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Extragenital Pathologies of Pregnant Women in the Southern Regions of The Republic of Kazakhstan

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ABSTRACT
The main priorities of the health care system is to strengthen the health of pregnant women and child. Currently, risk factors pregnancy include age, first pregnancy, multiple pregnancies, genetic factors, endocrine system pathology, social aspects, occupational hazards etc. The purpose of our study is to study the prevalence of extragenital pathology in pregnant women in the southern regions of Kazakhstan. **Methods:** As part of the study, the facilities were obstetric services in Almaty, Zhambyl, Kyzylorda, South Kazakhstan oblasts and the city of Almaty. The subject of the study was the indicators of the activities of obstetrical health organizations in the southern regions of the country from 2012 to 2016. The materials of the study were dynamic indicators of the activities of inpatient obstetric health care organizations (frequency of preterm labor, bleeding, surgical interventions, etc.) for 2012 to 2016. Statistical data processing was carried out using Excel. **Results:** Comparative studies have shown that the incidence of kidney and urinary tract diseases is the highest among all extragenital diseases accompanying pregnancy. The results may indicate a lack of female consultations to identify and treat major endocrine diseases before pregnancy, early pregnancy, and the need for more intensive monitoring of compliance with clinical protocols for pregnancy management aimed at limiting perinatal risks for the mother and fetus. Conclusion: There is a need to strengthen the work of the primary link to the issues of early detection, comprehensive diagnosis and quality treatment to minimize perinatal risks for pregnant women and the fetus.

Keywords: extragenital diseases, perinatal risk, pregnance, Kazakhstan.

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INTRODUCTION
The main priorities of the health care system is to strengthen the health of pregnant women and child [1]. In the Republic of Kazakhstan, a methodology for assessing health technology at both the national [2] and at the level of some hospitals [3] has been introduced, which helps identify the most priority technologies that promote the adoption and implementation of the most rational health technologies. Currently, risk factors pregnancy include age, first pregnancy, multiple pregnancies, genetic factors, endocrine system pathology, social aspects, occupational hazards, bad habits, poor environmental conditions, insufficient or unbalanced nutrition, complex obstetric and gynecological history, inflammatory diseases . Extragenital disease, usually with lesions of the urinary tract, and cardiovascular diseases [4]. Frize and colleagues note the prevalence of endocrine diseases during pregnancy, while the authors point out that most of the previously endocrine states, if they are well controlled, have little effect on maternal or intrauterine morbidity [5]. The study showed that pregnant women with diabetes had a high frequency of extragenital diseases, the most common of which was iron deficiency anemia, complicated pregnancy more than half of the pregnant main groups (57.7%), while in the control group 13, 3% of women ($p < 0.05$) [6]. In a screening survey among 742 pregnant women aged 28.4 ± 5.5 years of extragenital pathology in hematology - 306 cases (41.2%), then nephrology - 290 (39.1%) and gastroenterology (38.8%) - 288 cases, respectively [7]. The presence of extragenital pathology in pregnant women of the Republic of Sakha (Yakutia) revealed the presence of extragenital pathology in most women (90%) two or more at a time [8]. The results of the studies include the important role of extragenital pathology in addition to the burdened obstetric and gynecological history as a risk factor for urogenital disorders during pregnancy and after delivery [9]. The purpose of our study is to study the prevalence of extragenital pathology in pregnant women in the southern regions of Kazakhstan.

METHODS
As part of the study, the facilities were obstetric services in Almaty, Zhambyl, Kyzylorda, South Kazakhstan oblasts and the city of Almaty. The subject of the study was the indicators of the activities of obstetrical health organizations in the southern regions of the country from 2012 to 2016. The materials of the study were dynamic indicators of the activities of inpatient obstetric health care organizations (frequency of preterm labor, bleeding, surgical interventions, etc.) for 2012 to 2016. Statistical data processing was carried out using Excel. Reliability and representativeness of the results obtained using the Student's criteria. As part of the study, comparative studies were conducted that shed light on the state of this problem in the southern regions of the Republic of Kazakhstan. The sequence of the research was determined by the level and structure of the word and the primary incidence of the population.

