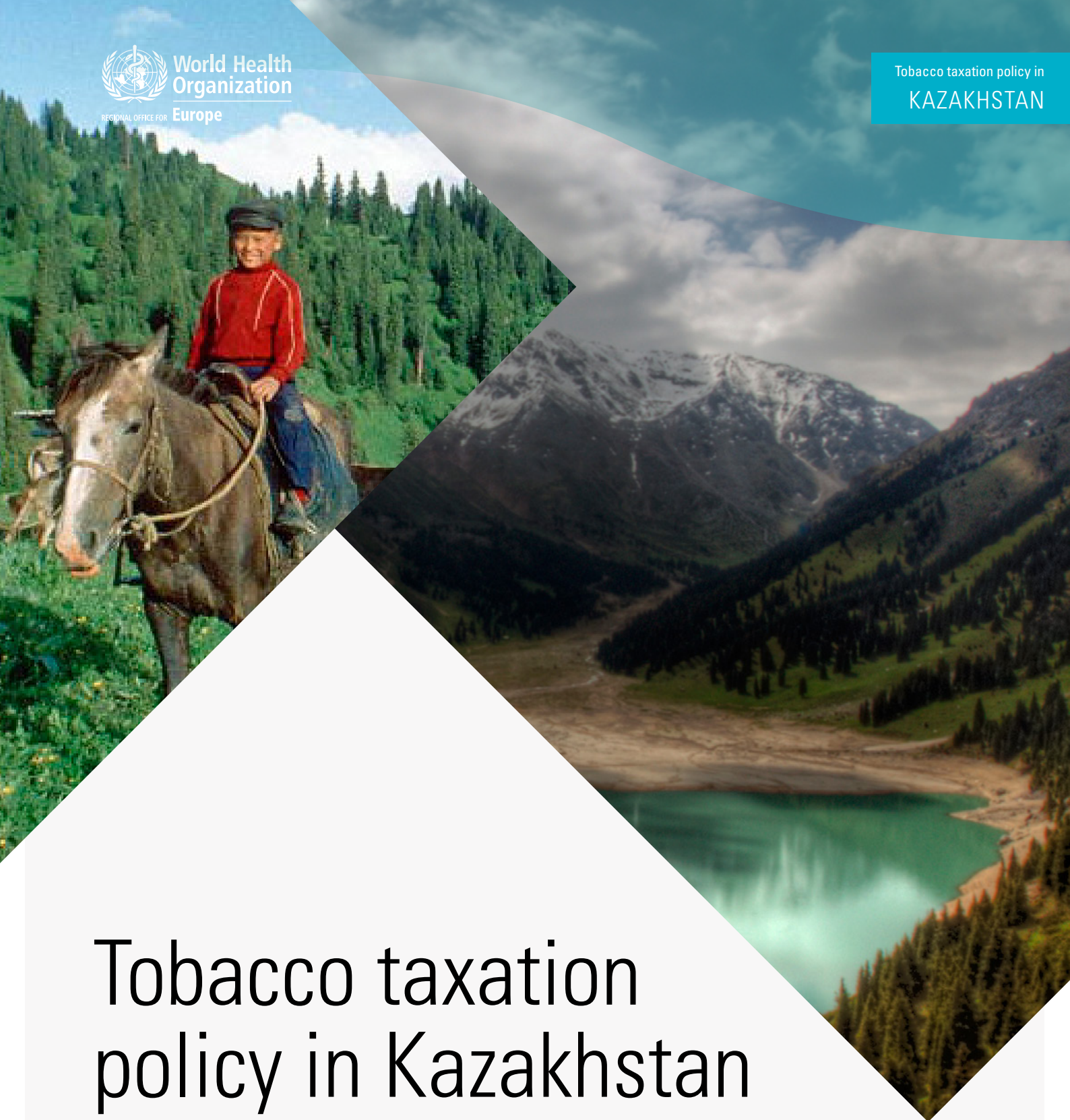




Tobacco taxation policy in Kazakhstan

By: Konstantin Krasovsky, WHO consultant



Address requests about publications of the WHO Regional Office for Europe to:

Publications
WHO Regional Office for Europe
UN City, Marmorvej 51
DK-2100 Copenhagen Ø, Denmark

Alternatively, complete an online request form for documentation, health information, or for permission to quote or translate, on the Regional Office website (<http://www.euro.who.int/pubrequest>).

© **World Health Organization 2017**

All rights reserved. The Regional Office for Europe of the World Health Organization welcomes requests for permission to reproduce or translate its publications, in part or in full.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by the World Health Organization to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either express or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Health Organization be liable for damages arising from its use. The views expressed by authors, editors, or expert groups do not necessarily represent the decisions or the stated policy of the World Health Organization.

This publication is made possible by funding from the Ministry of Health and Medical Industry of Turkmenistan.

