.7	31.7	34.7	31.7	31.7	—	—	0.00
Gorodok rayon	58.6	47.5	47.4	58.6	47.5	47.4	0.00	—	(0.00)
Drohobych rayon	40.8	40.8	40.1	40.8	40.8	40.1	(0.00)	—	(0.00)
Zhydachiv rayon	54.0	48.7	48.5	54.0	48.5	48.3	0.00	0.44	0.44
Zhovkva rayon	71.2	64.5	64.3	71.2	64.5	64.3	0.00	—	(0.00)
Zolochiv rayon	57.8	46.8	46.5	57.8	46.8	46.5	(0.00)	—	(0.00)
Kamyanka Buzka r-n	40.3	34.5	34.2	40.3	34.5	34.2	(0.00)	—	(0.00)
Mykolaiv rayon	41.3	36.9	36.5	41.3	36.9	36.5	(0.00)	—	0.00
Mostyv rayon	38.0	35.6	35.1	38.0	35.6	35.1	(0.00)	—	(0.00)
Peremyshlyany rayon	31.9	28.0	28.0	31.9	28.0	28.0	(0.00)	—	(0.00)
Pustomytiv rayon	74.8	69.2	65.3	75.0	69.2	65.3	(0.27)	—	0.00

	THE STATE TREASURY SERVICE (1)			LOCAL STATE ADMINISTRATIONS (2)			INCONSISTENCY: ((1)-(2))/(1), IN PERCENT		
	HEALTH EXPENDITURES	MEDICAL SUBVENTION, RECEIVED	MEDICAL SUBVENTION, USED	HEALTH EXPENDITURES	MEDICAL SUBVENTION, RECEIVED	MEDICAL SUBVENTION, USED	HEALTH EXPENDITURES	MEDICAL SUBVENTION, RECEIVED	MEDICAL SUBVENTION, USED
Radekhiv rayon	33.1	32.0	32.0	33.1	32.0	32.0	0.00	—	0.00
Sambir rayon	92.1	81.3	80.9	92.1	81.5	81.1	0.00	(0.26)	(0.26)
Skole rayon	38.4	37.0	36.9	38.4	37.0	36.9	(0.00)	—	(0.00)
Sokal rayon	61.5	54.3	53.8	61.5	54.3	53.8	—	—	—
Staryi Sambir rayon	59.2	54.7	54.7	59.2	54.7	54.7	—	—	—
Stryi rayon	51.7	34.4	34.2	51.7	34.4	34.2	0.00	—	—
Turka rayon	45.3	42.6	42.4	45.3	42.6	42.4	0.00	—	(0.00)
Iavoriv rayon	99.5	73.4	71.8	99.5	73.4	71.8	(0.00)	—	0.00
Poltava oblast	0.0	0.0	0.0	0.0	0.0	0.0	0.00	(0.02)	(0.02)
Oblast Budget	853.3	723.2	696.4	853.3	723.6	696.8	(0.00)	(0.06)	(0.06)
Horishni Plavni City	59.9	36.9	36.5	59.9	36.9	36.5	(0.00)	—	0.00
Kremenchuk City	230.2	155.0	154.9	230.2	155.0	154.9	—	—	—
Lubny City	49.6	40.0	39.9	49.6	40.0	39.9	0.00	(0.00)	(0.00)
Poltava City	284.6	199.5	199.4	284.6	199.5	199.4	0.00	—	(0.00)
Velyka Bagachanka rayon	22.3	17.5	17.4	22.3	17.5	17.4	0.00	—	0.00
Gadiach rayon	43.0	37.2	35.3	43.0	37.2	35.3	0.00	—	(0.00)
Globyno rayon	37.8	31.2	29.8	37.8	31.2	29.8	(0.00)	—	0.00
Grebinka rayon	24.6	17.5	16.6	24.6	17.5	16.6	(0.00)	—	0.00
Dykanka rayon	14.8	12.7	12.1	14.8	12.7	12.1	0.00	—	(0.00)
Zinkiv rayon	27.1	24.3	23.3	27.1	24.3	23.3	(0.00)	—	(0.00)
Karlivka rayon	28.5	23.4	22.4	28.5	23.4	22.4	0.00	—	(0.00)
Kobelyaky rayon	34.5	29.5	29.5	34.5	29.5	29.5	—	—	(0.00)
Kozelschyna rayon	16.0	13.7	13.1	16.0	13.7	13.1	(0.00)	—	0.00
Koteleve rayon	14.1	13.2	12.6	14.1	13.2	12.6	0.00	—	(0.00)