RESULTS
When studying the frequency of cardiovascular diseases (CVD) detected in early pregnancy by women living in the southern regions of the country, it was established (Table 1)

that in 2012 the highest incidence of these diseases among pregnant women was observed in Zhambyl oblast (2.44) and Almaty (1.84), and the smallest in Almaty oblast (0.8) and South Kazakhstan (1.0) oblast. At the same time, the above indicators were, respectively, lower and higher than the national average. In 2014 compared to 2012, the frequency of CVD in pregnant women in Almaty and South Kazakhstan regions and in Almaty increased 2.1, 1.20 and 2.3 times, respectively, at the same time it was found that in Kyzylorda and Zhambyl regions, a decrease in the studied indicator was found, by 53.6% and 16.4%, respectively. Further, it is shown that in 2016, against the background of a significant increase in the average national indicator to 2.24 per 100 pregnant women in Almaty, Zhambyl, Kyzylorda and South Kazakhstan regions and in Almaty, there was a synchronous increase in CVD detection in early pregnancy. It was shown that in 2012, the level of CVD in the second half of pregnancy, in the Zhambyl region and in Almaty was 1.5 and 1.3 times higher than the national average, and in Almaty (1.7 times), South - Kazakhstan (1.2 times) and Kyzylorda (1.2 times) regions, on the contrary, lower. It was established that after 2 years in 2014 in Almaty, South Kazakhstan regions and in Almaty there was an increase in the indicator under study; in Zhambyl region - a slight decrease. At the same time in the Kyzylorda region, it decreased by more than two times. Further dynamic studies showed that in 2016, the frequency of CVD exacerbations in the second half of pregnancy in the whole country compared with 2012 and 2014 increased by more than 1.5 times.

The results of studying the frequency of respiratory diseases in pregnant women in the early stages of pregnancy (Table 2) showed that in 2012, with the national average of 1.28 per 100 pregnant women, in Almaty and Zhambyl oblast, the incidence of respiratory diseases was significantly higher and 3.76 and 2.8 per 100 pregnant women, respectively. In the remaining Southern regions of the Republic of Kazakhstan, the values of the studied indicator were lower, and the lowest was found in the South Kazakhstan region (0.24 per 100 pregnant women). In 2014 compared with the previous year of comparison, in Almaty, Zhambyl and South Kazakhstan regions, the frequency of respiratory diseases in pregnant women, the early stages of pregnancy increased significantly; in Almaty, it decreased by almost 2 times, and in the Kyzylorda region there was an inexplicable decrease (up to 0.16 per 100 pregnant women). After another 2 years, in 2016, compared with 2014, the frequency of respiratory diseases in pregnant women in South Kazakhstan, Zhambyl and Oblast and in Almaty has not changed; in Kyzylorda region increased by 6 times, in Almaty region by 25.9%. The study of the frequency of exacerbations of respiratory diseases in the second half of pregnancy showed that in 2012 in the South Kazakhstan and Almaty regions, the intensive indicator was 2 and 1.5 times lower than the national average, and Zhambyl oblast and Almaty, on the contrary, respectively 2.7 and 2.2 times higher. In 2014, in all regions of South Kazakhstan compared with 2012, an increase in the frequency of exacerbations of respiratory diseases in the second half of pregnancy was observed. At the same time, the most significant increase in the value of the studied indicator was noted in Almaty (1.7 times), and the city of Almaty - it decreased by more than 2 times. It was further established that in 2016 compared to 2014, in the Zhambyl, South Kazakhstan regions and in the city of Almaty, the level of the studied indicator did not change; in the Kyzylorda region, it increased by 6 times, and in Almaty region by 25.9%.