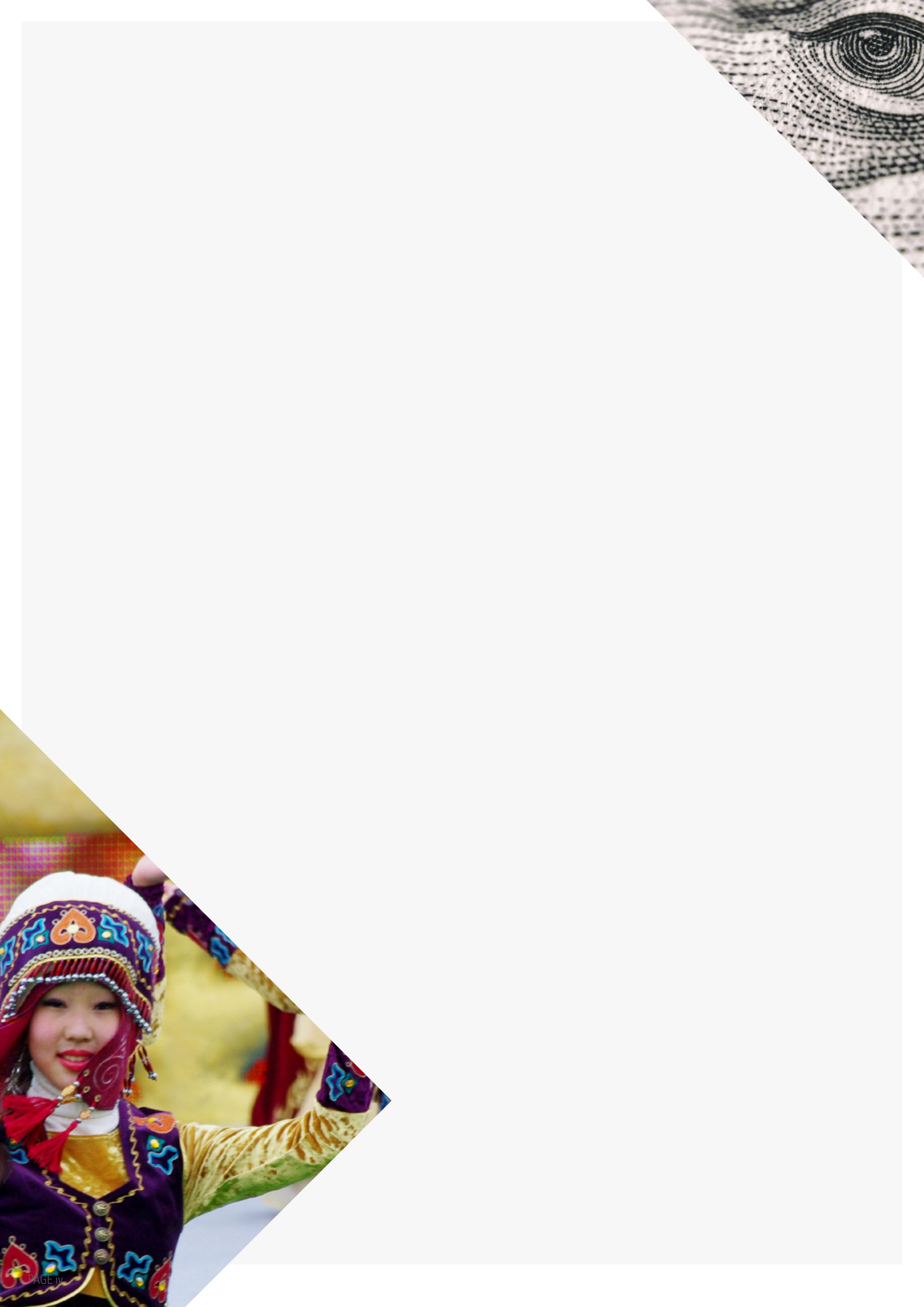
Photography: Mariusz Kluzniak, Big Almaty lake (cover); United Nations Photo, Indigenous people: Kazakhstan (cover, pg. 10, back cover); IHH Humanitarian Relief Foundation, Ramadan around the world: Kazakhstan (pg. vi); Ken and Nyetta, Nowruz dancers in Astana (pg. iv).

Abstract

Kazakhstan increased the cigarette excise rate by 94% in 2014, meaning cigarette prices rose sufficiently to decrease tobacco affordability, which caused a decline in tobacco sales and smoking prevalence in the country. Mortality rates of some tobacco-related causes of death declined substantially between 2013 and 2015 for men and women aged 30–79 years. In previous years, however, Kazakhstan had pursued only moderate tobacco excise growth, ensuring neither increased revenues nor reductions in tobacco consumption. Increasing tobacco taxes, which reduces affordability and consumption, is an effective means of reducing mortality in the country. Further increases in tobacco excise rates can reinforce the health benefits. Kazakhstan has great potential to increase tobacco excise rates in upcoming years. The greater the excise tax increase, the larger the reduction in tobacco consumption and tobacco excise revenue growth will be.

Keywords

Taxes
Tobacco
Smoking
Tobacco industry
Health policy





Contents

Acronyms	vi
Introduction	1
Data sources	1
Results	2
Tobacco excise rates	
Tobacco production and sales	
Tobacco affordability	
Cigarette prices	
Tobacco excise revenue	
Tobacco consumption	
Tobacco-related mortality in Kazakhstan	8
Outcomes and perspectives on tobacco excise taxation policies in Kazakhstan	14
Excise rates and cigarette prices in neighbouring countries	
Eurasian Economic Union	
Perspectives on tobacco excise taxation policies in Kazakhstan in 2018	
Conclusions	19
References	20

Acronyms

AIHD	acute ischaemic heart diseases
COPD	chronic obstructive pulmonary disease
CPI	consumer price index/indices
GATS	Global Adult Tobacco Survey
ICD-10	International Classification of Diseases, 10th revision
PRP	producer and retailer price
SDR	standardized death rate
TAI	Tobacco Affordability Index
VAT	value-added tax
WHO FCTC	WHO Framework Convention on Tobacco Control



Introduction

The WHO Framework Convention on Tobacco Control (WHO FCTC), which was developed in response to the globalization of the tobacco epidemic, was endorsed in 2005. Article 6 deals with price and tax measures to reduce the demand for tobacco. Parties to the Convention recognize that price and tax measures are an effective and important means of reducing tobacco consumption in various segments of the population, particularly among young people. Each Party should implement tax and price policies on tobacco products as a means to achieving health objectives aimed at reducing tobacco consumption. The WHO FCTC Conference of Parties adopted guidelines for the implementation of Article 6 in 2014.

Kazakhstan joined the WHO FCTC in 2006 and has committed itself to implementing cross-sectoral measures outlined in the Convention to protect people from tobacco use.

The aims of this report are to:

- estimate the impact of tobacco taxation policy on tobacco consumption, tobacco excise revenues and tobacco-related mortality in Kazakhstan between 2003 and 2015; and
- propose and compare options for tobacco taxation policies in 2018 in terms of their effects on tobacco consumption and revenues.

Data sources

Data on tobacco excise revenue were taken from the Ministry of Finance statistical bulletins (1). As Kazakhstan has a simple specific excise system, the annual number of taxable cigarettes was estimated for each year using the revenue data and cigarette excise rates. Data on prices, import, export and other indices were taken from the National Statistics Committee and Customs Service websites.

