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Ambulatory care sensitive conditions in Kazakhstan

Health Services Delivery Programme

Division of Health Systems and Public Health

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Abstract

The aim of this study is to identify which elements of primary health care (PHC) need strengthening to avoid unnecessary hospitalizations of ambulatory care sensitive conditions (ACSCs) in Kazakhstan. ACSCs are health conditions for which hospitalization or emergency care can be avoided by addressing these conditions effectively in PHC. How the strengthening of PHC can be achieved is captured in a set of actionable policy recommendations. This publication is part of the multicountry study on ACSCs in the WHO European Region.

Keywords

AMBULATORY CARE
PRIMARY HEALTHCARE
DELIVERY OF HEALTH CARE
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Abbreviations

ACSC	ambulatory care sensitive condition
CCMPA	Committee for Control of Medical and Pharmaceutical Activities
CGPs	clinical guidelines and protocols
COPD	chronic obstructive pulmonary disease
FAP	feldsher/midwifery post
GP	general practitioner
ICD-10	International Classification of Diseases and Related Health Problems, 10th revision
MHI	mandatory health insurance
NCDs	noncommunicable diseases
OHD	oblast (regional) health department
PHC	primary health care
SGBP	state guaranteed basic package

Executive summary

The aim of this study is to identify which elements of primary health care (PHC) need strengthening to avoid unnecessary hospitalizations of ambulatory care sensitive conditions (ACSCs) in Kazakhstan. ACSCs are health conditions for which hospitalization or emergency care can be avoided by addressing these conditions effectively in PHC. How the strengthening of PHC can be achieved is captured in a set of actionable policy recommendations. This assessment is part of the multicountry study on ACSCs in the WHO European Region.

After the literature review describing the current situation of health services delivery in Kazakhstan, hospitalization rates of ACSCs were analysed. Based on this data, a survey was conducted among 21 health professionals – general practitioners (GPs), therapists, narrow specialists and health managers – to identify the most relevant ACSCs for Kazakhstan and to estimate the proportion of avoidable hospitalizations for these ACSCs. The survey results and the data analysis served as input for a stakeholders' consultation with representatives of municipal polyclinics from different regions (oblasts), hospitals, local governments, the Republican Centre for Health Development and the Ministry of Health and Social Development. During the workshop and in consultation with the Ministry thereafter, four ACSCs were selected, and the barriers and opportunities for their effective prevention, diagnostics and treatment in PHC were identified. ACSCs with the highest relevance in Kazakhstan were identified as hypertension, angina pectoris, kidney and urinary tract infections, and influenza. In addition, data on hospitalization for these conditions to assess regional differences were analysed.

Data analysis showed that out of 448 216 hospital admissions in Kazakhstan (2014), 90 737 were due to angina pectoris, 62 637 from hypertension, 39 636 from communicable diseases (including influenza), and 33 613 from kidney and urinary tract infections. Further analysis showed that large regional variations exist across the oblasts in Kazakhstan. For example, in Akmola oblast, the percentage of registered patients hospitalized for kidney and urinary tract infections is almost eight times higher than in Almaty city (23.3% versus 3% in 2014). The highest regional variation for the whole population in Kazakhstan was for angina pectoris, infectious and parasitic diseases and Crohn's disease.

According to the survey, at least 61% of influenza hospitalizations, 44% of kidney and urinary infection hospitalizations, 75% of hypertension hospitalizations and 42% of angina pectoris hospitalizations could have been avoided through effective PHC interventions.

Further analysis on delivery of services for selected ACSCs has shown that current financing creates undesirable incentives for hospitalizations. Low access to ambulatory care in rural areas is associated with a higher number of hospitalizations for hypertension and reflects existing inequalities in distribution of health workforce. The current back-referral to PHC after discharge from hospital admission causes significant delays in follow-up. A high burden of unnecessary home visits can take up to four GP hours per day. Nurses have a limited role often restricted to administrative tasks. Results show that self-medication is high and adherence to treatment is low creating further challenges to the scope of PHC.

Overall, findings show that in order to reduce hospitalization rates, PHC needs further strengthening. Firstly, the Ministry needs to continue efforts to reduce unnecessary hospitalizations by enhancing the first contact response capacity, management and

coordination role of PHC, distributing tasks in multidisciplinary teams composed of GPs, therapists, nurses and narrow specialists. Quality of care should be closely monitored and enhanced.

Secondly, despite the important progress made by the Ministry to improve access, ambulatory services in rural areas need further strengthening. Existing inequalities in access and avoidable hospital admissions are rooted in shortages of GPs in rural areas. Absence of adequate transportation to reach PHC facilities is another obstacle to access ambulatory care and causes delays in provision of care.

Thirdly, current financing of hospitals causes an incentive for unnecessary hospitalizations. This could be partially avoided by expanding drug reimbursement to ambulatory settings. Furthermore, enlarging the population eligible for free influenza vaccination will reduce overall morbidity and subsequently decrease the associated hospital admissions.

The number of unplanned visits and high burden of home visits in PHC should be addressed by changing regulations. Home visits can be partially replaced by phone consultations and effective use of telemedicine. GPs' workloads can also be reduced by expanding the roles of nurses, who could potentially triage patients, provide nurse-led consultations and counsel patients. Clinical guidelines and protocols developed in a user-friendly format and associated with periodic training and continuous medical education can improve quality of care in ambulatory settings. This should include the rational use of antibiotics.

Lastly, engaging patients and empowering the population is of important relevance for selected ACSCs. Availability of evidence-based guidelines for self-care among patients with chronic conditions and disease management schools has the potential to improve patient outcomes and decrease the number of complications leading to hospitalizations.

1. Introduction

This publication presents findings and discusses policy recommendations on health conditions that could effectively be prevented, diagnosed and treated in PHC settings in Kazakhstan.

It focuses on four ACSCs – hypertension, angina pectoris, kidney and urinary tract infections, and influenza – as tracers for identification of opportunities and challenges for strengthening PHC in Kazakhstan.

The publication is part of the multicountry study on ACSCs in the WHO European Region. Other countries included in this initiative are: Germany, Latvia, Portugal and the Republic of Moldova. The purpose of the multicountry study is to contribute to strengthening PHC by identifying opportunities and challenges to effectively prevent, diagnose and treat ACSCs, which will inform the provision of contextualized and actionable policy recommendations for health services delivery transformation. A summary of the analytical framework for the study is presented in Annex 1.

Kazakhstan has a high burden of premature mortality that is caused by four major NCDs such as cardiovascular diseases, diabetes mellitus, chronic respiratory diseases and cancer, which accounted for 84% of all deaths in 2014 *(1)*. Many of these chronic conditions are sensitive to ambulatory care, i.e. could be avoided with a well-functioning network of PHC facilities that provide appropriate and timely prevention, diagnosis, management and treatment. Historically inherited excessive hospital capacity and supply-driven incentives for hospital overuse and an uneven distribution of GPs across the country undermine the possibility for managing ACSCs effectively *(2–4)*.

Avoiding unnecessary hospitalizations is an important indicator of quality of ambulatory care and efficiency of the health system. In 2014, out of the 448 216 hospital admissions in Kazakhstan, 90 737 were due to angina pectoris, 62 637 from hypertension, 39 636 from communicable diseases (including influenza), and 33 613 from kidney and urinary tract infections. These disease groups are considered highly preventable as shown in other similar studies *(5–9)*.

This publication is structured as follows. The methodology is described in section 2. The results of data analysis and stakeholder consultation that led to a selection of ACSCs are introduced in section 3. Thereafter, the elements of the health services delivery that require strengthening to successfully address selected ACSCs are provided in section 4. Finally, section 5 describes policy recommendations to move towards effectively addressing the selected ACSCs in PHC in Kazakhstan.

2. Methods

In the context of the analytical framework, the main steps consisted of a desk research, analysis of hospital admission data, a stakeholder consultation (i.e. surveys and workshops) and validation of findings by experts and the Ministry of Health and Social Development. These steps are further described below. An overview of the analytical framework applied to this study is provided in Annex 1.

2.1 Health services desk research

The analytical framework was used to describe the current situation in Kazakhstan using publicly available and grey literature to identify potential challenges and opportunities that impede or enable ACSCs from being effectively prevented, diagnosed and treated in ambulatory settings.

A structured search strategy to retrieve the most updated information regarding the health system in Kazakhstan was followed. Documents reviewed included policies and regulations, mission reports, assessment and studies conducted at national and regional (oblast) levels, publicly available documents and reviews *(e.g. 2,4)*. Literature index databases PubMed and Google Scholar were used with search terms based on the different elements of the analytical framework. The literature used in this report comprises the period 2004–2014. The literature search was mainly restricted to documents published in English. However, translated reports, clinical guidelines, scientific journal articles and Ministry regulations in Russian were also used.

2.2 Hospital admission rates

According to the analytical framework, data used consisted of prevalence figures (registered and hospitalized cases) for a long list of ACSCs in the year 2014. Data were provided by the Ministry based on registrations in polyclinics (a type of out-patient treatment centre that has a GP). The hospital admission rates were taken from the centralized hospital database. Data were disaggregated by region (oblast), urban and rural areas and age categories (0–14; 15–17; 18 years and older). The hospital admission rates allowed identifying the ACSCs with higher prevalence and regional variations for selected ACSCs (see subsection 3.2). Prevalence data served as input for a survey of health professionals.

2.3 Selection of ACSCs: stakeholder consultation

The selection of ACSCs was based on a survey disseminated through professional associations. In total, 21 health professionals (four GPs, 10 therapists, five narrow specialists and two health managers) filled in the survey (see Annex 2). The Ministry provided further inputs to obtain the final list of ACSCs. Survey results are presented in subsection 3.1.

In addition to the survey, a workshop and country visit supported the identification of current barriers and opportunities for optimally treating selected ACSCs.

A two-day workshop was held in Astana in May 2014. Health professionals attended the first day, which was focussed on treatment pathways, availability of resources for selected ACSCs and identification of challenges and opportunities for strengthening PHC. The list of participants is provided in Annex 3.

The second day of the workshop, attended by health system and health policy delegates, focussed on analysing health system barriers and opportunities. Participants, organized in three groups, were asked to reflect on the determinants of hospitalizations in Kazakhstan. The list of participants is provided in Annex 4.

Angina pectoris was not initially included in the analysis. However, the Ministry suggested its inclusion due to the high number of hospitalizations. Since the decision was taken after the workshop, an additional survey was conducted. A questionnaire on angina pectoris was developed and disseminated to GPs in Aktobe and Almaty through the medical university and the Institute of Cardiology. A total of 14 completed questionnaires were received (seven filled by GPs, six by cardiologists and one by a heart surgeon).

Based on the outcomes of the survey results and the two-day workshop, the country profile was drafted and actionable policy recommendations were formulated. Both short- and long-term policy recommendations are provided to overcome these challenges and move towards effectively addressing the specific ACSCs in ambulatory settings in Kazakhstan.

2.4 Limitation of this study

Regional variation analysis shows how the proportion of hospitalized patients differs per region, but understanding the causes of this regional variation would require in-depth and ad-hoc analysis of hospital admission rates. It would also be necessary to investigate how regions differ in the way they register patients, as differences in hospital admission rates might actually represent differences in registration practices.

3. Building the case for focusing on ACSCs

Similar to studies on ACSCs from this series of assessments in other countries (Latvia, Republic of Moldova), the matrix table for the country-specific selection was extracted from the list of most commonly occurring ACSCs described in a 10-year observational study by Bardsley et al. *(5)*. Table 1 shows the total number of patients registered and the number of hospitalized cases per diagnosis. Data on the number of hospitalized cases are derived from hospital discharge data.

Table 1. Hospitalization rates for most common ACSCs, whole population, 2014[a]

ACSC	ICD-10 code	Total number of cases[b]	Hospitalized cases	
			Number[c]	%[d]
Angina pectoris	I20.0–I20.9	254 887	90 737	35.6
Bronchial asthma	J45.0–J45.9	80 787	14 153	17.5
Chronic bronchitis and unspecified emphysema	J40–J43	193 114	6 635	3.4
Chronic obstructive pulmonary disease (COPD)	J44.0–J44.9	89 249	22 190	24.9
Crohn's disease, ulcerative colitis	K52.0–K52.9	17 226	3 169	18.4
Diabetes mellitus type 1	E10	23 842	6 941	29.1
Diabetes mellitus type 2	E11	284 643	15 179	5.3
Epilepsy (without psychosis and dementia)	G40–G41	46 234	17 184	37.2
Heart failure (congestive)	I50.0–I50.9	55 479	3 932	7.1
Hypertension	I10.0–I13.0	1 203 548	62 637	5.2
Infectious and parasitic diseases	A15, A16, A19, A35–A37, A80, B05, B06, B26, B161, B169, B180, B181, G000, J10, J11, M014	53 184	39 636	74.5
Iron deficiency anaemia	D50	708 062	5 847	0.8
Kidney infection	N10–N12,N15	412 771	33 613	8.1
Other forms of acute ischaemic heart disease	I23–I24	8 591	194	2.3
Pneumonia	J12–J16, J18	113 955	97 163	85.3
Salpingitis and oophoritis	N70.0–N70.9	63 258	17 217	27.2
Ulcus of stomach and duodenum	K25–K27	87 986	11 789	13.4

ICD-10: International Classification of Diseases and Related Health Problems, 10th revision.