The following fragment of the study was devoted to the study of the incidence of kidney and urinary diseases in pregnant women, where in 2012 the incidence of the highest diseases of the kidneys and urinary tract in early pregnancy in the southern regions of the country was in Zhambyl (9.88 per 100 pregnant women), Almaty (8.08 per 100 pregnant women) and Kyzylorda (8.92 per 100 pregnant women), and the lowest in Almaty (2.56) and South Kazakhstan (3.2) oblasts. In 2014 compared to 2012, an increase in the value of the studied indicator was observed in Almaty (2.7 times) and South Kazakhstan (1.3 times) oblasts. At the same time, in Zhambyl and Kyzylorda regions there was a significant (by 48.8 and 55.2%, respectively) decrease in the incidence of kidney and urinary tract diseases, and in Almaty it did not change. After another 2 years in 2016 compared to 2014, in the Kyzylorda and South Kazakhstan regions, there was a further increase in the frequency of the studied indicator. In Almaty, Zhambyl oblast and Almaty, a statistically significant decrease was found, and in the South Kazakhstan oblast there was an increase (Table 3). Further, in the study of the frequency of exacerbations of diseases of the kidneys and urinary tract in the second half of pregnancy, it was shown (table 3) that in 2012 the average national rate was 9.4 per 100 pregnant women. At the same time, the highest level of the studied indicator was found in Zhambyl (29.0 per 100 pregnant women), and the lowest - in Almaty (3.8) and South Kazakhstan (4.8) regions, in other regions of South Kazakhstan, the value of the indicator studied 25-35% higher than the national average. In 2014, compared to 2012, there was an almost threefold increase in the level of the studied indicator; in the South Kazakhstan region it rose by a third; Zhambyl (-48.9%), Kyzylorda (-55.2%) regions - significantly decreased, and in Almaty almost did not change. After another 2 years in 2016 compared to 2014, only in Kyzylorda (more than 2 times) and South Kazakhstan region was determined to increase the frequency of exacerbations of kidney and urinary tract infections in pregnant women in the second half of pregnancy. In the remaining Southern regions of the country, its statistically significant decrease was found.

A study of endocrine diseases among pregnant women in the southern regions of the Kazakhstan showed (table 4) that in 2012, with an average national rate of 1.92 per 100 pregnant women in Zhambyl oblast and in Almaty, the frequency of major endocrine diseases in early pregnancy was 1, 6 and 1.3 times higher, in Almaty and South Kazakhstan oblasts, on the contrary, 2 and 10 times lower, respectively, and in the Kyzylorda region approached the national average. In 2014 compared to 2012, in all Southern regions except for the South Kazakhstan region (+ 20.0%), a 6-fold decrease in the value of the studied indicator was observed. And most of all, such dynamics was determined in Almaty (5 times) and Kyzylorda (8 times) regions. After another 2 years in 2016 compared to 2014, in the Almaty region, the frequency of major endocrine diseases in the early stages of pregnancy increased 6.5 times, in Kyzylorda in 6.7 times, in Zhambyl in

25.95%, in South Kazakhstan in 2 times, and in Almaty, by contrast, decreased by 17.4%. The study of the dynamics of the frequency of exacerbations of endocrine diseases in the second half (Table 24) shows that compared to the national average, in Zhambyl (2 times), in Almaty (1.7 times), the frequency of exacerbations of endocrine diseases in the second half of pregnancy was higher. The rest of the southern regions of the country recorded significantly lower values of the studied indicator. Moreover, in the South Kazakhstan region it was revealed that they were 10 times higher than the national average. In 2014 compared to 2012, in all Southern regions of the country, with the exception of the city of South Kazakhstan, a significant decrease in the studied indicator was found in Almaty region by 6 times, in Zhambyl one by 1.5 times, in Kyzylorda 67.2% and in Almaty 1.7 times. After another 2 years, in 2016 compared to 2014, in Almaty, Kyzylorda and Zhambyl oblasts, the value of the studied indicator increased 5.5, 5.7 times and 25.9%, respectively. In the South - Kazakhstan region, it has not changed, but in Almaty it even decreased (by 17.4%). It was established (Table 5) that in 2012, with the average republican index of 0.24 per 100 pregnant women in Almaty and South Kazakhstan regions, the frequency of neuropsychiatric disorders and diseases in the early stages of pregnancy was 2 and 3 times less, and in Zhambyl, Kyzylorda regions and in Almaty, by contrast, 2.3 and 61.7 times more. In 2014, when compared with 2012, in the Almaty and South Kazakhstan regions, the frequency of the studied indicator did not decrease, in Kyzylorda decreased several times; in Kyzylorda increased by 33.3%, and in Almaty decreased by 20%. The following year, comparisons in 2016 were mixed. Thus, in the Kyzylorda region, the frequency of neuropsychiatric disorders and diseases increased 6 times, in Almaty by 25.0%, and in other Southern regions of the country, the value of the studied parameter did not change. As shown in Table 5, the frequency of exacerbations of neuropsychiatric disorders and diseases in different regions of the Republic of Kazakhstan varied over a wide range. At the same time, in Zhambyl, Kyzylorda regions and in Almaty, the value of the studied indicator was respectively 2, 3 and almost 2 times higher than the national average, and in Almaty, South Kazakhstan region and Almaty, on the contrary, significantly lower . In 2014, in the Zhambyl region and in Almaty, the frequency of exacerbations of neuropsychiatric disorders and diseases increased by 33.3% and 20.0%, respectively, in Kyzylorda by 2 orders of magnitude, and in Almaty and South Kazakhstan regions did not change. It was further established that after another 2 years in 2016, in the Kyzylorda region, a 6-fold increase in the indicator under study was found. At the same time, it was still well below the national average. In other southern regions of the country, the frequency of exacerbations of neuropsychiatric disorders and diseases either increased slightly or did not change.