Kazakhstan has been reporting mortality data in line with the International Classification of Diseases, 10th revision (ICD 10) only since 2013, so mortality data in 2013, 2014 and 2015 were extracted from the WHO European detailed mortality database (2).

Results

Tobacco excise rates

Kazakhstan has been increasing the excise tax rate annually since 2006, but it did not change between 2000 and 2005 (Table 1). Excise rates for non-filter and filter cigarettes have been the same since 2014. New cigarette excise rates for 2017, 2018 and 2019 were approved on 30 November 2016. The value-added tax (VAT) rate was reduced gradually from 20% in 2001 to 12% in 2008, and remains at 12%.

Tobacco production and sales

Domestic cigarette production increased from 19.3 billion in 2000 to 31.5 billion in 2007, then gradually declined to 20.3 billion in 2016.

Despite increases in cigarette production, the raw tobacco yield in Kazakhstan (Fig. 1) was rather stable (15 000–16 000 tons per year) between 2000 and 2005, then gradually decreased to 1400 tons in 2015 (by ten-fold). The decrease took place even in years when cigarette production increased. In 2014, 9600 tons of raw tobacco were imported to Kazakhstan and 430 tons were exported: cigarettes produced in Kazakhstan therefore contained only about 10% of domestic tobacco.

Year	Excise rate, tenge per 1 000 filter cigarettes	Annual increase, %	Excise rate, tenge per 1 000 non-filter cigarettes	Annual increase, %	Tobacco excise revenues, billion tenge	Annual increase, %	Number of taxed cigarettes, billion	Annual change, %
2003	180	0	100	0	4.3	30	26.5	29
2004	180	0	100	0	4.6	7	27.1	2
2005	180	0	100	0	5.3	14	30.4	12
2006	230	28	130	30	6.7	27	29.9	–2
2007	315	37	180	38	10.7	55	33.5	12
2008	400	27	200	11	12.6	21	32.0	–4
2009	600	50	350	75	18.0	43	28.8	–10
2010	800	33	500	43	22.9	28	28.4	–2
2011	1000	25	600	20	29.4	28	29.6	4
2012	1250	25	750	25	37.6	28	30.2	2
2013	1550	24	950	27	45.5	21	30.7 ^a	1
2014	3000	94	3000	216	78.7	72	27.7 ^a	–9
2015	3900	30	3900	30	96.1	22	24.5 ^a	–12
2016	5000	28	5000	28	125 ^b	–	25 ^b	–
2017	6200	24	6200	24	–	–	–	–
2018	7500	21	7500	21	–	–	–	–
2019	8700	19	8700	19	–	–	–	–

TABLE 1.
Cigarette excise rates, excise revenue and number of taxed cigarettes

^a As revenue for cigarettes taxed in December was received in January of the next year, the calculations of taxed cigarettes between 2013 and 2015 are based on revenue received in February–December of the year and January of the next year.

^b Preliminary data for 2016.

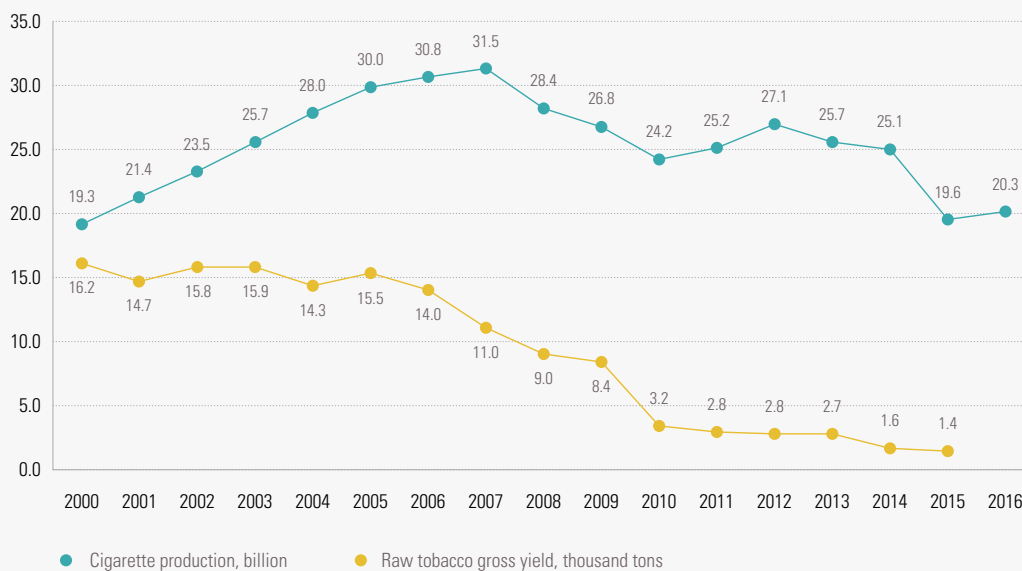


FIG. 1.
Tobacco-growing and cigarette production in Kazakhstan, 2000–2016

Cigarette sales in Kazakhstan were calculated from available statistics data (Fig. 2) using the following equation:

$$\text{sales} = \text{production} + \text{imports} - \text{exports}.$$

They were stable between 2006 and 2013 (about 30 billion annually), but declined in 2014/2015. Imports increased from 2.1 billion cigarettes in 2006 to 11.5 billion in 2015, so the share of imported cigarettes in total sales increased from 10% in 2007 to 48% in 2015. Sales of non-filter cigarettes decreased from 5.25 billion in 2003 to 0.15 billion in 2014 (0.6% of total sales).