[a] The population of Kazakhstan in 2014 was approximately 17.5 million people (10).

[b] Number of cases extracted from national reports on all registered cases in polyclinics and ambulatory settings.

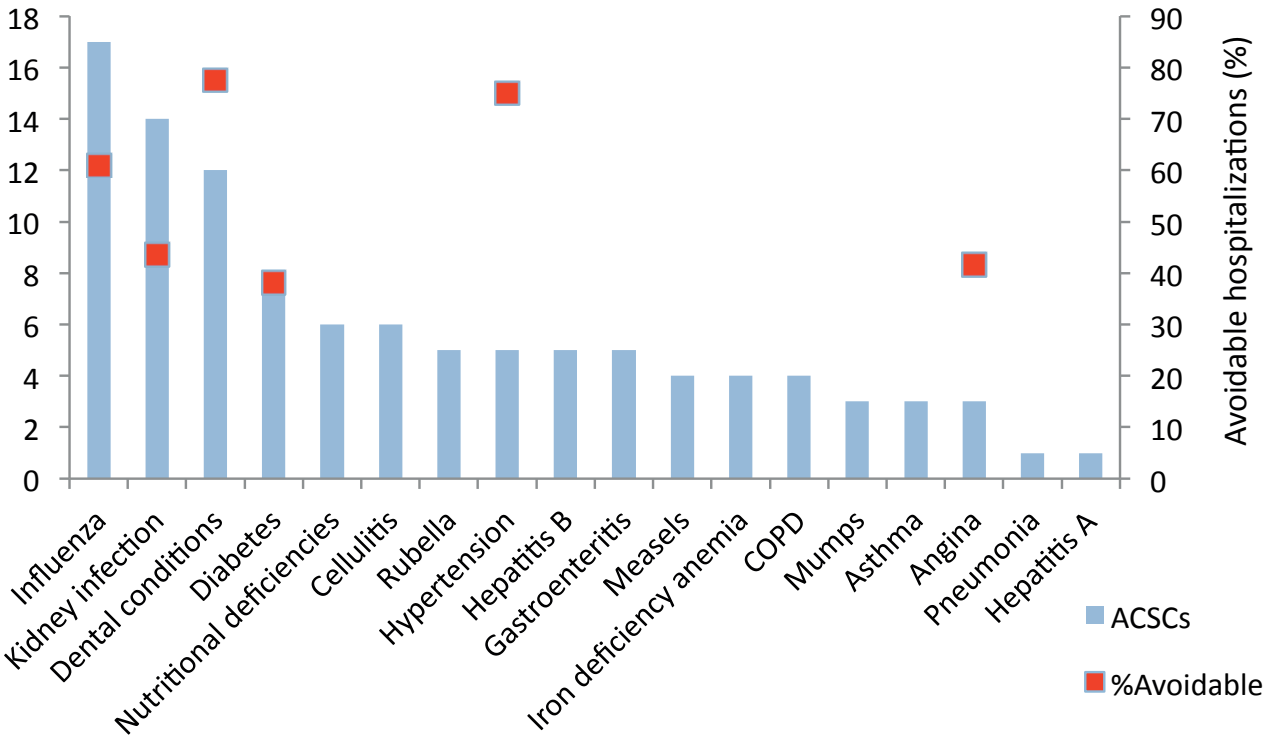
[c] Number of cases discharged from hospitals.

[d] % hospitalized cases = (hospitalized cases * 100)/number of cases.

Table 1 shows that two ACSCs had hospital admissions rate higher than 40%: pneumonia (85.3%), and infectious and parasitic diseases (74.5%). Two other ACSCs had hospitalization rates of more than 30%: epilepsy (37.2%) and angina pectoris (35.6%). These results served as the basis for the next step of the analysis and informed the development of the questionnaires for providers. The aim of the survey was to identify a short list of ACSCs that are relevant for Kazakhstan.

Surveyed professionals were asked to indicate which ACSCs from Table 1 were most important in the national context and estimate which proportion of those hospitalizations could have been avoided if properly treated in ambulatory settings (Annex 2). Respondents were asked to suggest any other important ACSCs not included in the list initially provided. The results of the survey are in Fig. 1. The percentage of avoidable hospitalizations – indicated by red squares – was included only if at least eight respondents provided an estimate.

Fig. 1. Ranking of ACSCs and avoidable hospitalizations



Note: The survey, with 21 respondents, was based on 2013 hospital discharge data (see also Annex 2).

Fig. 1 shows that influenza, kidney infections, dental conditions and diabetes were most frequently selected in the survey. Estimates of avoidable hospitalization for these conditions ranged between 38% and 78%. The conditions considered most often by the survey respondents were those of the musculoskeletal system (arthritis and osteoarthritis), even though they were not included in the initial list of ACSCs *(5)*.

The hospital admission data analysis (quantitative) and the survey (qualitative) differed on assigning priority to ACSCs. Survey results (Fig. 1) indicate that influenza, kidney infections and dental conditions are the ACSCs with highest priority while the hospital discharge data (Table 1) show that pneumonia, infectious and parasitic diseases, epilepsy and angina pectoris are conditions with the highest hospitalization rates in Kazakhstan.

According to the study methodology and similarly to Sundmacher et al. *(6)*, at least one acute, one chronic and one vaccine-preventable condition was expected to be selected. The ACSCs selected for further analysis in Kazakhstan were: hypertension (chronic), kidney and urinary tract infections (acute), influenza (vaccine preventable) and angina pectoris (acute). While the selection was essentially informed by the results of both hospital admission data analysis and the provider survey, the inclusion of both acute and chronic conditions in the analysis allowed accounting for different features of the health services delivery in Kazakhstan and for proposing actionable policy recommendations.

Hypertension was selected as it scored high both in terms of hospital admission rates and in the survey, as did kidney and urinary tract infections. Influenza was selected based on the survey among health professionals. Angina pectoris scored high in terms of number of hospitalizations and was recommended to be included in the analysis after the workshop held by the Ministry.

3.1 Selected ACSCs and avoidable hospitalizations

3.1.1 Survey results

According to survey respondents, at least 75% of hospitalizations for hypertension are preventable. This estimated avoidable hospitalization rate is lower compared to that for Germany (83%), within the range estimated for the United Kingdom (60–90%) and higher than the estimation for the Republic of Moldova (60%) in similar studies *(8–9,11)*.

Survey respondents also estimated that at least 44% of hospitalizations for kidney and urinary infections are preventable. This figure is conservative compared to the findings of similar research in Germany (86%) *(6)* but in line with the percentage estimated for Latvia (47%) *(9)* and the United Kingdom (30–60%) *(11)*.

At least 42% of angina pectoris hospitalizations could have been avoided by strengthening interventions at ambulatory level according to the surveyed respondents, especially in light of the existing clinical protocol for the diagnosis and treatment of angina pectoris in PHC. About 79% of surveyed health providers reported that stable angina pectoris can be diagnosed by GPs (without consulting a cardiologist) who are allowed to prescribe the needed medication (nitroglycerin and/or beta-blockers).[1] According to respondents, angina pectoris home visits represent about one third of the total number of home visits (32.9%). Despite extensive availability and coverage of services for this condition in ambulatory settings, 86% of respondents reported that every third patient with angina pectoris does not adhere to regular treatment. Available clinical guidelines establish the criteria for hospitalization of patients with this condition. However, respondents reported that 44.1% of patients with stable angina pectoris seek care directly from hospitals or are referred by GPs. Analysis of hospital data confirms these results, showing that patients with angina pectoris are referred from polyclinics. Patients with angina pectoris represent a high proportion of emergency admissions due to complaints for acute chest pain, fear of death and perceived severity of symptoms.

Influenza was rated as the highest priority ACSC. According to survey respondents, 61% of hospitalizations of patients with influenza and its complications could have been avoided. Indeed, common seasonal influenza can be effectively addressed at ambulatory level through effective vaccination coverage, preventive activities in

[1] The following clinical protocols were approved by the Ministry of Health and divide the levels of treatment for ambulatory and hospital care: urinary system infections among children, respiratory infections and influenza among adults, respiratory infections and influenza among children, pneumonia among adults and (non)-stable angina pectoris.

workplaces, symptomatic therapy and active observation of patients. In the opinion of respondents, major factors that influence such high hospitalizations due to complications of influenza are uncontrolled use of antibiotics for viral disease and low vaccination coverage of the adult population.

3.2 Regional variation

Regional variations were calculated as standard deviation[2] of the percentage of hospitalizations in the 14 oblasts and two cities (Almaty and Astana). In 2014, the highest regional variation was observed for angina pectoris, infectious and parasitic diseases, and Crohn's disease. These data reveal differences in practice and organization of health services but also reflects regional differences in the patient case-mix and variations in quality of collected data.

The average percentage of hospitalizations in 2014 for all ACSCs was lower in Almaty (19.9%) and Mangystau (21.3%) oblasts and higher in Akmola (32%) and Kyzylorda (30.2%) oblasts. There was no clear pattern in the difference in hospitalization rates between urban and rural areas across oblasts. The difference between the hospitalization rates in urban and rural areas in 2014 was greater in Atyrau (11.6%) and West Kazakhstan (11%) oblasts.

In all but three oblasts (Akmola, Kyzylorda and North Kazakhstan), the male population had a higher proportion of hospital admissions for all ACSCs than the female population. In 2014, 20.8% of the male population in Almaty was admitted to hospitals for ACSCs, compared to 12.3% of the female population. While many confounding factors can influence gender differences in hospitalization rates, service delivery factors leading to such gender differences require further analysis to inform gender-specific policy recommendations.

Regional variations in hospitalization rates for the same ACSCs were significant suggesting differences in scope and quality of services in ambulatory settings across oblasts. Regional variations by ACSCs are analysed in detail in the following subsections.

3.2.1 Kidney and urinary tract infections

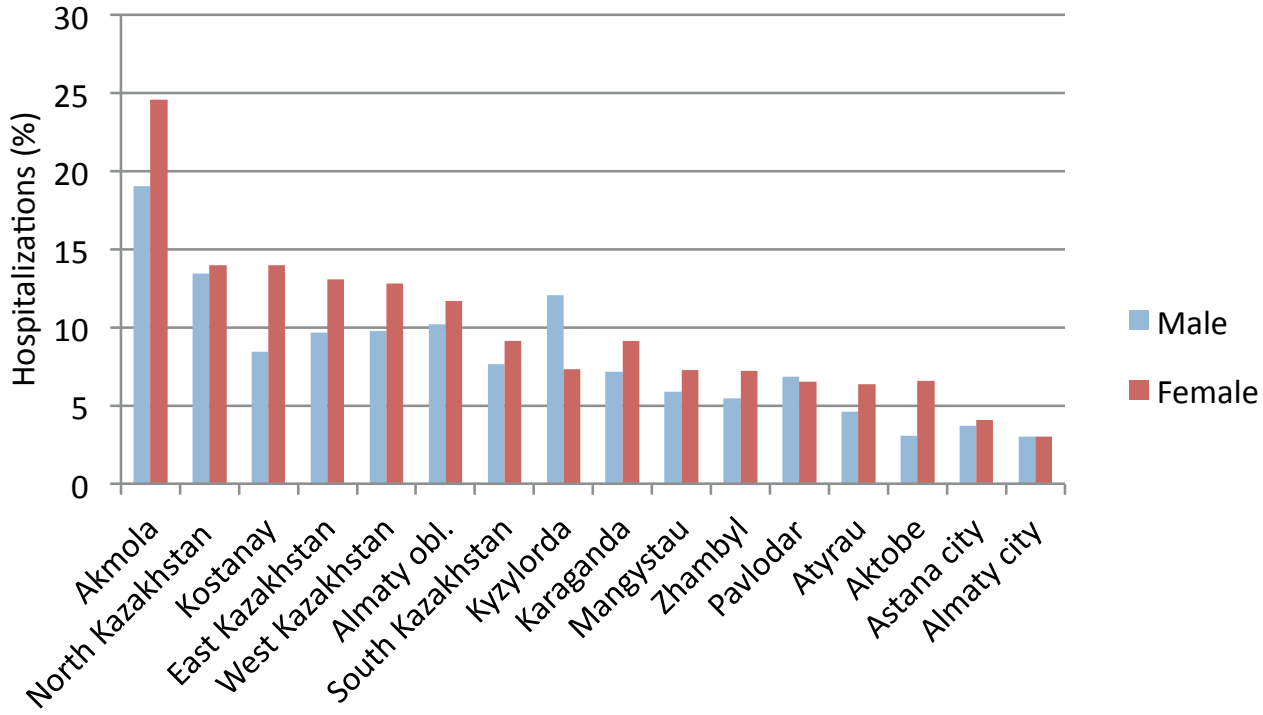
Among all selected ACSCs, kidney and urinary tract infections had the highest regional differences in hospitalizations. The hospitalization rate for kidney and urinary tract infections was about 4.5 times higher in Akmola oblast (23.3%) than in Aktobe oblast (5.2%) in 2014.