	THE STATE TREASURY SERVICE (1)			LOCAL STATE ADMINISTRATIONS (2)			INCONSISTENCY: ((1)-(2))/(1), IN PERCENT		
	HEALTH EXPENDITURES	MEDICAL SUBVENTION, RECEIVED	MEDICAL SUBVENTION, USED	HEALTH EXPENDITURES	MEDICAL SUBVENTION, RECEIVED	MEDICAL SUBVENTION, USED	HEALTH EXPENDITURES	MEDICAL SUBVENTION, RECEIVED	MEDICAL SUBVENTION, USED
Kremenchuk rayon	35.1	28.5	27.6	35.1	28.5	27.6	(0.00)	—	0.00
Lokhvytia rayon	38.4	29.8	28.5	38.4	29.8	28.5	0.00	(0.00)	(0.00)
Lubny rayon	14.6	15.1	13.9	14.6	15.1	13.9	(0.00)	—	(0.00)
Mashiv rayon	19.5	13.3	12.7	19.5	13.3	12.7	(0.03)	—	0.00
Myrgorod rayon	65.7	53.4	51.0	65.7	53.4	51.0	0.00	—	0.00
Novi Sanzhary rayon	28.4	23.9	22.9	28.4	23.9	22.9	0.02	—	0.00
Orzhysya rayon	20.7	16.7	16.0	20.7	16.7	16.0	0.01	—	0.00
Pyryatyn rayon	24.9	21.8	21.5	24.9	21.8	21.5	0.00	0.00	(0.00)
Poltava rayon	49.4	44.9	42.9	49.4	44.9	42.9	0.00	0.00	0.00
Reshetylivka Rayon	18.4	17.1	17.1	18.4	17.1	17.1	(0.00)	0.00	0.00
Semenivka rayon	19.9	17.8	17.8	19.9	17.8	17.8	(0.00)	—	0.00
Khorol rayon	29.6	24.1	24.1	29.6	24.1	24.1	—	—	0.00
Chornukhy rayon	8.5	7.8	7.8	8.5	7.8	7.8	(0.00)	0.00	0.00
Chutiv Rayon	18.1	15.8	15.1	18.1	15.8	15.1	(0.00)	—	(0.00)
Shyshaky rayon	20.5	14.0	13.9	20.5	14.0	13.9	(0.00)	—	(0.00)
Donetsk oblast	3,106.3	2,607.1	2,268.0	3,105.0	2,604.0	2,260.9	0.04	0.12	0.31
Oblast Budget	1,145.1	933.1	690.6	1,145.1	933.1	690.6	0.00	—	0.00
Avdiivka City	26.3	24.1	22.7	26.3	24.1	22.7	—	—	—
Bakhmut City	130.2	118.4	101.0	130.2	118.4	101.0	0.00	—	0.00
Debaltseve City	0.3	4.2	0.0	0.0	4.2	0.0	100.00	—	—
Toretsk City	64.1	60.4	59.9	66.0	60.4	59.9	(3.09)	—	—
Myrnohrad City	58.6	45.7	45.3	58.8	52.3	49.1	(0.27)	(14.51)	(8.46)
Dobropillia City	64.7	50.6	50.3	64.7	54.5	54.3	(0.00)	(7.78)	(7.81)
Druzhkivka City	62.6	56.2	56.2	62.6	56.4	56.4	0.00	(0.36)	(0.36)