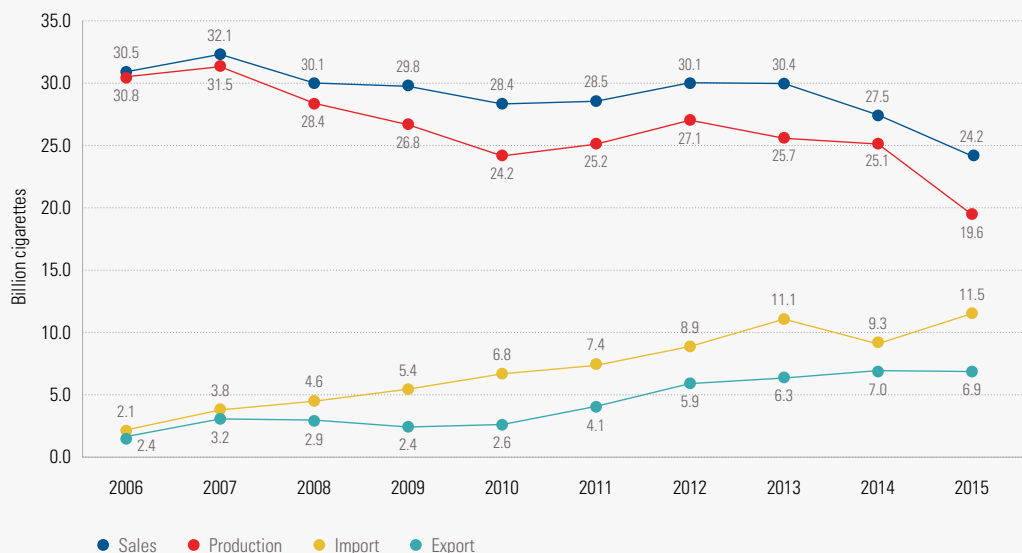


FIG. 2.
Cigarette production, imports, exports and estimated sales in Kazakhstan (billion cigarettes)

Employment at tobacco factories was also stable between 2000 and 2008 (about 2000 people) but decreased from 1900 workers in 2008 to 1400 in 2015: cigarette production declined to a smaller extent (see Fig. 2).

Tobacco affordability

The guidelines for implementation of Article 6 of the WHO FCTC (3) state that:

tax rates should be monitored, increased or adjusted on a regular basis, potentially annually, taking into account inflation and income growth developments in order to reduce consumption of tobacco products.

Tax rates in Kazakhstan have been adjusted annually since 2005, but the impact on tobacco consumption has depended on inflation and income growth. Tobacco price growth was below inflation between 2003 and 2008 (Fig. 3), but has increased faster than inflation since 2009. Cigarette sales, however, declined only in 2009/2010 and 2014/2015 (see Fig. 2), when tobacco price growth was much greater than inflation. The price increase in 2016 was below the rate of inflation, which could be a factor in the cigarette-sales rise.

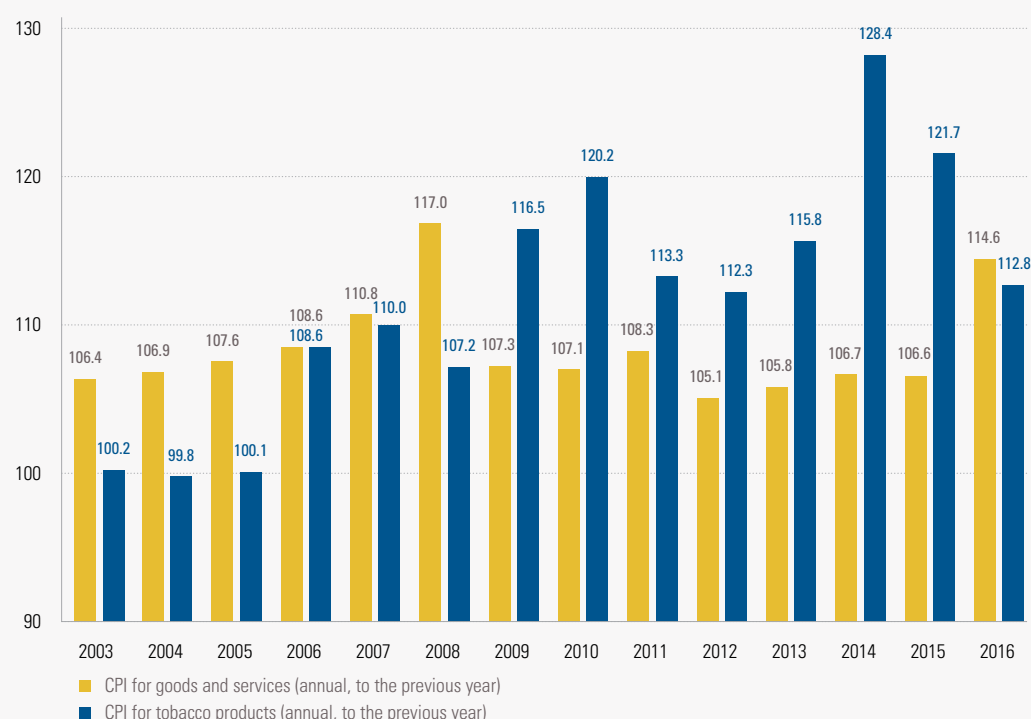


FIG. 3.
Consumer price indices (CPI) for all goods and services and tobacco products in Kazakhstan

The guidelines for implementation of Article 6 state that without price increases above growth in incomes, tobacco products will inevitably become more affordable over time, generally resulting in growing consumption. The guidelines recommend (3):

When establishing or increasing their national levels of taxation Parties should take into account ... changes in household income, to make tobacco products less affordable¹ over time in order to reduce consumption and prevalence.

This analysis uses the modified Tobacco Affordability Index (TAI) (4) to estimate changes in tobacco affordability between 2004 and 2015. This is calculated as the annual change in

disposable income per capita, divided by the tobacco price increase (CPI_tobacco) minus one and multiplied by 100:

$$TAI = (\text{income change}/\text{CPI}_{\text{tobacco}} - 1) * 100.$$

If the TAI has negative values, it means tobacco has become **less** affordable, and tobacco consumption is expected to decrease. Calculations of the TAI in Kazakhstan are presented in Table 2.

Tobacco affordability increased greatly between 2004 and 2008, which could explain the upward trend in tobacco consumption. Cigarettes became much less affordable in 2009 and, especially, in 2014 and 2015, resulting in reduced tobacco consumption.