Age-specific disaggregation of all hospital admissions for kidney and urinary tract infections shows that 23.6% of discharged patients were 0–14 years old; 4.5% were 15–17 years old, and 71.9% were 18 years and older.

Gender-specific disaggregation shows that in most administrative areas (14 out of 16), women had higher hospitalization rates for kidney and urinary tract infections compared to men (Fig.2). While higher prevalence of these infections among women is a common epidemiological pattern (12), in Kyzylorda oblast, the data show a reverse trend with higher hospitalization rates for men (12.1%) than women (7.3%).

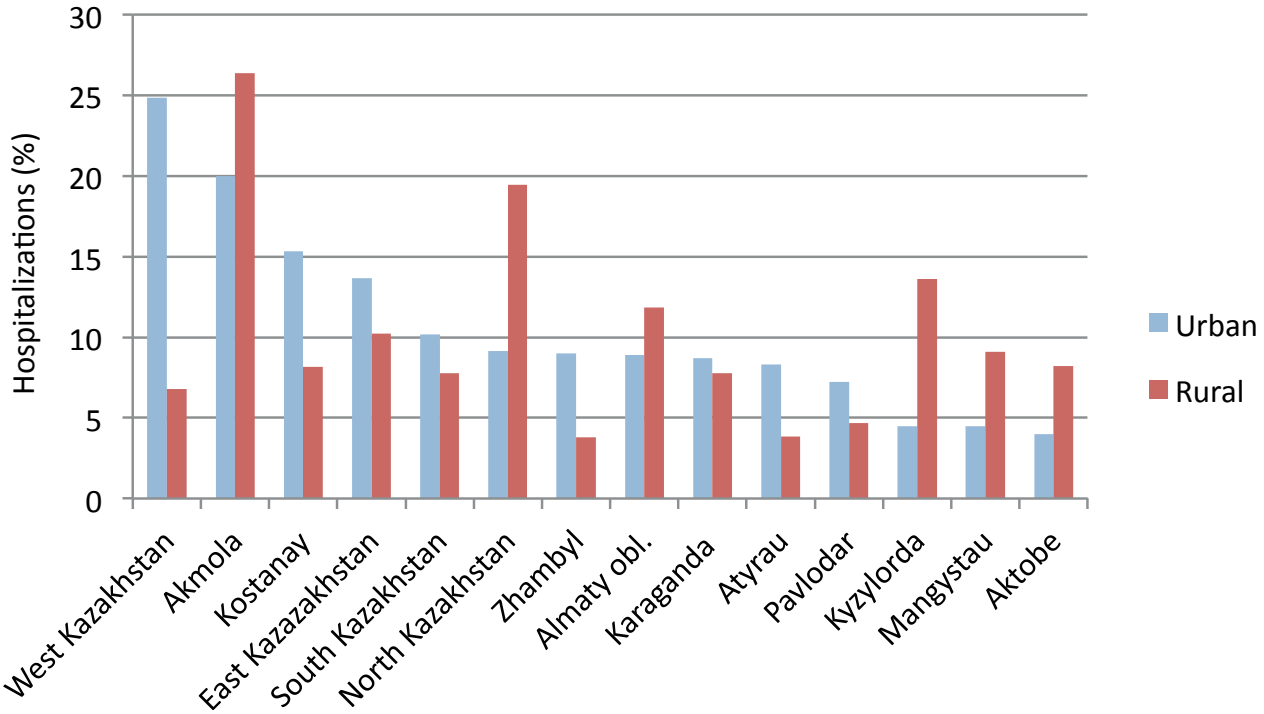
[2] The standard deviation measures by how much each data observation differs from the mean value for all the data observations, i.e. the whole sample.

Fig. 2. Regional variation in hospitalizations for kidney and urinary tract infections by gender, 2014



Disaggregation between urban and rural areas did not show a clear pattern. In eight oblasts, hospital admissions were higher in the urban than the rural population (Fig. 3).

Fig. 3. Regional variation in hospitalizations for kidney and urinary tract infections in urban and rural populations, 2014

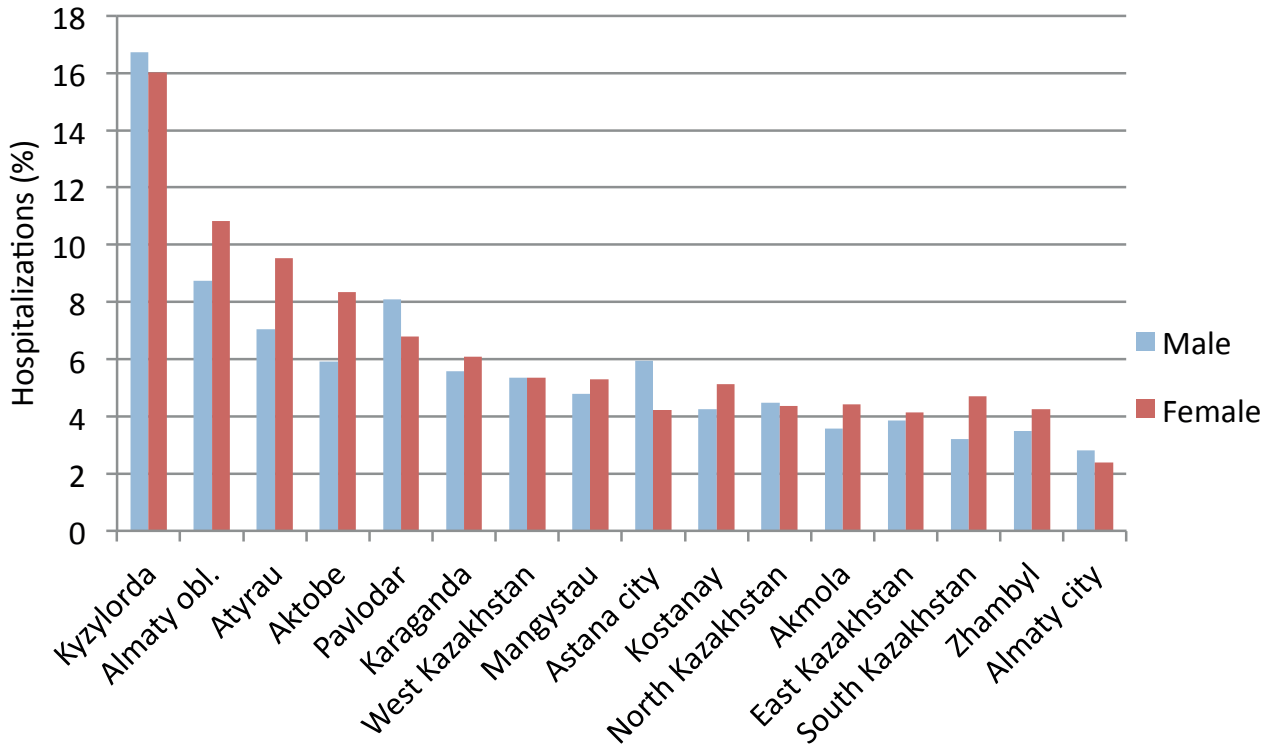


3.2.2 Hypertension

Fig. 4 shows large regional variations in hospitalizations for hypertension. Kyzylorda oblast had the highest rate of hospitalization (16.3%), followed by Almaty oblast (10%), and Atyrau oblast (8.4%). The lowest rate of hospitalization was registered in Almaty city (2.5%), Zhambyl oblast, South Kazakhstan and East Kazakhstan (each 4%).

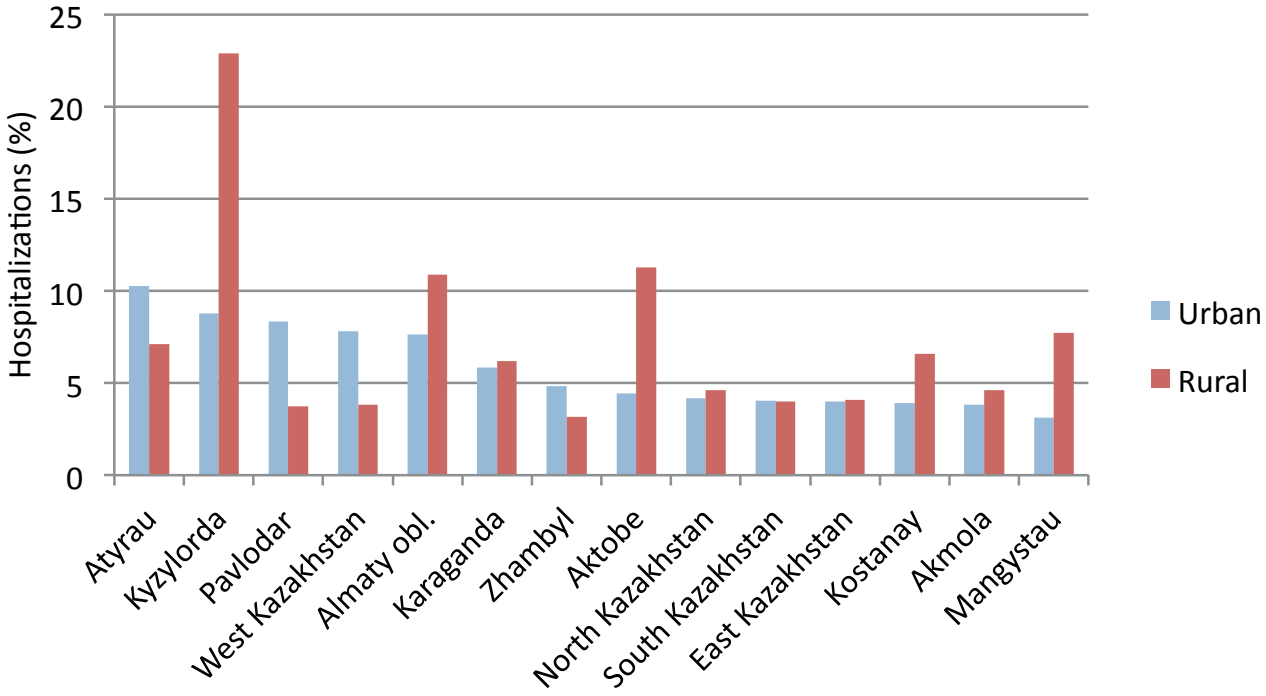
Gender-specific disaggregation by region shows that, in 10 out of 16 administrative areas, hospitalization rates for hypertension were higher for women than men. The largest difference occurred in Atyrau oblast, where 7.1% of men compared to 9.5% of women were hospitalized.

Fig. 4. Regional variation in hospitalizations for hypertension by gender, 2014



Hospitalizations associated with hypertension show a strong positive correlation with rural populations (Fig. 5). Kyzylorda oblast, for instance, had the highest hospitalization rate for hypertension in 2014 (16.3%) accompanied by large differences between the rural (22.9%) and urban (8.8%) populations. In the few oblasts where the urban population had higher hospitalization rates (Atyrau, Pavlodar, West Kazakhstan and Zhambyl), the differences between urban and rural populations in one oblast were not more than 4.6%.