DISCUSSION

In the structure of extragenital pathology in pregnant women of the Republic of Sakha (Yakutia), the first most common diseases are diseases of the urinary system, diseases of the cardiovascular system, diseases of the hematopoietic system [8]. The program of pregravid preparation and prevention of pregnant women in the high-risk group, a comprehensive examination of the condition of the fetus and fetus-placental system from early pregnancy, was a reserve for reducing perinatal diseases and death rates [10]. For the period 2010-2012. Maternal mortality from infectious causes was 5% of maternal deaths for direct causes and 16% of maternal deaths for indirect causes. Indirect maternal mortality from an infection of extragenital origin doubled over the same period, with 16 deaths in the last three years due to winter respiratory infections, especially influenza: the pandemic of influenza A (H1N1) virus in 2009-2010. The leading cause of indirect maternal mortality from infection during the study period. Delayed diagnosis and emergency onset of specific treatment were the main factors contributing to these deaths, and their preventability in 70% of the analyzed cases [11]. Pregnancy with extragenital pathology or kidney diseases of the urinary tract had the highest prevalence in Kazakhstan, where it increased by 7% between 2007 and 2011. Asymptomatic bacteriuria (AB) is one of the most important risk factors for pyelonephritis in pregnant women and can affect the course and outcome of pregnancy, childbirth and the postpartum period [12].

Interpretation of the data on the incidence rate of CVD, on the one hand, suggests that during the years 2014-2016, outpatient polyclinic organizations of the obstetric aid service took additional measures to better identify the diseases studied, and on the other, it is better to understand that perinatal risks for the mother and the fetus increases if targeted treatment and monitoring of the health of the pregnant and fetal fetuses are not provided. Comparison of the results obtained with the frequency of CVDs in early pregnancy may indicate, on the one hand, their inadequate effect, and on the other, insufficient monitoring of the health status and quality of treatment of extragenital diseases in the second half of pregnancy. Comparative studies have shown that the incidence of kidney and urinary tract diseases is the highest among all extragenital diseases. Hence the need for special attention to the issues of early detection, complex diagnostics and high-quality treatment to minimize perinatal for pregnant women and the fetus. The results may seem to indicate the lack of work of antenatal clinics to identify and treat the main endocrine diseases before pregnancy, early pregnancy, and the need for more intensive monitoring of compliance with clinical pregnancy management protocols aimed at limiting perinatal risks for the mother and intrauterine fetus.

CONCLUSION

Comparative studies have shown that the incidence of kidney and urinary tract diseases is the highest among all extragenital diseases accompanying pregnancy. The results may seem to indicate the lack of work of antenatal clinics to identify and treat diseases before pregnancy, early pregnancy and the need for more intensive monitoring of compliance with clinical pregnancy management protocols aimed at limiting perinatal risks for the mother and fetus.