Year	CPI for tobacco products, annual	Disposable household incomes, average monthly, tenge per capita	Income annual change, %	TAI
2004	99.8	8 387	110.8	11.0
2005	100.1	9 751	116.3	16.1
2006	108.6	13 723	140.7	29.6
2007	110.0	16 935	123.4	12.2
2008	107.2	20 037	118.3	10.4
2009	116.5	21 348	106.5	-8.5
2010	120.2	26 152	122.5	1.9
2011	113.3	30 618	117.1	3.3
2012	112.3	33 745	110.2	-1.9
2013	115.8	36 761	108.9	-5.9
2014	128.4	39 256	106.8	-16.8
2015	121.7	40 675	103.6	-14.9

TABLE 2.
Tobacco affordability in Kazakhstan, 2004–2015

Cigarette prices

According to Statistics Committee data, the mean price of a pack of 20 filter cigarettes in December 2009 was 82 tenge: by December 2015, it had increased 3.6-fold to 296 tenge. The tobacco excise rate increased 6.5-fold between 2009 and 2015, from 12 to 78 tenge per pack (up by 66 tenge) (Table 3), but the non-tax part of the price (the producer and retailer price (PRP)) increased by 125 tenge.

Adjusting the price components to inflation rates increases the inflation-adjusted price of the pack from 77 to 178 tenge (up 101 tenge), of which 36 tenge is due to the excise increase, 11 to the VAT increase and 54 to the PRP increase. The increase in cigarette prices in Kazakhstan between 2009 and 2015 was therefore largely due to tobacco corporations' prices policy, not the government's excise policy. The recent monograph from the United

¹ Affordability means price relative to per capita income.

States National Cancer Institute and WHO reveals that this phenomenon is also observed in other countries. It states (5): “Ironically, the industry engineered a greater decrease in cigarette consumption in the short term by raising prices than the government was able to achieve by increasing the excise tax alone.”

	2009	2010	2011	2012	2013	2014	2015	2016
Price of 20 filter cigarettes, tenge	82	131	139	157	194	241	296	324
Excise, tenge	12	16	20	25	31	60	78	100
Excise share in the retail price, %	15	12	14	16	16	25	26	31
VAT, tenge	9	14	15	17	21	26	32	35
PRP, tenge	61	101	104	115	142	155	186	189
Inflation rate, %	1.062	1.145	1.230	1.303	1.366	1.467	1.666	1.91
Inflation-adjusted prices, tenge	77	114	113	120	142	164	178	170
Excise, tenge	11	14	16	19	23	41	47	52
VAT, tenge	8	12	12	13	15	18	19	18
PRP, tenge	58	88	85	88	104	106	112	99

TABLE 3.
Changes in
cigarette prices,
2009–2016

In 2016, however, after the huge decline in cigarette sales over the two previous years (see Fig. 2), the tobacco industry did not increase the PRP to maintain its customer base. The real (inflation-adjusted) cigarette price therefore decreased in 2016, despite the excise-rate increase (see Fig. 3 and Table 3), which is one of the reasons for the increase in cigarette sales that year.

The excise share in the average retail cigarette price remained stable between 2009 and 2013 (Table 3), despite excise-rate increases. It increased from 16% to 25% in 2014, saw no real change in 2015, and increased to 31% in 2016.

Kazakhstan introduced a minimum cigarette price in 2007, increased gradually from 50 tenge per pack of 20 filter cigarettes (40 tenge for non-filter) in 2007 to 240 tenge from January 2016 and 300 tenge from January 2017. Taking into account the established minimum price and the adopted excise rate, it can be concluded that the maximum excise share in the retail price in 2016 and 2017 is about 42%.

Tobacco excise revenue

Tobacco excise revenues increased between 2002 and 2005 from 3.3 to 5.3 billion tenge without raising excise rates. This was due to the increase in sales and the decline in the proportion of non-filter cigarettes, from 22% to 7%. Tobacco excise revenues increased between 2006 and 2013 in parallel with the excise rates increase (see Table 1), while cigarette sales remained stable.

The mean annual increase in tobacco revenues between 2010 and 2013 was about 8 billion tenge (Fig. 4), while the increase in 2014 was 33 billion tenge. The sharp tax hike (by 94%) not only reduced tobacco sales by 9%, but also brought an additional 25 billion tenge (about US\$ 150 million) to the national coffers.