Fig. 5. Regional variation in hospitalizations for hypertension in urban and rural populations, 2014



3.2.3 Communicable diseases including influenza

Fig. 6 shows the percentage of hospitalizations for communicable diseases including influenza. Information related to communicable diseases disaggregated by gender was not available. In 15 of the 16 administrative areas, the percentage of hospitalizations was above 50%. In Pavlodar oblast and South Kazakhstan in 2014, 99.3% of patients with communicable diseases registered in PHC were hospitalized. Almaty oblast had the lowest rate of hospitalization for communicable diseases at 49.3%.

Fig. 6. Regional variation in hospitalizations for communicable diseases, 2014

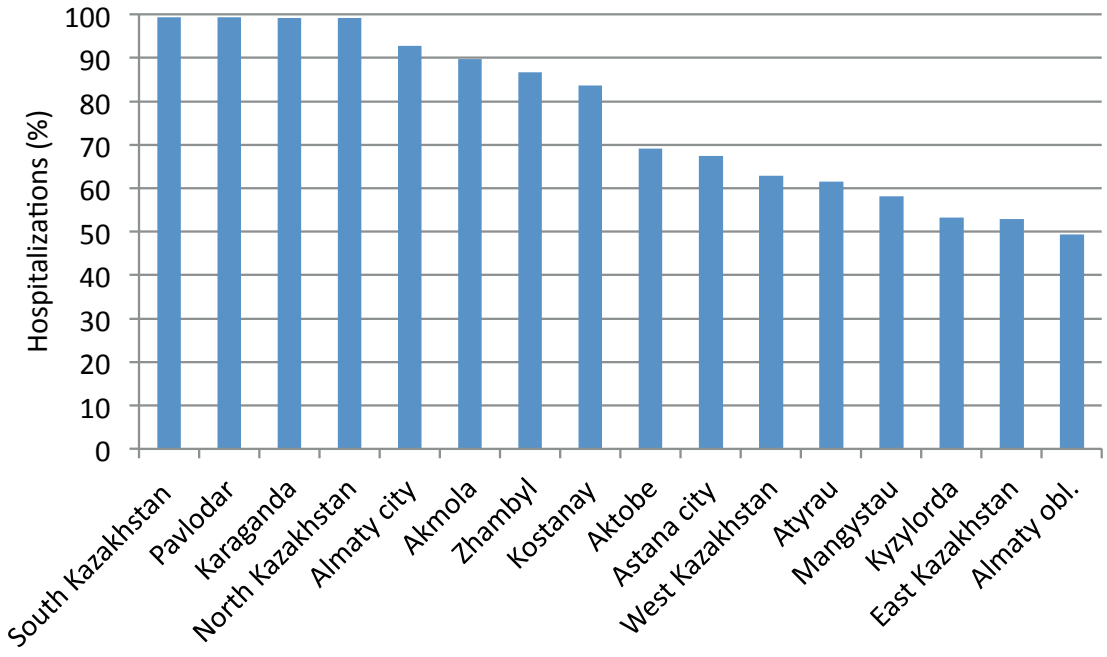
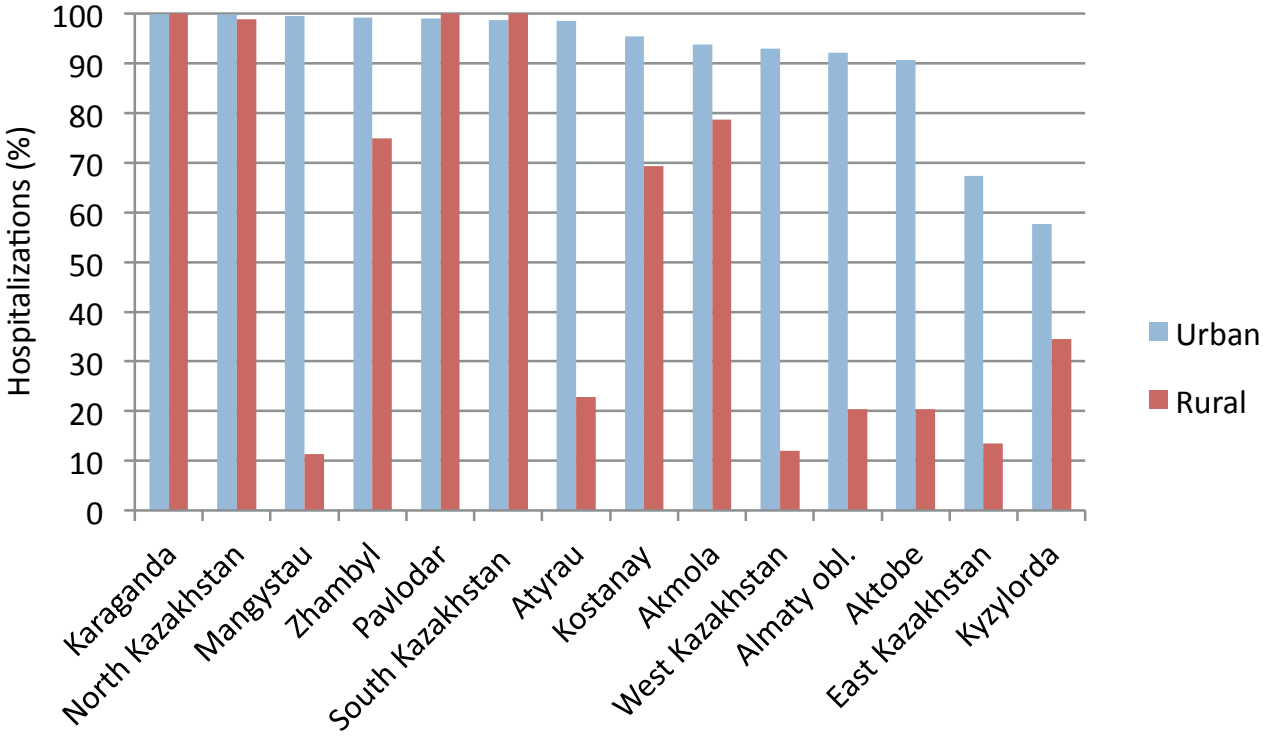


Fig. 7 shows that most hospitalizations associated with communicable diseases occurred in urban areas with the highest differences in Mangystau oblast (88.2% difference between urban and rural hospitalization rates).

The analysis of data is composite of all communicable diseases, including influenza. Therefore, the strength of correlation between the urban population and a higher rate of hospitalizations should be taken with caution.

Fig. 7. Regional variation in hospitalizations for communicable diseases in urban and rural populations, 2014

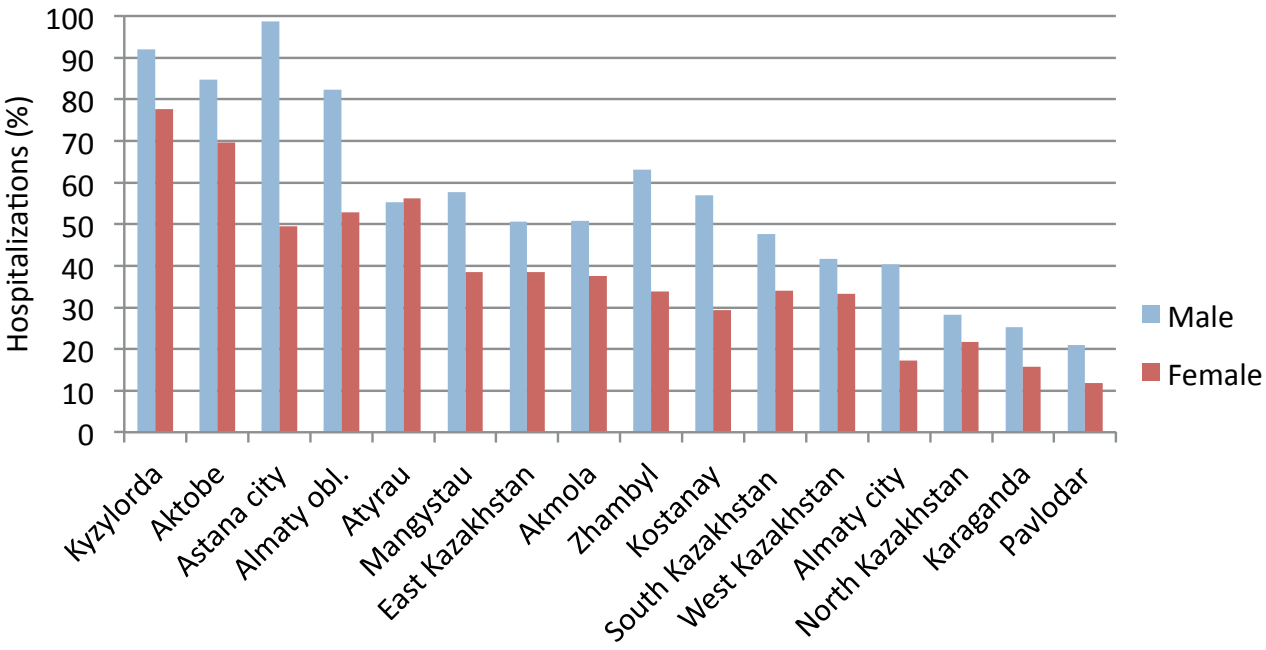


3.2.4 Angina pectoris

In 2014, five of the 16 administrative areas had hospitalization rates for angina pectoris over 50% (Fig. 8). The highest rate was observed in Kyzylorda oblast (85.4%), followed by Aktobe oblast (77%) and Astana city (75.2%). Pavlodar oblast had the lowest hospitalization rate at 15.9%.

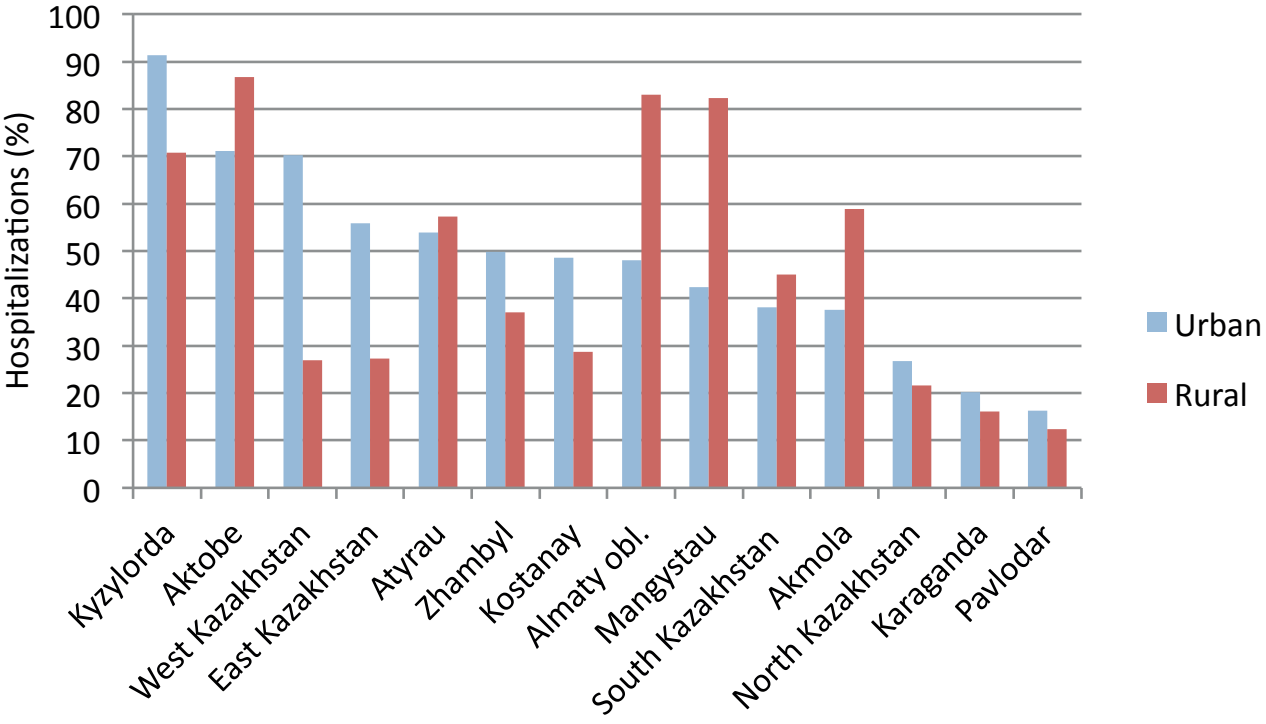
Except for Atyrau oblast, most of the hospitalized population for angina pectoris were men. In Astana city, 98.7% of angina pectoris hospitalizations were men, while in Pavlodar oblast only 21%.