	THE STATE TREASURY SERVICE (1)			LOCAL STATE ADMINISTRATIONS (2)			INCONSISTENCY: ((1)-(2))/(1), IN PERCENT		
	HEALTH EXPENDITURES	MEDICAL SUBVENTION, RECEIVED	MEDICAL SUBVENTION, USED	HEALTH EXPENDITURES	MEDICAL SUBVENTION, RECEIVED	MEDICAL SUBVENTION, USED	HEALTH EXPENDITURES	MEDICAL SUBVENTION, RECEIVED	MEDICAL SUBVENTION, USED
Mariupol City	459.4	379.9	376.7	456.1	379.9	376.7	0.73	—	—
Novogradovka City	16.3	17.3	16.0	16.3	17.0	15.8	(0.21)	1.35	1.45
Kostiantynivka City	81.8	82.2	70.1	81.8	82.2	70.1	—	—	—
Kramatorsk City	273.3	164.5	164.4	273.3	165.1	164.9	0.00	(0.39)	(0.32)
Pokrovsk City	84.3	67.2	65.6	84.3	72.2	70.5	0.00	(7.41)	(7.46)
Lyman City	50.0	45.3	43.1	50.3	45.3	43.1	(0.57)	—	0.00
Selidove City	66.3	52.4	51.3	66.3	53.7	52.6	—	(2.45)	(2.41)
Slaviansk City	148.2	114.5	114.3	148.2	108.7	108.5	0.00	5.03	5.04
Vugledar City	17.6	15.1	14.7	17.5	15.1	14.7	0.39	—	0.00
Oleskandrivka rayon	15.4	14.4	14.2	15.4	14.4	14.2	—	—	—
Bakhmut rayon	33.0	45.5	29.6	33.0	45.5	29.6	—	—	0.00
Velyka Novoselka rayon	39.6	36.7	31.1	39.6	36.7	31.1	0.00	—	(0.00)
Volnovakha rayon	77.7	76.3	70.1	77.7	76.3	70.1	—	—	0.00
Nikolske rayon	22.2	21.7	19.7	22.2	21.7	19.8	(0.00)	—	(0.16)
Dobropillia rayon	8.2	11.4	10.5	8.2	8.2	6.6	(0.07)	28.81	37.29
Kostiantynivka rayon	8.4	13.6	12.1	8.4	10.1	7.9	0.00	25.86	34.79
Pokrovsk rayon	15.9	29.5	25.0	15.9	20.0	15.3	(0.01)	32.30	38.79
Marinka rayon	74.0	60.6	56.9	74.0	60.6	56.9	(0.00)	—	(0.01)
Mangush rayon	22.8	22.3	21.1	22.8	22.3	21.1	0.12	0.00	(0.00)
Slaviansk rayon	32.1	26.5	24.1	32.1	32.1	29.7	(0.00)	(21.16)	(23.24)
Iasynuvata rayon	8.0	17.6	11.4	8.0	13.6	7.9	0.00	22.78	30.38

	THE STATE TREASURY SERVICE (1)			LOCAL STATE ADMINISTRATIONS (2)			INCONSISTENCY: ((1)-(2))/(1), IN PERCENT		
	HEALTH EXPENDITURES	MEDICAL SUBVENTION, RECEIVED	MEDICAL SUBVENTION, USED	HEALTH EXPENDITURES	MEDICAL SUBVENTION, RECEIVED	MEDICAL SUBVENTION, USED	HEALTH EXPENDITURES	MEDICAL SUBVENTION, RECEIVED	MEDICAL SUBVENTION, USED
Luhansk region	1,079.7	975.1	790.1	1,077.8	975.1	790.2	0.17	—	(0.00)
Oblast Budget	445.5	431.9	281.9	445.5	431.9	281.9	—	—	—
Lysychansk City	95.0	85.9	85.3	95.0	85.9	85.3	—	—	—
Rubizhne City	46.9	41.8	41.3	46.9	41.8	41.3	—	—	—
Severodonetsk City	142.5	96.9	93.9	142.5	96.9	93.9	—	—	—
Bilovodsk rayon	22.9	27.8	19.3	23.2	27.8	19.3	(1.19)	—	(0.09)
Bilokurakyno rayon	21.0	15.3	15.2	21.0	15.3	15.2	(0.00)	—	0.00
Kreminna rayon	32.0	31.5	29.5	32.0	31.5	29.5	0.01	—	—
Markove rayon	13.5	10.5	10.4	13.5	10.5	10.4	(0.00)	—	0.00
Milove rayon	12.8	13.8	11.9	13.0	13.8	11.9	(1.01)	—	—
Novoaidar rayon	35.4	33.0	28.2	35.4	33.0	28.2	(0.00)	—	—
Novopskov rayon	29.9	24.7	24.1	29.9	24.7	24.1	—	—	—
Popasna rayon	53.5	51.6	46.6	53.5	51.6	46.6	0.00	—	—
Svatove rayon	33.7	26.1	25.2	31.7	26.1	25.2	5.93	—	(0.00)
Stanytsia Luhanska rayon	36.0	32.5	27.8	36.0	32.5	27.8	(0.00)	—	0.00
Starobilsk rayon	40.9	37.1	35.4	40.9	37.1	35.4	—	—	—
Troitske rayon	18.2	14.5	14.2	18.0	14.5	14.2	1.51	—	—
Marinka rayon	74.0	60.6	56.9	74.0	60.6	56.9	(0.00)	—	(0.01)
Mangush rayon	22.8	22.3	21.1	22.8	22.3	21.1	0.12	0.00	(0.00)
Slaviansk rayon	32.1	26.5	24.1	32.1	32.1	29.7	(0.00)	(21.16)	(23.24)
Iasynuvata rayon	8.0	17.6	11.4	8.0	13.6	7.9	0.00	22.78	30.38

ANNEX D. FINANCIAL FLOWS IN THE STUDIED OBLASTS.