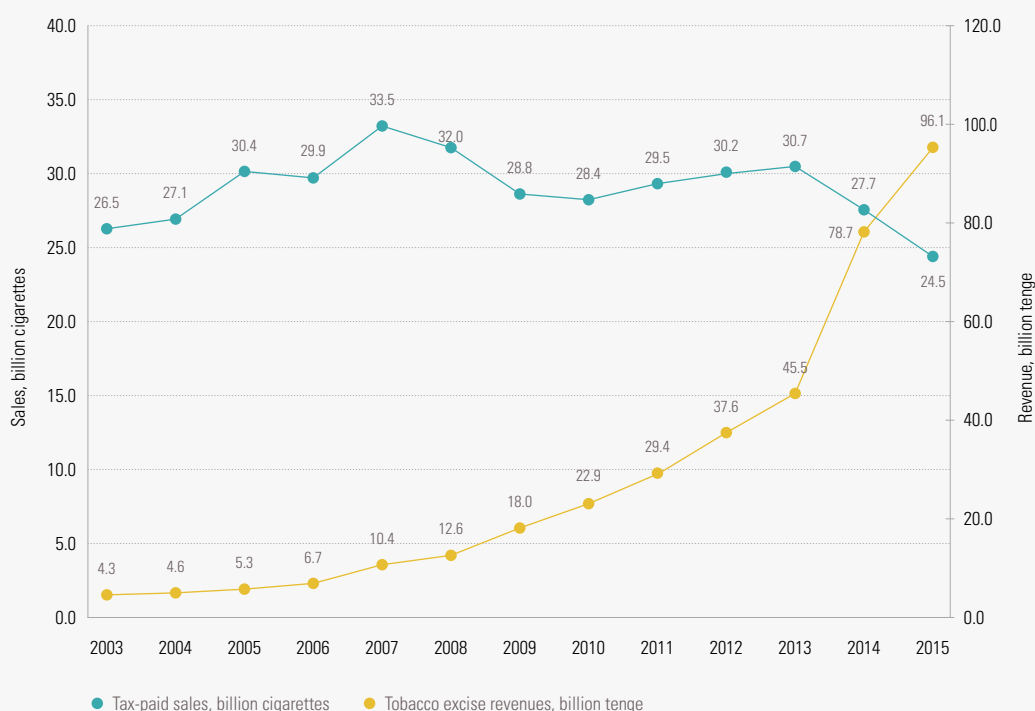


FIG. 4.
Cigarette sales
and revenues
in Kazakhstan,
2003–2015

Tobacco excise revenues increased by 17.4 billion tenge (22%) in 2015, while the excise tax rate increase was 30%. Cigarette sales decreased by 3 billion, or 12%, mainly due to the reduction of tobacco affordability. Kazakhstan has experienced severe economic problems since August 2015: by the end of that year, the exchange rate had decreased from 187 to 340 tenge to US\$ 1. The resulting incomes reduction caused a substantial reduction in cigarette sales: sales declined by 1.5 billion in the fourth quarter of 2015, following declines of 1.7 billion in the previous three quarters.

Tobacco consumption

The third and fourth national health lifestyle surveys showed smoking prevalence in Kazakhstan increasing from 23% to 27% between 2003 and 2007 (6).

Tobacco taxes contribute to a decline in tobacco consumption if they increase real (inflation-adjusted) prices and reduce affordability. Tobacco prices increased by less than the inflation rate between 2003 and 2008 (see Fig. 1) and cigarettes became relatively more affordable (see Table 2). This encouraged tobacco consumption.

The policy of annual increases in excise rates of 25–30% between 2010 and 2013 resulted in increased revenues, but was not effective in terms of health, as cigarette consumption did

not decrease. The fourth and fifth national health lifestyle surveys (2007–2012) showed that smoking prevalence decreased only from 27% to 26.5% among adults aged 18 and older (7).

Smoking prevalence had decreased to 18.3% (a factor of 1.31 or 8.2 percentage points) by the time of the sixth national health lifestyle survey in 2014 (8). The sharp excise hike in January 2014 was the main factor behind the observed prevalence decline.

The Global Adult Tobacco Survey (GATS) was conducted in Kazakhstan in 2014 (9), involving 4425 men and women aged 15 years or older. The GATS results showed that daily tobacco-smoking prevalence was 19.1%, which was close to the results of the sixth national health lifestyle survey.

Tobacco-related mortality in Kazakhstan

WHO estimates that 35% of male and 12% of female deaths among people aged 30 years and older in Kazakhstan in 2004 were attributable to tobacco (10) (Table 4). The proportion of deaths attributable to tobacco was rather high in most age groups of men and women, except for those 80 years and older. This high tobacco-attributable mortality was reported for the following causes of death: tracheal, bronchial and lung cancer; chronic obstructive pulmonary disease (COPD); acute ischaemic heart diseases (AIHD); cerebrovascular disease; and tuberculosis.

Tobacco excise taxes were drastically increased in Kazakhstan from 1 January 2014 and tobacco affordability was substantially reduced, resulting in the subsequent decline in tobacco sales and smoking prevalence in the country. This decline in consumption could have an effect on tobacco-related mortality in Kazakhstan.

The WHO European detailed mortality database (2) reports that the total number of deaths in Kazakhstan decreased from 136 261 in 2013 to 131 895 in 2014 and 131 029 in 2015. The crude death rate (per 100 000 population) decreased from 800 in 2013 to 747 in 2015 (7%).

A literature review on the impact of tobacco taxation on health outcomes (Krasovsky K, World Bank, unpublished data, 2016) revealed that tobacco tax increases can be the factor that reduces the number of deaths caused by respiratory cancers and cardiovascular diseases. All-cause mortality also declines, but mainly among the 35–64 age group. The decline in risk of death caused by lung cancer and COPD after quitting smoking is rather slow, but substantial reduction in the risk for some circulatory system diseases (acute

myocardial infarction, angina pectoris and stroke) is observed within one year after quitting. The risk of tuberculosis-related death also drops quickly after quitting smoking.

		Men %	Women %
Age groups, years	30–44	30	17
	45–59	41	15
	60–69	44	20
	70–79	28	13
	80+	10	2
	All (30+)	35	12
Cause of death (total for ages 30 and over)	Tuberculosis	35	13
	Tracheal, bronchial, lung cancer	94	63
	AIHD	38	10
	Cerebrovascular disease	35	14
	COPD	86	54
	All causes	35	12

TABLE 4.
Proportion
of deaths
attributable
to tobacco in
Kazakhstan in
2004, %

Based on the available research data, the following diseases (causes of death) were used as indicators to estimate the health impact of increased tobacco taxes:

- 1 respiratory tuberculosis: ICD-10 codes A15 and A16;
- 2 respiratory cancer (malignant neoplasm of larynx, trachea, bronchus and lung): C32, C33 and C34;
- 3 AIHD (angina pectoris, acute myocardial infarction, subsequent myocardial infarction, certain current complications following acute myocardial infarction and other AIHD): I20, I21, I22, I23 and I24;
- 5 strokes (subarachnoid haemorrhage; intracerebral haemorrhage; other nontraumatic intracranial haemorrhage; cerebral infarction and stroke, not specified as haemorrhage or infarction): I60, I61, I62, I63 and I64;
- 5 chronic bronchitis and emphysema (simple and mucopurulent chronic bronchitis; unspecified chronic bronchitis; emphysema): J41, J42, J43; and
- 6 other COPD: J44.

Changes in mortality for the age groups indicated in the United States National Cancer Institute and WHO monograph (5) (see Table 1) were estimated separately for men and women. The results are presented in Table 5.