Fig. 8. Regional variation in hospitalizations for angina pectoris, adult population (18 years and older) by gender, 2014



The urban–rural disaggregation shows that six oblasts had higher hospitalization rates for angina pectoris corresponds in the rural population (Aktobe, Atyrau, Almaty, Mangystau, South Kazakhstan and Akmola oblasts) (Fig. 9).

Fig. 9. Regional variation in hospitalizations for angina pectoris in urban and rural populations, adult population (18 years and older), 2014



3.2.5 Statistical considerations on regional variations

Without any additional information other than the hospitalization rates among PHC-registered cases, it is only possible to account for the existence of differences across oblasts. It is not possible to draw conclusions about differences in treatment (e.g. under/over treatment) and/or differences in patient registration, recording and coding by hospitals. Understanding regional (oblast) variations requires ad hoc analysis of patient case-mix and quality of data, which goes beyond the scope of this study.

3.3 ACSCs in brief

Four ACSCs in Kazakhstan account for high rates of hospitalization that could be prevented by further strengthening the delivery of services at ambulatory level. Applying the methodology described in an earlier section, the ACSCs most relevant for Kazakhstan were identified as kidney and urinary infections, hypertension, influenza and angina pectoris.

In Kazakhstan, 8.1% of all registered patients with kidney and urinary tract infections were hospitalized in 2014. About 44% of these hospitalizations could have been avoided. This estimate is in line with similar studies in Latvia (47%) and the United Kingdom (30–60%) *(9,11)* and lower than in Germany (86%) *(6)*. In 13 of 16 administrative areas, hospitalization rates were higher for women, and no pattern reflecting disaggregation by urban/rural population was found.

In 2014, 5.2% of hypertension cases were hospitalized. Three quarters (75%) of these hospitalizations could have been avoided. This figure is consistent with similar studies in the Republic of Moldova (60%) and the United Kingdom (60–90%) and less than in Germany (83%) *(6,8,11)*. Hospitalizations for hypertension show a divide between rural (higher) and urban populations, and between women (higher) and men.

Surveyed health professionals have estimated that 61% of hospitalization associated with influenza could have been avoided through ambulatory services. Data on communicable diseases including influenza were recorded but did not allow gender disaggregation.

In 2014, 35.6% of PHC-registered patients with angina pectoris were hospitalized. Approximately 42% of these hospitalizations could have been avoided. The data analysis shows that men accounted for most of the hospitalizations.

In the following section, health service delivery challenges and opportunities for selected ACSCs in Kazakhstan are analysed.

4. Health services delivery perspective to ACSCs

The previous section showed that the conditions identified as ACSCs with the highest rates of hospitalization also have relatively high rates of preventability in ambulatory settings. This section analyses opportunities and challenges to tackle high hospitalization rates for ACSCs from the perspective of provision of health services focusing on planning services, organizing providers, improving performance and managing the services delivery that affects the rate of hospitalizations for selected ACSCs.

In recent years, the health system of Kazakhstan has undergone drastic reforms that have led to decentralization of the financial and service delivery arrangements, moving towards more autonomy at oblast and rayon (district) levels through oblast health departments (OHDs). The role of the Ministry has, therefore, shifted to a regulatory body, which oversees the functions at national level, including functioning of hospitals and tertiary-level health facilities *(2)*.

In recent years, Kazakhstan has introduced a Concept on the Unified National Health System in a step-wise approach: from 2010 to 2012 focusing on strengthening of secondary and tertiary health care, and, from 2014 to 2016, on enhancing the provision of outpatient health services.

4.1 Governance and management of health services

4.1.1 Health financing and coverage of services

Financing of the health system in Kazakhstan is based on general tax allocations. Strategic documents envision introduction of mandatory social health insurance (MHI) as of January 2017 as defined in the Concept on the Unified National Health System reform. Parliament adopted the Law on Health Insurance in October 2015. The Ministry is currently preparing the concept note, draft legislation and implementation plan for MHI with national rollout envisioned in 2017. Many prerequisites for the successful MHI reform such as a state guaranteed benefit package (SGBP), purchaser–provider split and free choice of health provider are already functioning in Kazakhstan.

In Kazakhstan, 64.6% of health expenditures were funded by the public sector in 2014. The share of private health insurance is only 0.1% of the total health expenditure. The Government is currently making efforts to increase the number of individuals taking a voluntary/private health insurance and the number of employers offering such insurance to their employees *(2,13)*. Despite the fact that strengthening PHC is a key priority for Kazakhstan *(14)*, hospital expenditures represent about 62% of the state health budget while PHC represents 34% of total governmental expenditure on health *(15)*.

The SGBP covers health services specified in periodical legislative acts and is financed from the national budget *(2)*. The contents of the SGBP are revised every two years and covers provision of emergency care and a select list of outpatient and inpatient services *(16)* provided free of charge. Certain outpatient drugs for chronic patients, children, adolescents, women of reproductive age and vulnerable population groups are guaranteed free of charge *(2)*. Dental care for adults is not included in the SGBP except for emergency cases, as are services for pregnant women and children. Services not included in the SGBP are covered by official user fees, voluntary health insurance premiums, employers and other sources.

In relation to the ACSCs discussed in this publication, the SGBP covers both inpatient and outpatient services for hypertension, angina pectoris, and kidney and urinary tract infections. Vaccination for seasonal influenza, with the exception of special population groups, is not part of the SGBP. Generally, hospital services for all selected ACSCs, including pharmaceuticals, are free of charge, while most medicines for outpatient care need to be purchased out of pocket.

Overall, hospitalization rate is one of the indicators used for allocating funds to ambulatory care and unnecessary hospitalizations are penalized financially.

4.1.2. Access and out-of-pocket expenditures

According to studies conducted in 2008, financing of inpatient services still dominates outpatient services with the former getting 2.6 times more funds *(2)*. Later studies show that hospitals account for the largest share of public expenditures on health (61% in 2012) despite the Ministry's efforts to strengthen PHC *(2,17)*.

In 2013, private health expenditures represented 32% of total health expenditure in Kazakhstan *(18)*. Most private payments tend to take place in outpatient/ambulatory settings (82.7% of all private payments in 2008). These numbers can be explained by the fact that patients have to pay for their medications in ambulatory settings, while medications for hospitalized patients are provided free of charge. These regulations result in an undesirable incentive for people to seek inpatient care over outpatient care *(2)*. The share of informal payments is assumed to be high, but no estimates of the amount exist *(2)*.

A study conducted in 2012 shows that 4.1% of those reporting illness in the previous year did not seek care because they were unable to afford it *(19)*, which signifies positive trends in financial protection of the population against catastrophic health expenditures. This is of particular significance as unmet health needs are an important contributor to the exacerbation of ACSCs, because acute complications eventually lead to hospitalizations.

4.1.3 Availability of after-hours clinics

The official working hours at PHC facilities are from 08:00 to 20:00 from Monday to Friday *(20)*. GPs see patients after hours once a week in the evenings and once a month on weekends (usually Saturdays). GPs also provide phone consultations and emergency services that are available around the clock. In a survey study conducted in 2011, patients indicated that access to after-hours care requires significant improvements *(13)* and that hotline services (internet/telephone) should be more user-friendly.

4.1.4 Availability and distribution of health workforce

The shortage of GPs remains a significant challenge for strengthening PHC in Kazakhstan. In 2014, there were 7806 GPs, about 4.5 GPs per 100 000 inhabitants, less than the target established by a normative approach (5.9 per 100 000). Despite the introduction of the family physician specialty[3] in outpatient care in the early 2000s, only about one third of needed family physician posts were occupied in PHC facilities in 2013. In 2014, the PHC workforce[4] was composed of 2318 family physicians (30%), 2866 internists/therapists (37%) and 2622 paediatricians (33%) *(21)*. According to governmental regulations, a family physician

[3] Family physicians are GPs that have training in family medicine and can serve a mixed population.

[4] In the context of the study, all primary care physicians are referred to as GPs and include family physicians, therapists and paediatricians.

should serve a mixed population[5] of 2000 people; a therapist should serve 2200 adults and a paediatrician 900 children *(22)*. Each family physician should have three assisting nurses, and each therapist or paediatrician should have two nurses.

The distribution of physicians is unbalanced, with a higher concentration in urban areas (583 per 100 000 population in 2009) than rural areas (141 per 100 000) *(2,21,23–24)*. Shortages are particularly prevalent in North Kazakhstan, Kostanay and Mangystau oblasts *(23)* (WHO Regional Office for Europe, unpublished data, 2015). The distribution of the health workforce is unbalanced between levels of care. According to a governmental decree issued in 2012, 55% of the health workforce should be employed in PHC, but just 51.3% of the health workforce was employed in PHC in 2014 *(25)*.

Kazakhstan has implemented measures to attract more GPs to rural areas by providing, for example, a higher salary (more than 25% of the average salary in Kazakhstan), financial support for moving to rural areas and soft credits for housing *(2,4)*. Governors of oblasts and the Ministry signed an agreement for the employment of medical school graduates. Despite these measures and the relatively large number of GPs available, Kazakhstan has an uneven geographical distribution of health workforce across the country. Health workers tend to locate in large cities despite a shortage of health personnel in rural areas. Limited availability of public and private transport in combination with underpopulated rural areas with a low density of PHC services increase the number of hospitalizations. In addition, health professionals in rural areas are close to retirement age *(2,23)*, which may result in a decreased labour force. According to data from the Ministry, roughly 18% of physicians and 30% of nurses worked in rural areas in 2013.

In order to address this situation and implement effective management of human resources in health, the Ministry approved a comprehensive programme for human resource development for 2013–2016, including the establishment of a national observatory. According to workshop participants, the number of nurses in Kazakhstan is sufficient (154 912 nurses in 2013 or 903 per 100 000 inhabitants).

In 2014, social workers were added to the staffing of PHC *(20)*.

4.1.5 Strategic planning in PHC facilities

A recent assessment of strategic planning capacities of PHC facilities in Mangystau oblast shows a persistent lack of managerial capacities in PHC, which results in poor operational planning and poor performance (WHO Regional Office for Europe, unpublished data, 2015). Stakeholders at the assessment also acknowledged that the health facilities' strategic plans will be instrumental for OHDs to identify their real resource requirements and will help oblast-level health departments make more precise service delivery planning estimates, including human resources and financial allocation; current allocations are based on historical costs.

4.2 Model of care

4.2.1 Integrated care management

The second phase of implementation of the Concept on the Unified National Health System (2014–2016) has put great emphasis on integration of services delivery in both outpatient and inpatient settings *(21)*. The

[5] A mixed population is defined as a mix of both adult and child populations.

vision is that GPs have gatekeeping and care coordinating roles.

Referrals from PHC to specialist consultations, diagnostic procedures and hospitalizations are well-organized and enabled by an electronic system that allows GPs to send requests to the respective facilities. Patient adherence is high due to the gatekeeping role of GPs.

Despite having social workers as part of the PHC team, little interaction takes place between GPs and social workers. This is possible due to the recent implementation of legislation and represents a potential area for improvement, especially with regard to the elderly population and patients requiring long-term care *(20)*.

Hospitalization criteria are described in clinical guidelines and protocols (CGPs), and adherence to criteria is subject to strict monitoring by internal and external audit teams *(26)*.

4.2.2 Home visits

Home visits are one of the mandatory responsibilities of GPs and take up to four hours per working day *(20)*. Home visits include both acute and non-acute cases, and were intended to decrease the number of emergency hospital admissions. The total number of home visits increased from 155 480 in 2005 to 158 758 in 2009 (2% increase) *(2)*. During the workshop conducted for this study, about 50% of home visits for the adult population were estimated as unnecessary; this figure was up to 80% in the case of paediatric services and probably results from persisting user expectations that doctors should treat patients (especially children with fever) at home. Telephone consultations could potentially prevent unnecessary home visits, but hotlines are not always in place and, when they are, patients do not make use of them.

4.2.3 Dependency on specialist care and hospitalizations

Urban GPs depend heavily on specialist care as part of the legacy of polyclinics (with a large number of specialists in the same facilities) *(3)*. In 2011, a study showed that specialist referral rates were high among urban GPs and even higher among urban therapists *(13)*. CGPs also support excessive use of specialists as widespread clinical conditions (among them cardiovascular diseases and diabetes mellitus) require specialist visits for "confirmation of diagnosis" and so called dispenserizations – a legacy of the Soviet health system. The system of dispenserizations requires all patients with chronic conditions to undergo complete medical check-ups twice a year, regardless of the need for it, including check-ups by specialists (WHO Regional Office for Europe, unpublished data, 2015).