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DECLARATION OF INTEREST

The authors declare the absence of any conflicting interests

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Table 1: The frequency of diseases of the cardiovascular system in pregnant women per 100 pregnant women

Name of the southern regions of Kazakhstan	The frequency of diseases of the cardiovascular system in pregnant women in early pregnancy per 100 pregnant women							The frequency of exacerbations of cardiovascular diseases in the second half of pregnancy (100 pregnant)						
	2012	2014			2016			2012	2014			2016		
		Indicator	% by 2012	Growth rate,% by 2012	Indicator	% by 2014	Growth rate,% by 2014		Indicator	% by 2012	Growth rate,% by 2012	Indicator	% by 2014	Growth rate,% by 2014
Almaty oblast	0,8	1,68	210,0	110,0	2,2	131,0	31,0	1,2	2,52	210,0	110,0	3,3	131,0	31,0
Jambyl oblast	2,44	2,04	83,6	-16,4	2,84	139,2	39,2	3,66	3,06	83,6	-16,4	4,26	139,2	39,2
Kyzylorda oblast	1,12	0,52	46,4	-53,6	1,28	246,2	146,2	1,68	0,78	46,4	-53,6	1,92	246,2	146,2
South Kazakhstan oblast	1,0	1,24	124,0	24,0	2,56	206,5	106,5	1,5	1,86	124,0	24,0	3,84	206,5	106,5
Almaty city	1,84	4,12	223,9	123,9	2,32	56,3	-43,7	2,76	6,18	223,9	123,9	3,48	56,3	-43,7
The Republic of Kazakhstan	1,4	1,4	100,0	0,0	2,24	160,0	-60,0	2,1	2,1	100,0	0,0	3,36	160,0	-60,0

Table 2: The frequency of exacerbations of respiratory diseases in pregnant women

Name of the southern regions of Kazakhstan	The frequency of respiratory diseases in pregnant women in the early stages of pregnancy (100 pregnant)							The frequency of exacerbations of respiratory diseases in pregnant women in the second half of pregnancy (100 pregnant)						
	2012	2014			2016			2012	2014			2016		
		Indicator	% by 2012	Growth rate,% by 2012	Indicator	% by 2014	Growth rate,% by 2014		Indicator	% by 2012	Growth rate,% by 2012	Indicator	% by 2014	Growth rate,% by 2014
Almaty oblast	0,64	1,08	168,8	+68,8	1,36	+125,9	25,9	0,96	1,62	+168,8	68,8	2,04	125,9	25,9
Jambyl oblast	2,8	3,64	130,0	30,0	3,56	97,8	-2,2	4,2	5,46	+130,0	30,0	5,34	97,8	-2,2

Kyzylorda oblast	0,92	0,16	17,4	-82,6	0,96	+600,0	500,0	1,38	0,24	+17,4	-82,6	1,44	600,0	500,0
South Kazakhstan oblast	0,24	0,4	166,7	+66,7	0,4	100,0	0,0	0,36	0,6	+166,7	66,7	0,6	100,0	0,0
Almaty city	3,76	1,84	48,9	-51,1	1,84	100,0	0,0	5,64	2,76	+48,9	-51,1	2,76	100,0	0,0
The Republic of Kazakhstan	1,28	1,28	100,0	0,0	1,4	109,4	9,4	1,92	1,92	100,0	0,0	2,1	109,4	9,4

Table 3: The frequency of exacerbations of diseases of the kidneys and urinary tract in pregnant women (100 pregnant women)