TABLE 5.
Mortality
changes in
Kazakhstan,
2013–2015

TOTAL (ALL CAUSES OF DEATH)											
		Number of deaths			Crude death rate per 100 000			Change of crude death rate (%)			
		2013	2014	2015	2013	2014	2015	2013–2014	2014–2015	2013–2016	
Male	All ages	75 038	71 929	71 389	913	861	842	↓ –6	↓ –2	↓ –8	
Age groups	30–44	10 018	9 107	8 823	568	507	482	↓ –11	↓ –5	↓ –15	
	45–59	18 832	17 856	17 591	1 401	1 308	1 268	↓ –7	↓ –3	↓ –9	
	60–69	13 639	14 259	15 229	3 481	3 366	3 335	↓ –3	↓ –1	↓ –4	
	70–79	16 088	15 316	14 480	7 539	7 478	7 378	↓ –1	↓ –1	↓ –2	
	80+	8 598	8 410	8 577	15 919	15 630	15 462	↓ –2	↓ –1	↓ –3	
Female	All ages	61 223	59 966	59 640	695	671	658	↓ –3	↓ –2	↓ –5	
Age groups	30–44	3 529	3 407	3 245	191	182	170	↓ –5	↓ –6	↓ –11	
	45–59	8 283	8 189	7 941	533	520	498	↓ –2	↓ –4	↓ –6	
	60–69	8 332	8 756	9 355	1 496	1 449	1 434	↓ –3	↓ –1	↓ –4	
	70–79	16 661	16 294	15 854	4 257	4 278	4 307	→ 0	↑ 1	↑ 1	
	80+	20 171	19 513	19 600	14 243	13 995	13 810	↓ –2	↓ –1	↓ –3	

C32–34: CANCER OF LARYNX, TRACHEA, BRONCHUS AND LUNG											
		Number of deaths			Crude death rate per 100 000			Change of crude death rate (%)			
		2013	2014	2015	2013	2014	2015	2013–2014	2014–2015	2013–2016	
Male	All ages	2 719	2 440	2 384	33.1	29.2	28.1	↓ –12	↓ –4	↓ –15	
Age groups	30–44	80	63	46	4.5	3.5	2.5	↓ –23	↓ –28	↓ –45	
	45–59	835	782	732	62.1	57.3	52.8	↓ –8	↓ –8	↓ –15	
	60–69	1 015	959	989	259.1	226.4	216.6	↓ –13	↓ –4	↓ –16	
	70–79	672	551	513	314.9	269.0	261.4	↓ –15	↓ –3	↓ –17	
	80+	106	82	99	196.3	152.4	178.5	↓ –22	↑ 17	↓ –9	
Female	All ages	560	552	537	6.4	6.2	5.9	↓ –3	↓ –4	↓ –7	
Age groups	30–44	25	37	26	1.4	2.0	1.4	↑ 46	↓ –31	→ 0	
	45–59	152	145	147	9.8	9.2	9.2	↓ –6	→ 0	↓ –6	
	60–69	149	124	171	26.7	20.5	26.2	↓ –23	↑ 28	↓ –2	
	70–79	173	190	144	44.2	49.9	39.1	↑ 13	↓ –22	↓ –12	
	80+	55	53	46	38.8	38.0	32.4	↓ –2	↓ –15	↓ –17	

I20–24: AIHD											
		Number of deaths			Crude death rate per 100 000			Change of crude death rate (%)			
		2013	2014	2015	2013	2014	2015	2013–2014	2014–2015	2013–2016	
Male	All ages	2 997	2 571	2 448	36.5	30.8	28.9	↓ –16	↓ –6	↓ –21	
Age groups	30–44	267	231	228	15.1	12.9	12.5	↓ –15	↓ –3	↓ –18	
	45–59	1 140	970	909	84.8	71.1	65.5	↓ –16	↓ –8	↓ –23	
	60–69	738	711	678	188.4	167.8	148.5	↓ –11	↓ –12	↓ –21	
	70–79	636	472	444	298.0	230.5	226.2	↓ –23	↓ –2	↓ –24	
	80+	167	162	156	309.2	301.1	281.2	↓ –3	↓ –7	↓ –9	



I20–24: AIHD (contd)										
Female	All ages	1 646	1 441	1 304	18.7	16.1	14.4	↓ –14	↓ –11	↓ –23
Age groups	30–44	85	55	36	4.6	2.9	1.9	↓ –36	↓ –36	↓ –59
	45–59	248	198	197	16.0	12.6	12.4	↓ –21	↓ –2	↓ –23
	60–69	367	372	308	65.9	61.6	47.2	↓ –7	↓ –23	↓ –28
	70–79	594	530	458	151.8	139.2	124.4	↓ –8	↓ –11	↓ –18
	80+	343	277	300	242.2	198.7	211.4	↓ –18	↑ 6	↓ –13
I60–64: STROKES										
		Number of deaths			Crude death rate per 100 000			Change of crude death rate (%)		
		2013	2014	2015	2013	2014	2015	2013–2014	2014–2015	2013–2016
Male	All ages	4 358	3 931	3 706	53.0	47.1	43.7	↓ –11	↓ –7	↓ –18
Age groups	30–44	291	301	265	16.5	16.8	14.5	↑ 2	↓ –14	↓ –12
	45–59	1 337	1 226	1 180	99.4	89.8	85.1	↓ –10	↓ –5	↓ –14
	60–69	1 193	1 115	1 072	304.5	263.2	234.7	↓ –14	↓ –11	↓ –23
	70–79	1 119	930	794	524.4	454.1	404.6	↓ –13	↓ –11	↓ –23
	80+	336	276	332	622.1	512.9	598.5	↓ –18	↑ 17	↓ –4
Female	All ages	4 090	3 645	3 483	46.4	40.8	38.4	↓ –12	↓ –6	↓ –17
Age groups	30–44	173	142	134	9.4	7.6	7.0	↓ –19	↓ –7	↓ –25
	45–59	796	792	705	51.2	50.3	44.2	↓ –2	↓ –12	↓ –14
	60–69	870	831	843	156.2	137.6	129.2	↓ –12	↓ –6	↓ –17
	70–79	1 432	1 194	1 046	365.9	313.5	284.1	↓ –14	↓ –9	↓ –22
	80+	756	643	703	533.8	461.2	495.3	↓ –14	↑ 7	↓ –7
J41–43: CHRONIC BRONCHITIS AND EMPHYSEMA										
		Number of deaths			Crude death rate per 100 000			Change of crude death rate (%)		
		2013	2014	2015	2013	2014	2015	2013–2014	2014–2015	2013–2016
Male	All ages	197	144	124	2.4	1.7	1.5	↓ –28	↓ –15	↓ –39
Age groups	30–44	6	3	6	0.3	0.2	0.3	↓ –51	↑ 96	↓ –4
	45–59	23	17	16	1.7	1.2	1.2	↓ –27	↓ –7	↓ –33
	60–69	48	40	23	12.3	9.4	5.0	↓ –23	↓ –47	↓ –59
	70–79	94	60	48	44.0	29.3	24.5	↓ –33	↓ –17	↓ –44
	80+	25	23	39	46.3	42.7	54.1	↓ –8	↑ 27	↑ 17
Female	All ages	134	130	129	1.5	1.5	1.4	↓ –4	↓ –2	↓ –6
Age groups	30–44	3	1	1	0.2	0.1	0.1	↓ –67	↓ –2	↓ –68
	45–59	8	4	3	0.5	0.3	0.2	↓ –51	↓ –26	↓ –63
	60–69	17	12	12	3.1	2.0	1.8	↓ –35	↓ –7	↓ –40
	70–79	57	52	50	14.6	13.7	13.6	↓ –6	↓ –1	↓ –7
	80+	49	60	63	34.6	43.0	44.4	↑ 24	↑ 3	↑ 28