Figures listed in order on following pages.

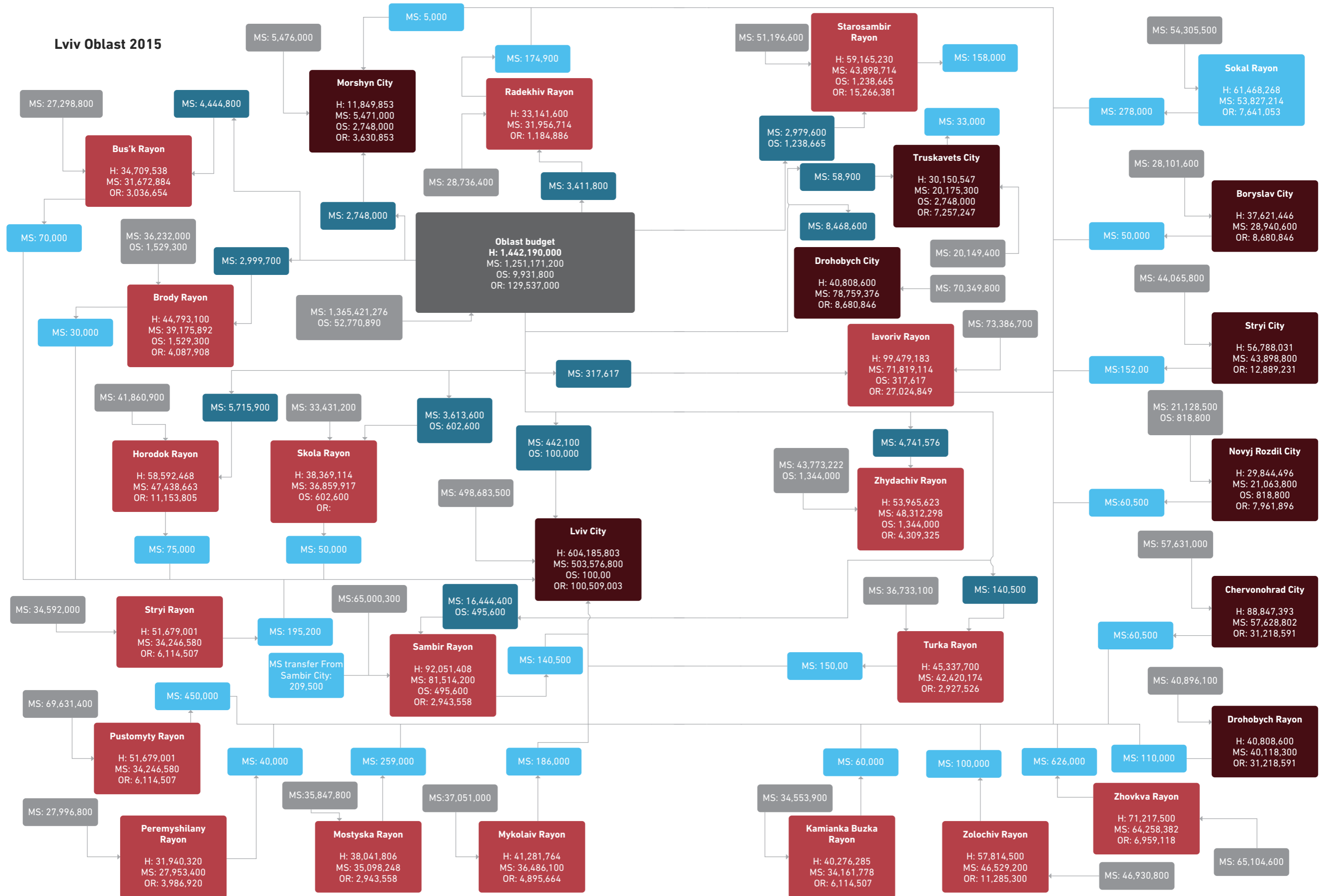
Figure D1. Financial flows in Lviv oblast

Figure D2. Financial flows in Poltava oblast

Figure D3. Financial flows in Donetsk oblast

Figure D4. Financial flows in Luhansk oblast

Lviv Oblast 2015



Poltava Oblast 2015



Donetsk Oblast 2015



Luhansk Oblast 2015