Name of the southern regions of Kazakhstan	The frequency of kidney and urinary tract infections in pregnant women in the early stages of pregnancy (100 pregnant)							The frequency of exacerbations of diseases of the kidneys and urinary tract in pregnant women in the second half of pregnancy (100 pregnant women)						
	2012	2014			2016			2012	2014			2016		
		Indicator	% by 2012	Growth rate,% by 2012	Indicator	% by 2014	Growth rate,% by 2014		Indicator	% by 2012	Growth rate,% by 2012	Indicator	% by 2014	Growth rate,% by 2014
Almaty oblast	2,56	7,0	273,4	173,4	5,6	80,0	-20,0	3,8	10,5	273,4	173,4	8,4	80,0	-20,0
Jambyl oblast	19,32	9,88	51,1	-48,9	6,52	66,0	-34,0	29,0	14,8	51,1	-48,9	9,8	66,0	-34,0
Kyzylorda oblast	8,92	4	44,8	-55,2	8,28	207,0	107,0	13,4	6	44,8	-55,2	12,42	207,0	107,0
South Kazakhstan oblast	3,2	4,28	133,8	33,8	4,68	109,3	9,3	4,8	6,4	133,8	33,8	7,0	109,3	9,3
Almaty city	8,12	8,08	99,5	-0,5	6,12	75,7	-24,3	12,2	12,11	99,5	-0,5	9,2	75,7	-24,3
The Republic of Kazakhstan	6,24	5,44	87,2	-12,8	4,96	91,2	-8,8	9,4	8,2	87,2	-12,8	7,4	91,2	-8,8

Table 4: The frequency of exacerbations of diseases of the Endocrine system in pregnant women (100 pregnant women)

Name of the southern regions of Kazakhstan	The frequency of endocrine (including diabetes) in early pregnancy (100 pregnant)							Endocrine exacerbations frequency (including diabetes mellitus) in the second half of pregnancy (per 100 pregnant women)						
	2012	2014			2016			2012	2014			2016		
		Indicator	% by 2012	Growth rate,% by 2012	Indicator	% by 2014	Growth rate,% by 2014		Indicator	% by 2012	Growth rate,% by 2012	Indicator	% by 2014	Growth rate,% by 2014
Almaty oblast	0,84	0,16	19,0	-81,0	1,04	650,0	550,0	1,26	0,24	19,0	-81,0	1,56	650,0	550,0
Jambyl oblast	3,64	2,32	63,7	-36,3	2,92	125,9	25,9	5,46	3,48	63,7	-36,3	4,38	125,9	25,9
Kyzylorda oblast	1,76	0,24	13,6	-86,4	1,6	666,7	566,7	2,64	0,36	13,6	-86,4	2,4	666,7	566,7
South Kazakhstan oblast	0,2	0,24	120,0	20,0	0,48	200,0	100,0	0,3	0,36	120,0	20,0	0,72	200,0	100,0
Almaty city	3,24	1,84	56,8	-43,2	1,52	82,6	-17,4	4,86	2,76	56,8	-43,2	2,28	82,6	-17,4
The Republic of Kazakhstan	1,92	1,48	77,1	-22,9	1,68	113,5	13,5	2,88	2,22	77,1	-22,9	2,52	113,5	13,5

Table 5: The frequency of exacerbations of neuropsychiatric disorders in pregnant women (per 100 pregnant women)

Name of the southern regions of Kazakhstan	The frequency of neuropsychiatric disorders in pregnant women in the early stages of pregnancy (per 100 pregnant women)							The frequency of exacerbations of neuropsychiatric disorders pregnant women in the second half of pregnancy (per 100 pregnant women)						
	2012	2014			2016			2012	2014			2016		
		Indicator	% by 2012	Growth rate,% by 2012	Indicator	% by 2014	Growth rate,% by 2014		Indicator	% by 2012	Growth rate,% by 2012	Indicator	% by 2014	Growth rate,% by 2014
Almaty oblast	0,12	0,12	100,0	0,0	0,12	100,0	0,0	0,18	0,18	100,0	0,0	0,18	100,0	0,0
Jambyl oblast	0,48	0,64	133,3	33,3	0,68	106,3	6,3	0,72	0,96	133,3	33,3	1,02	106,3	6,3

Kyzylorda oblast	0,64	0,04	6,3	-93,8	0,24	600,0	500,0	0,96	0,06	6,3	-93,8	0,36	600,0	500,0
South Kazakhstan oblast	0,08	0,08	100,0	0,0	0,08	100,0	0,0	0,12	0,12	100,0	0,0	0,12	100,0	0,0
Almaty city	0,4	0,32	80,0	-20,0	0,4	125,0	25,0	0,6	0,48	80,0	-20,0	0,06	125,0	25,0
The Republic of Kazakhstan	0,24	0,24	100,0	0,0	0,28	116,7	16,7	0,36	0,36	100,0	0,0	0,42	116,7	16,7