Excessive hospital capacity, with 671 hospital beds per 100 000 population (compared to the WHO European Region average of 567 per 100 000 in 2013), also generates supply-induced demand *(27)*. Between 2000 and 2013, the average length of stay decreased from 14.4 to 11.3 days, higher than the WHO European Region average of 8.6 days *(27)*.

4.2.4 Discharge planning

While current rules on hospitalizations under the SGBP require a GP's referral and, therefore, serve as a good predisposing factor for primary-to secondary-level care integration, follow-up after hospitalization remains a challenge. Discharge records are usually given to patients who are expected to hand them to their GP. In practice, this is when most loss to follow-up cases occurs. A recent study conducted in Mangystau oblast reported delays, first in obtaining discharge records from hospitals (up to 10 days after discharge) and then

several months delay in PHC follow-up after discharge (WHO Regional Office for Europe, unpublished data, 2015). An existing electronic system allows recording of hospital admissions and discharges, but GPs cannot access this information. Consequently, many patients do not adhere to treatment recommendations reflected in discharge records and, therefore, are at high-risk of being readmitted to hospital.

4.2.5 Update and access to clinical protocols and guidelines

The last decade has marked increasing progress in standardization of clinical practice in Kazakhstan. The Government promotes the provision of evidence-based medicine *(2)* through adaptation of CGPs. This is mostly done by a working group at the Republican Centre for Health Development and, as of today, about 500 CGPs have been developed for different conditions including certain ACSCs.

CGPs are available in the form of pocket guides and include information on the strength of the evidence of each recommendation. GPs have reported frequent use of protocols. However, these CGPs are not user-friendly for daily use in practice. During stakeholder consultation conducted as part of this study, health professionals suggested that protocols should be clearer in terms of key recommendations and include treatment algorithms that support clinical decisions. Furthermore, the use of evidence-based medicine and advancements in treatment of diseases, including ACSCs, should be supported by respective trainings and continuous medical education modules.

4.2.6 Non-adherence to treatment recommendations and self-prescription practices

According to the health professionals consulted for this study, most patients do not adhere to discharge advice and drop out of drug treatments. Some GPs have also mentioned the absence of consistency between CGPs used in hospital settings and PHC, causing confusion among patients. Patients often do not understand the importance of regular use of prescribed medicines and lifestyle change, while GPs often do not have time to address these issues during a regular visit. Patients with ischaemic heart disease have to visit the GP each month to refill their prescription. These visits are not planned and, therefore, patients often visit their GPs when they run out of medication or feel an exacerbation of their health conditions. There is a certain reluctance of the population to trust the clinical opinion and advice given by GPs, especially in urban areas *(13)*. This, in turn, causes low adherence to their advice, and an increase in patient requests for specialist consultations and self-medication.

Estimations indicate that 25–50% of patients self-medicate, including taking antibiotics *(28)*. According to a survey conducted by the Medical Information Analytical Centre in 2013, 50% of the population takes antibiotics without prescription. The situation is exacerbated by low population health literacy on antibiotics and by the availability of over-the-counter antibiotics in pharmacies. This leads to an abuse of antibiotics for viral infections like influenza or use of the wrong group of antibiotics in case of urinary tract infections, eventually leading to aggravation of conditions and ultimately to hospitalization. According to the same source, pharmacists do not provide proper information on side-effects to the population *(29)*.

4.2.7 Patient engagement

The National Centre for Problems of Healthy Lifestyle Development is responsible for improving the population's health literacy and promoting healthy lifestyles. It has affiliations in all oblasts and provides materials for health

promotion and disease prevention. These materials are distributed among the population during various health promotion campaigns conducted at the PHC level.

Patient satisfaction surveys are carried out on a monthly basis in health facilities both at primary and secondary levels in the form of an exit poll. The National Centre for Problems of Healthy Lifestyle Development, in agreement with the Ministry, has developed patient satisfaction questionnaires that are applied by OHDs throughout the country. Health facilities collect and transfer data to OHDs for analysis. Managers closely monitor the results of patient satisfaction surveys due to the fact that reimbursement partially depends on the level of patient satisfaction. In case of patient complaints, payments and incentives are reduced (WHO Regional Office for Europe, unpublished data, 2015). Despite its relevance for payment, the patient satisfaction survey data are not exploited for strategic planning purposes (WHO Regional Office for Europe, unpublished data, 2015).

Governors conduct regular meetings with the population to discuss particular topics of interest such as social services and health. The meetings often include population complaints on health providers, which usually lead to disciplinary measures. During a WHO assessment, health providers highlighted that these kinds of measures often tend to demotivate providers (WHO Regional Office for Europe, unpublished data, 2015).

4.3 Organization of providers

4.3.1 Organization of PHC

In 2014, outpatient services were provided by 434 PHC facilities, of which 228 are urban and 206 are rural. The delivery of PHC differs significantly between rural and urban areas. Urban areas have 153 city polyclinics with an average catchment population of 30 000–100 000 people, 32 PHC centres and seven outpatient clinics with a catchment population of 2000–10 000 people and 36 PHC departments under the hospitals and clinical-diagnostic centres *(21)*. Urban outpatient care facilities provide both primary and secondary ambulatory care in a complex setting of approximately 10–20 health specialties, as well as diagnostic and laboratory services.

The network of rural outpatient care is more extensive with a variety of facilities, established in order to ensure better access to PHC as 45% of the population of Kazakhstan lives in rural areas with uneven population density. Thus, rural outpatient care services are provided by medical posts (3407 posts), feldsher/midwifery posts (FAPs) (868 posts), rural GP ambulatories (1487 ambulatories) and rayon polyclinics and outpatient departments (182 facilities) *(21)*. Medical posts, FAPs and rural GP ambulatories have on average one internist, a paediatrician, a nurse and a midwife, and sometimes a surgeon and a dentist *(18)*. Differences in capacities and quality of care between urban polyclinics and rural PHC facilities remain a concern in Kazakhstan.

In 2000, PHC facilities were legally and financially split from hospitals, providing them with greater autonomy to manage their resources and increase efficiency *(2)*. However, all rural PHC facilities are administratively part of central rayon hospitals.

4.3.2 Waiting times

Government regulation no. 253 from 20 March 2014 “About establishment of service provision standards in the health sector” *(20)* determines maximum waiting time either to get a consultation in a facility or at home. A

survey conducted in 2011 reported that 73% of PHC patients were seen by their provider on the same day or within one day of seeking an appointment *(13)*. Eighteen per cent of respondents said they never make appointments and simply go to PHC facilities based on need. Despite existing regulations on waiting times, polyclinics are burdened with many unplanned visits and administrative paperwork. Unplanned visits challenge GPs to familiarize themselves with patient records and prevent nurse-led triaging of patients, leading to a decrease in time allocated to the visit and an increase in patient dissatisfaction.

4.3.3 Gatekeeping

In Kazakhstan, GPs are gatekeepers to the health system, but self-referral to specialist or hospital is still an option against full payment of service fees *(13)*. Health professionals who attended the workshop conducted in the context of this study have indicated that the current rate of self-referred patients for selected ACSCs is not more than 1–3%.

4.3.4 Scope of practice

The vision for introducing the family physician specialty in PHC was to ensure they have a set of competencies that includes the latest international standard to serve a mixed population. However, a persistent shortage of GPs in Kazakhstan results in therapists and paediatricians as PHC providers along with family physicians *(21)*. Findings of a 2011 survey show that referral rates to specialists are higher among therapists than physicians, which can possibly be explained by differences in their competencies. The survey also found that from a selected list of 16 diseases, physicians were more involved than therapists in the delivery of care *(13)*.

In rural and remote areas, PHC is provided by feldshers who are trained in nursing, midwifery and basic diagnostics and can prescribe medicines. Feldshers perform clinical tasks between the level of a GP and a nurse and, in rural areas, are the only PHC providers. Feldshers report to the nearest physician *(2)*.

GPs are required to improve their qualifications every five years. Ensuring that their knowledge is at pace with the epidemiological situation of the country is an important consideration in designing continuous medical education programmes. Promotion to a higher professional category is stimulated by increase to the basic salary.

4.3.5 Use of technology

The National Strategic Programme on Healthcare Development "Salamatty Kazakhstan 2011–2015" emphasizes the development of technology including high-technology treatments *(21)*. In this line, PHC facilities along with secondary and tertiary care providers were equipped with a range of basic and advanced technologies *(21)*.

National and regional health information systems collect and processes data on performance indicators both at country and regional levels *(2,13)*. Collected information is used for monitoring and surveillance of health trends, reimbursement and quality improvement purposes.

An electronic system is in place, which enables management of referrals from GP to outpatient specialist consultations, diagnostic procedures and hospitalizations. Once registered by GPs and automatically assigned a unique patient referral code, patients can be followed up online. GPs and patients can track elective hospitalization lists and waiting times online while respecting confidentiality and patient data protection *(2)*. However, the system in place does not support the transfer of patient hospital discharge records back to GPs. The Ministry plans to provide its

citizens with a health card that will contain health records accessible by all health providers *(2)*.

4.4 Performance and quality improvement

4.4.1 Providers payment mechanism

During the last decade, the PHC provider payment mechanism has undergone significant changes moving from line-item budgets to a complex two-component capitation funding. The capitation components cover GP consultations and specialized outpatient services *(26)*. GPs serve as partial fundholders, resulting in disincentives for GPs to make unjustified specialist referrals and hospitalizations *(21)*. At the Republican level, the budget is pooled and transferred to each oblast (region) on the basis of a minimum per capita funding model for both components *(30)*. OHDs can apply for additional funding at oblast levels and can be allocated additional resources.

In 2009, payments for performance and incentives to improve quality were introduced by the Ministry and are given to PHC providers on top of the capitation share. These incentives are based on assessment of six key indicators (as of 2014):

1. maternal mortality preventable in PHC;
2. seven days to 5-years-old child mortality preventable in PHC;
3. timely diagnostics of pulmonary tuberculosis;
4. early detection of cases of malignant neoplasms of cervical cancer, breast cancer, colorectal cancer, skin cancer and cancer of the oropharynx (stages 1–2);
5. proportion of hospitalized patients with acute cardiovascular diseases complications (myocardial infarction, stroke) in target population; and
6. absence of complaints.

The formulas for calculations of indicators require revision. For example, the performance indicator that assesses the hospitalization rate for cardiovascular disease complications (acute myocardial infarction and stroke) includes circulatory system diseases as per the ICD-10 classification. This means that the denominator does not include, for example, patients with diabetes mellitus, because it belongs to a different disease group as per ICD-10 coding. However, diabetes mellitus is an important cause of microvascular complications, which can eventually lead to acute myocardial infarction or stroke and, therefore, should be included in the formula.

4.4.2 Internal audit and quality control

Kazakhstan has a health services quality system that consists of two – internal and external quality improvement and control – components. External quality control is the responsibility of the Control Committee of Healthcare and Pharmaceutical Activities of the Ministry. Since quality control is also linked to financial incentives, part of the responsibility relies on the Committee of Payment of Medical Services (WHO Regional Office for Europe, unpublished data, 2015).

Internal audit mechanisms were introduced in Kazakhstan in 2009 and rolled out over the following two years. Key objectives of the internal audit consist of conducting quality control of health services to ensure compliance with national regulations and standards of care; identifying roots of poor performance; and finding solutions and ways to improve quality. The results of the internal audit are also applied to control the scope, range and quality of care to authorize basic payments (capitation and case-based) and financial incentives payments to providers based on a set of national indicators.

Internal audits and quality controls are in place in PHC and hospitals. Within each health facility, internal audit teams are led by

one of the deputy health facilities' managers. The Ministry's decree no. 923 from 2011 introduced quality specialists (expert doctors in the national context) in hospitals and PHC facilities (1 per 20 000 enrolled population). In compliance with this regulation, 1–3 quality auditor posts are in all visited facilities. Small facilities do not have special staff positions for internal auditors and quality improvement. In these cases, heads of GP units and trained senior physicians perform these functions.

The internal audit is required to be carried out on a monthly base. The results of the audits including recommendations are presented and discussed with the Quality Management Council, which makes decisions on these matters. The Quality Management Council is established in each health facility and consists of managers, deputy managers (responsible for the quality of health services), internal audit team members and senior health staff up to a total of seven people. In parallel, each department has an internal quality assurance mechanism similar to the internal audit system. The chief doctor and chief nurse are responsible for the departmental quality system. Internal audit teams are required to develop an annual quality improvement plan based on identified gaps and needs.

Trainings for internal audit and quality control were provided by the Ministry when these mechanisms were introduced. However, no update or refreshment trainings have been carried out. Consequently, the majority of the staff responsible for quality improvements is not trained. According to managers and internal audit teams, additional trainings on quality improvement that focus on analysis of quality issues and development of quality improvement plans are required for internal audit teams and senior health providers.

According to some auditors, the decision-making process for quality improvement is not necessarily influenced by their recommendations, or these are not reflected in the decision-making process.

4.4.3 Quality improvement process

The process of internal audit and quality control in Kazakhstan is a mix of several procedures that include revision of patient complaints, revision of patients medical records against the set of quality indicators and revision of critical event such as cases of maternal, child or other deaths, health provider's misconduct etc. Patient satisfaction, trainings on quality improvement and evaluation of health professionals' opinions on quality improvement are less often mentioned as mechanisms.

At the facility level, the revision of patients' medical records is conducted on a regular (monthly or quarterly) basis. The quality control team randomly selects patients' records, and the sample size for each health facility level varies. At least 30 completed cases in PHC and not less than 5% of hospitalized cases were analysed in the previous quarter (WHO Regional Office for Europe, unpublished data, 2015). There are criteria for reviewing each part of the patients' medical record, including anamnesis, conducted diagnostic and laboratory tests, diagnosis, justified treatment, prevention and follow-up (amount, reasons and quality), treatment at primary or secondary levels, referrals, complications, treatment outcomes and quality of records.

In addition, a system for reviewing critical events is based on specific criteria. The criteria for PHC are: maternal death cases, home deaths among children under 5 years of age, home deaths among the working-age population, late detection of advanced forms of cancer and tuberculosis, first-time disability approvals

among the working-age population, pregnancy complications that are manageable in PHC, follow-up after hospital discharge for women/newborns after delivery and cardiovascular diseases (post stroke and heart attack).

The criteria for hospitals are: death cases, nosocomial infections, complications, re-hospitalizations for the same condition, prolongation or shortened length of hospital stays, discrepancies in diagnosis and unreasonable hospitalizations.

The criteria for emergency services are: a second call to the same patient within 24 hours, death cases before and during emergency team arrival and discrepancies in diagnosis made by emergency team and hospital physicians.

A functioning system that regulates patient complaints exists. Complaints could be placed by using different means such as a health facility's website, postal boxes at the main entrance of a facility, verbal feedback to facility managers and feedback sent to the Committee for Control of Medical and Pharmaceutical Activities (CCMPA) of OHDs. Interviewed health providers informed that, during the previous year, no or few (1 or 2) patient complaints were registered. The Quality Management Council and CCMPA reviewed them and considered them unwarranted. At the same time, some health providers also stressed that, compared with previous years, positive feedback increased significantly during the last two years.

Patient satisfaction with the quality of services is measured through periodic exit surveys, particularly on accessibility, information provided, quality of care and compliance with ethics and deontology. Survey results are analysed on an ad hoc basis at the facility level, and the completed questionnaires are analysed further at the OHD level.

A recent mission in March 2015 to assess quality improvement mechanisms in Mangystau oblast (WHO Regional Office for Europe, unpublished data, 2015) clearly showed that these mechanisms in place at facility level were mostly linked to reimbursement and financial incentives rather than to understanding root causes and identifying systematic issues that could potentially lead to improved services delivery.

4.4.4 Supportive supervision and management practices

Supportive supervision after an internal audit, including discussions with health providers about lack of compliance with CGPs, is described in the quality improvement regulations developed by the Ministry. According to these regulations, supportive supervision should include audits of medical records, provider compliance with CGPs, facility supervisory visits in the last six months, provider reports receiving routine pre- or in-service training, results of medical personal and patient satisfaction surveys, treatments or consultations regimes.

During the assessment (WHO Regional Office for Europe, unpublished data, 2015), documented protocols and checklists for supervisory or follow-up discussions were not available. Interviewed health providers did not know about this mechanism since it was ascribed as the responsibility of quality specialists (expert doctors) and health facility managers.

4.4.5 Quality indicators

The Ministry developed a list of 100 quality indicators that are applied in PHC and hospitals. Health facilities select approximately 10 indicators from this list, and the internal quality team monitors the indicators monthly during internal audits. Quality indicators include,

among others, unjustified referral, average length of stay, unnecessary hospitalization, mortality and complaints (WHO Regional Office for Europe, unpublished data, 2015).

The results of the internal audit are forwarded to the Committee on Quality Control of the Ministry for review and approval. The Committee on Quality Control, in turn, submits the results to the Committee on Health Service Payment and reimburses health facilities based on basic provider payment mechanisms (capitation, global budget and case-based payment).

In one of the hospitals visited, 10 indicators are monitored during internal audits. In addition, the hospital monitors a set of detailed intermediate indicators to better understand the results reflected in the 10 indicators. Health facilities collect many other types of quality indicators. For example, based on an agreement between OHD and Tupkaragan central rayon hospital, 34 quality indicators are used to achieve general health targets and outcomes, including eight core indicators for outcomes at rayon level and 26 additional quality indicators for different types of health facilities in the rayon (hospitals, out-patient care, emergence care, maternal and child care facilities, and infectious diseases facilities). Most indicators match the Ministry's list of quality indicators.

According to health providers and managers, quality indicators focus on assessment of overall facility performance rather than the personal performance of each doctor or nurse while providing service. For example, if a child death occurs in a facility, payment is reduced for the whole facility, which impacts the payment of all providers in this facility, because the therapeutic unit does not contribute to child death prevention.

Both quality and performance indicators mainly aim at controlling (punishing) rather than supporting and motivating providers. Thus, improving the design of both types of indicators should help to better align the real performance of health providers and payments including financial incentives.

4.5 Health services delivery for ACSCs in brief

This section summarizes the opportunities and challenges of health services delivery to adequately address ACSCs in Kazakhstan.

4.5.1 Governance and management of health services

The current financing and reimbursement model provides undesired incentives for hospital overuse. While services under the SGBP are covered both at inpatient and outpatient levels, the complete coverage of costs of diagnostic procedures and pharmaceuticals in hospital settings serves as a driver in overuse of inpatient services. In ambulatory settings, antihypertensive medicines are fully subsidized for patients with stage 2 hypertension[6] and higher. Vaccinations against influenza are free of charge for specific groups such as children, pregnant women and other vulnerable population groups; for others, it is provided for a fee or potentially covered by employers. For kidney and urinary tract infections, PHC services and hospital care are free of charge.

Another important factor leading to high rates of hospitalizations for ACSCs is the uneven geographical distribution of the population and shortage of GPs in rural areas. The unmet health

[6] This is defined as systolic blood pressure above 160 mm Hg or diastolic blood pressure above 100 mm Hg.

care need often leads to exacerbation of ACSCs and result in hospital admissions.

Lastly, strategic and operational capacities in PHC are in need of improvement in Kazakhstan.

4.5.2 Model of care

Health professionals consulted for this study pointed out that CGPs could be clearer in terms of key recommendations, including treatment algorithms to support everyday clinical decisions. For all selected ACSCs, GPs are capable of diagnosing the condition without support from a narrow specialist. Despite existing regulations and CGPs based on the key role of GPs, the model of care relies heavily on specialist care and an inefficient system of dispenserizations. Referring patients to specialists for confirmation of diagnosis is common. Furthermore, the burden of unnecessary home visits is a major obstacle for providing integrated and comprehensive care.

Adherence to treatment is a key problem. According to health professionals consulted for this study, this is caused both by a lack of trust in GPs and a lack of patient education concerning treatment (both at pharmacy and PHC levels). An estimated 50% of patients with kidney/urinary tract infections do not adhere to treatment. About 40–50% of patients with influenza do not stay at home nor take the recommended medication, and about 25% of influenza patients self-prescribe antibiotics. Approximately 54% of patients with hypertension do not adhere to treatment recommendations according to most health professionals consulted for this study.

Patient engagement is organized in the form of disease-specific health schools or clubs, but health professionals consulted for this study estimate that just about 50% of patients attend them. The National Centre for Problems of Healthy Lifestyle Development provides general information on diseases, disease prevention and health promotion for patients. Health professionals interviewed for this study considered information on the prevention and treatment of influenza available for patients as sufficient, but similar information for kidney and urinary tract infections could be improved. Coverage of the target population with health promotion activities and behavioural counselling for hypertension is very low.

4.5.3 Organization of providers

Specialist consultations and hospital services require a referral from GP, but self-referral is an option against payment of full user fees. According to health professionals consulted for this study, an estimated 1–3% of patients with selected ACSCs self-refer to hospitals.

Referral rates to specialists are lower for family physicians than therapists. Given the current GP shortage and sufficient nurse staffing, nurses could have a more active role in provision of care.

Enabling GP access to patient discharge records has the potential to improve coordination of care and management of patients at PHC level, facilitating the smooth transition from hospital to outpatient settings.

Unplanned visits to PHC are a persistent problem, which decreases the quality and duration of the visit. Average waiting time is not long but is often associated with long lines in facilities affecting patient satisfaction. Furthermore, in the case of contagious diseases like influenza, waiting in lines might cause spread of the infection.

4.5.4 Performance and quality improvement

In Kazakhstan, quality improvement mechanisms at facility level are mostly linked to reimbursement and financial incentives rather than to understanding root causes and identifying systematic issues that could potentially lead to improved services. Furthermore, both quality and performance indicators mainly aim at controlling (punishing) rather than supporting and motivating providers. Thus, improving the design of both types of indicators should help to better align the real performance of health providers and payments including financial incentives.

5. Policy recommendations

This section provides an overview of the main elements to improve the prevention, diagnosis, and treatment of the selected ACSCs. Actionable policy recommendations are complemented with an indicative timeline (short-, medium- or long-term) and suggestion of relevant stakeholder(s) to be engaged in the implementation policy and practice.

5.1 Optimize the service delivery model in PHC

Patients in Kazakhstan can freely choose their GP, who acts as the gatekeeper to the system, within the assigned PHC centre. Inpatient care is provided for free for patients referred from the PHC provider, while self-referral is still an option against payment. Although Kazakhstan took important steps in the past years to reduce unnecessary and costly hospitalizations, it is important to strengthen the role of GPs in serving as the first contact point, as coordinators of different levels of care and co-manager of patients with ACSCs. These GPs' roles will improve continuity and quality of care across levels of care, improving population trust towards PHC.

GPs and facilities in Kazakhstan are overburdened by home visits, a high number of unplanned visits and a lack of proper triaging of patients. Planning patient visits is an important condition for timely and continuous provision of care to chronic patients. GPs are not able to provide adequate follow-up after hospital discharge also due to time constraints. This impedes continuity of care and creates conditions for hospital readmissions. Health professionals consulted during this study estimated that about 50% of home visits are unnecessary. Better availability of telemedicine and phone consultations should also resolve the high demand for unjustified home visits.

In a situation of shortage of GPs, PHC nurses seem to be underutilized. Expanding the role of PHC nurses and social workers for chronic patients would decrease the workload of physicians (Table 2).

Table 2. Policy recommendations for optimizing service delivery models in PHC

Recommendation	Timeline	Relevant stakeholders
1. Strengthen the role of GPs as the first contact point for all non-emergency medical conditions including ACSCs.	Short-term	Ministry of Health and Social Development
2. Enhance the role of GPs as care coordinators for patients with chronic conditions, including ACSCs, for example, by making them primary holders and users of information in chronic disease registries.	Short-term	Association of GPs, Ministry of Health and Social Development
3. Introduce a time slot for unplanned visits in PHC; all other visits have to be planned by telephone, in which a triage nurse makes the first assessment of severity of the condition and the necessity of a doctor visit.	Medium-term	Ministry of Health and Social Development
4. Restrict home visits to those for the severely ill and patients with restricted mobility. This includes changing the law on obligatory home visits.	Medium-term	Ministry of Health and Social Development
5. Increase availability and take-up of the telephone and telemedicine consultations by patients.	Medium-term	Ministry of Health and Social Development

Table 2. Policy recommendations for optimizing service delivery models in PHC - ctnd

Recommendation	Timeline	Relevant stakeholders
6. Expand the scope of practice for nurses and social workers in providing care for the chronically ill (nurse-led visits, phone consultations and home-visits).	Medium-term	Ministry of Health and Social Development, association of nurses

5.2 Advance the use of CGPs

CGPs ensure that correct types of care are provided to patients. They need to be simple, clear and evidence-based while also comprehensive. Kazakhstan is actively working towards bringing CGPs closer to international standards. It is strongly recommended to continue along this path and integrate CGPs and standards into the unified health information system. A clear visual summary of the key recommendations of each CGP and other decision support tools will be beneficial for PHC providers (Table 3).

Table 3. Policy recommendations for advancing use of CGPs

Recommendation	Timeline	Relevant stakeholders
7. CGPs should be clearer in terms of key recommendations, including a short summary, which visually indicates the preferred type of treatment for an ACSC.	Short-term	Republican Centre for Health Development
8. Provide training to health providers for ensuring uptake of new CGPs.	Long-term	Ministry of Health and Social Development, National Institute for Continuous Medical Education of Kazakhstan (under the National Medical University of Kazakhstan)

5.3 Align incentives for better disease management in ambulatory settings

In Kazakhstan, performance indicators for cardiovascular diseases are linked to financial incentives in PHC. However, other ACSCs with high rates of preventable hospitalizations (kidney and urinary tract infections, type 2 diabetes mellitus and asthma) are not included as PHC performance indicators. Expanding the list of performance indicators and closely monitoring them would be an important step in addressing ACSCs in Kazakhstan (Table 4).

Table 4. Policy recommendation for aligning incentives for better disease management in ambulatory settings

Recommendation	Timeline	Relevant stakeholders
9. Make disease management part of the key performance indicators for PHC and align incentives to ensure effective disease management in PHC.	Medium-term	Ministry of Health and Social Development

5.4 Strengthen rational use of antibiotics and tackle self-medication

Inappropriate use of antibiotics is a major issue in Kazakhstan. Fifty per cent of the population takes antibiotics without a prescription and adherence is low. In the case of two ACSCs selected for this study – influenza, and kidney and urinary tract infections – rational use of antibiotics is of crucial importance. Low population health literacy about the consumption of antibiotic and over-the-counter availability is leading to antibiotic resistant bacteria (31), while non-adherence to prescribed antibiotics causes exacerbation of infectious diseases leading to hospitalizations. Information provided by pharmacists is insufficient and communication techniques need improvement (13) (Table 5).

Table 5. Policy recommendations for strengthening rational use of antibiotics and self-care

Recommendation	Timeline	Relevant stakeholders
10. Introduce guidelines on antibiotic prescribing for GPs.	Medium-term	Ministry of Health and Social Development
11. Limit the availability of over-the-counter antibiotics by adapting nation-wide regulation on sales of antibiotics.	Short-term	Ministry of Health and Social Development
12. Introduce a national campaign for rational use of antibiotics and educate population on their proper use (adherence to treatment).	Long-term	Ministry of Health and Social Development
13. Improve the standards of information provided in pharmacies in order to ensure higher adherence to treatment, understand the drug regimen, reduce the number of side effects and promote rational use of antibiotics.	Long-term	Ministry of Health and Social Development

5.5 Empower the population and engage patients

Active involvement of patients in care processes improves health outcomes and increases adherence to treatment and patient satisfaction (Table 6).

Table 6. Policy recommendations for empowering populations and engaging patients

Recommendation	Timeline	Relevant stakeholders
14. Increase patient engagement by providing adequate and accessible information and patient education and peer support, and by sharing decision-making tools.	Long-term	Ministry of Health and Social Development
15. Increase attractiveness of patient schools by redesigning their programme and making them more accessible during evenings and weekends, as well as making web and smartphone apps more accessible.	Short-term	Ministry of Health and Social Development, regional health departments
16. Support and expand local efforts to increase the health literacy of the population, including linguistically and culturally appropriate health information.	Long-term	Ministry of Health and Social Development

Table 6. Policy recommendations for empowering populations and engaging patients - ctnd

Recommendation	Timeline	Relevant stakeholders
17. Increase dissemination and uptake of evidence-based self-care practices among patients with chronic conditions (hypertension, angina pectoris, diabetes etc.).	Medium-term	Ministry of Health and Social Development
18. Increase population knowledge, especially among employers, about the importance of preventing seasonal influenza in workplaces, staying home to prevent the spread of virus and increasing uptake of voluntary vaccination.	Short-term	Ministry of Health and Social Development, trade unions, private insurance companies
19. Organize a targeted campaign for women with clear and accessible messages about the prevention of kidney and urinary tract infections.	Short-term	Ministry of Health and Social Development, regional health departments, local communities

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Annex 1. Summary of the analytical framework

The analytical framework draws from existing literature to identify those elements of a health system that are instrumental in strengthening health service delivery to better respond to the challenges on diagnosing and treating ACSCs. The analytical framework is intended as a tool for assessing opportunities and challenges of providing the right service in the right place for those patients carrying conditions that could be treated at ambulatory settings.

Forty-four features of health systems influence the hospitalization of patients with ACSCs as identified through literature research. These features have been depicted from a health service delivery perspective as: governance and management of services, model of care, organization of providers and improvement of performance.

The **management of service delivery** refers to the oversight of operations in the delivery of care – ensuring that desired outcomes are attained, that departments within a health facility are running smoothly, that the right people are in the right jobs, that people know what is expected of them, that resources are used efficiently and that all partners in the production of services are working together to achieve a common goal. The task of management comprises the thoughtful design and resourcing (encompassing all resources; human, financial, consumables and technologies) to best direct the provision of care, whether it be for an oblast level tertiary hospital or a singular health house or polyclinic in a rural area.

The second area of health service delivery calling for attention is the **model of care** – referring more specifically to *what* services are provided and *how* the provision of services is perceived and experienced by the individual. In articulating a pathway for clinical and social care, patient flows are made common and known, and referrals along the full continuum of service delivery can be clarified; the foundation for more coordinated/integrated care that is people-centred rather than illness- or disease-specific.

The **organization of providers** refers to the structure and arrangement of the so-called hardware of the system – the *who* and the *where* in the production of services – looking specifically to the mix of providers in the health sector, their scope of practice, and how they operate as a collective profession, in both the public and private sector. The organization of providers is a determining factor for ensuring models of care are actualized, and thus, the extent to which needed services are received at the right time and in the right way, optimizing health results and improving the patient experience. To treat a patient's full health care needs, numerous health care providers may be called upon, in different settings – such as primary, secondary and tertiary care – and in different capacities – for consultation in diagnosis, the development of a treatment plan, counselling or rehabilitation. To optimize this process, organizational strategies, like the introduction of multidisciplinary teams and group practices in PHC, or the expansion of provider profiles and their alignment for shared-care tasks may be called upon. Whichever means to designing the flow of services, these efforts share in their common objective to promote diversity in technical expertise – found in strong association with the ability of the system to respond to the population's increasingly complex health needs.

Mechanisms for **continuous performance improvement** refer to those efforts that aim to safeguard the delivery of services, creating a learning system through the standardized models of care, regular monitoring of the provision of care and feedback loops allowing a continuous critique of the provision of care, with opportunities and resources (skills, time, authority) for improvement. Creating a system of learning calls attention to the principles of collegiality and autonomy, fuelled by a sense of responsibility, peer pressure and a common transformative culture. Measures to cultivate this may include for example, the standardization of training and retraining requirements as well as (re)accreditation and certification schemes for health professionals, each providing systematic incentives for providers to adhere to certain standards of quality and regularly improve their practice. .

Summary of the methodology

The standard steps followed for the study on ACSCs are:

1. Conduct desk research to retrieve information regarding the indicators of the analytical framework and identify key stakeholders in each country for an online meeting or as survey participants.
2. Analyse hospital admission data to select high potential (i.e. top 10) ACSCs per country.
3. Organize online meeting or hold a survey to introduce the study to relevant stakeholders and invite them to select a limited number (2 to 4) of ACSCs per country.
4. Hold a local country stakeholder meeting in the form of a two-day workshop to identify challenges and opportunities for strengthening the PHC related to the selected ACSCs. Possibly follow-up with additional interviews if the stakeholder meeting in the form of a workshop does not yield sufficient information.
5. Depending on the availability of data: calculate potential savings for the selected ACSCs.
6. Draw relevant lessons and formulate actionable policy recommendations for each selected country.
7. Deliver country reports, including an interpretation of results and actionable policy recommendations for the relevant country.

Annex 2. Survey questionnaire

General information

Survey completed by:	
Name/title (Professor, Dr, Mr, Mrs, Ms, etc.)	
Function/position	
Organization/department	
Profession	• General practitioner • Medical specialist, please specify your specialty

ACSCs in Kazakhstan

Table A2.1 presents selected ACSCs used in international literature. For each of the ACSCs, the prevalence and hospitalization rate in Kazakhstan are specified.

Table A2.1. Prevalence and hospitalization rate by ACSC, 2013[a]

ACSC	ICD-10 code	Total no. of cases	% Hospitalized cases (%)
Angina pectoris	I20.0–I20.9	99 368	44.9
Bronchial asthma	J45.0–J45.9	14 802	20.2
Chronic bronchitis and unspecified emphysema	J40–J43	4 941	2.6
COPD	J44.0–J44.9	21 930	27.5
Crohn's disease, ulcerative colitis	K52.0–K52.9	6 490	40.9
Diabetes mellitus type 1	E10	10 496	52.0
Diabetes mellitus type 2	E11	21 646	8.5
Epilepsy (without psychosis and dementia)	G40–G41	16 899	38.4
Heart failure (congestive)	I50.0–I50.9	3 899	8.3
Hypertension	I10.0–13.0	62 636	5.6
Infectious and parasitic diseases	J10, J11, A15, A16, A19, A35–A37, A80, B05, B06, B161, 169, 180, 181, B26, G000, M014	32 714	59.3
Iron deficiency anaemia	D50	7 333	1.0
Kidney infection	N10–N12, N15	35 522	8.5
Other forms of acute ischaemic heart disease	I23–I24	134	1.6

ACSC	ICD-10 code	Total no. of cases	% Hospitalized cases (%)
Pneumonia	J12–J16, J18	101 371	89.0
Salpingitis and oophoritis	N70.0–N70.9	18 100	27.0
Ulcus of stomach and duodenum	K25–K27	11 915	12.9

a Doctors were surveyed in 2014 using 2013 data. Data analysis was performed on 2014 data (Table 1). No substantial differences in trends between the two years were observed.

Question 1. Is any ACSC that is of importance to Kazakhstan missing in Table A2.1?

- No (please continue to question 2)
- Yes, this concerns the following condition(s) for which hospitalization could be prevented by effectively treating the condition(s) in the PHC setting in Kazakhstan.

Additional ACSCs of importance to Kazakhstan		

Question 2. Which ACSCs should receive the highest priority in Kazakhstan?

Table A2.2 lists different types of ACSCs: acute, chronic and preventable conditions. Please select the two most import ACSCs of each type of ACSC, by putting an x in the box next to it. Hence, you will select a total of six. If you want to add a condition that is of importance, please add it to the relevant column.

Table A2.2. ACSCs by type of condition

Acute		Chronic		Immunization-preventable	
Cellulitis	☐	Angina	☐	Influenza	☐
Dental conditions	☐	Asthma	☐	Tuberculosis	☐
Gastroenteritis	☐	COPD	☐	Measles	☐
Kidney/urinary infection	☐	Congestive heart failure	☐	Rubella	☐
Pelvic inflammatory disease	☐	Convulsions and epilepsy	☐	Bacterial meningitis	☐
Perforated or bleeding ulcer	☐	Diabetes	☐	Hepatitis	☐
	☐	Diabetes complications	☐	Mumps	☐
	☐	Hypertension	☐	Whooping cough	☐
		Iron deficiency anaemia	☐		☐
		Nutritional deficiency	☐		☐
		Pneumonia	☐		

Please explain *why* you selected the conditions above as the most important ACSCs in Kazakhstan.

Question 3. Which percentage of hospitalizations could be avoided when an ACSC would be effectively treated in primary health care?

Please specify for each of the six ACSCs that you have selected in question 2: which percentage (0–100%) of all hospitalizations for this condition could have been avoided. If you are unsure, you can provide a rough estimate.

Acute conditions	Avoidable hospitalizations (%)	Chronic conditions	Avoidable hospitalizations (%)	Immunization-preventable conditions	Avoidable hospitalizations (%)

Question 4. What should happen in Kazakhstan to effectively address the selected conditions in primary health care? Please provide your answer in the box below

What should happen to effectively address each of the 6 selected conditions in primary health care in Kazakhstan?
1.

Comments

If you wish to make any further comments about your experiences with ACSCs in your country and/or this survey please use the space provided below

Annex 3. List of participants of consultation with health professionals, 19 May 2014

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The WHO Regional Office for Europe

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

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