A15–16: RESPRATORY TUBERCULOSIS

		Number of deaths			Crude death rate per 100 000			Change of crude death rate (%)		
		2013	2014	2015	2013	2014	2015	2013–2014	2014–2015	2013–2016
Male	All ages	658	559	448	8.0	6.7	5.3	↓ –16	↓ –21	↓ –34
	30–44	250	226	161	14.2	12.6	8.8	↓ –11	↓ –30	↓ –38
	45–59	248	209	180	18.4	15.3	13.0	↓ –17	↓ –15	↓ –30
	60–69	63	54	60	16.1	12.7	13.1	↓ –21	↑ 3	↓ –18
	70–79	31	22	14	14.5	10.7	7.1	↓ –26	↓ –34	↓ –51
	80+	3	3	1	5.6	5.6	1.8	–	–	–
Female	All ages	214	198	137	2.4	2.2	1.5	↓ –9	↓ –32	↓ –38
	30–44	82	79	55	4.5	4.2	2.9	↓ –5	↓ –32	↓ –35
	45–59	55	47	28	3.5	3.0	1.8	↓ –16	↓ –41	↓ –50
	60–69	20	17	15	3.6	2.8	2.3	↓ –22	↓ –18	↓ –36
	70–79	13	15	11	3.3	3.9	3.0	↑ 19	↓ –24	↓ –10
	80+	3	2	4	2.1	1.4	2.8	–	–	–

The decline for total mortality (all causes) is greater for men (8%) than women (5%) and is higher in younger age groups for both genders, especially among people aged 30–44 years (15% for men and 11% for women). Mortality increased among women aged 70–79.

Lung cancer is the best-known tobacco-attributable disease. Trends in respiratory cancer mortality in Kazakhstan between 2013 and 2015 were quite different for men and women: mortality declined in all age groups for men, but there was almost no lung cancer mortality decline among women aged 30–69 years. Research reveals that the difference in lung cancer risk in former smokers compared with otherwise similar current smokers becomes apparent only 5–9 years after quitting (11), meaning observed changes in respiratory cancer mortality most probably reflect old changes in smoking prevalence.

Health in Times of Transition surveys (12) conducted in 2001 and 2010 among people aged 18 years or more in Kazakhstan showed that prevalence of current smoking had decreased among men from 65.3% to 51.2% but had remained stable for women at 9.3% in both years.

Crude death rates for AIHD are much higher among males, especially in younger age groups (Table 5), but the decline in AIHD mortality between 2013 and 2015, while similar for most age groups among men and women, was lower for the oldest age group. WHO estimates suggest the proportion of ischaemic heart disease deaths attributable to tobacco is rather high in Kazakhstan (see Table 4) and is higher among middle-age groups.

While female smoking prevalence in Kazakhstan is much lower than for men, research has revealed that women could be nearly twice as responsive to cigarette taxes (13). It is

therefore quite reasonable to suggest that the observed decline of AIHD mortality in men and women is at least partly caused by the tobacco-consumption decline.

Stroke death rates in Kazakhstan are higher among men, although not as high as for other tobacco-related diseases. Stroke mortality trends are similar to those of AIHD in that declines are observed in most age groups for men and women, except for the oldest. Such patterns raise the hypothesis that AIHD and stroke mortality declines were caused by the same factors.

Kazakhstan mortality data show a very high number of deaths coded J44 (other COPD) – 12 644 in 2015. Crude rates of deaths coded J44 increased in all age and gender groups between 2013 and 2015. The WHO European mortality database (14) shows that the COPD standardized death rate (SDR) between 2010 and 2015 increased more than three-fold (from 36 to 118 per 100 000). The SDR for COPD in Kazakhstan in 2013 was 111, which was five-fold higher than the European average of 21 and more than two-fold higher than in Kyrgyzstan (49 per 100 000). With such inconsistency in COPD death rates (probably caused by problems with registration of this cause of death), recent (post-2011) COPD data cannot be used for mortality trend analysis in Kazakhstan.

Mortality from chronic bronchitis and emphysema (J41–43) and respiratory tuberculosis (A15–16) greatly decreased in most age groups for men and women, except the oldest, for whom it mainly increased (Table 5). The change patterns are similar to those of AIHD and stroke.

Mortality rates for some tobacco-related causes of death substantially declined in Kazakhstan between 2013 and 2015 among men and women aged 30–79 years: it was down by about 20% for AIHD and strokes and 30–40% for chronic bronchitis and emphysema, and respiratory tuberculosis. Extents of declines for most of these causes of death are similar for men and women in most age groups, but as numbers of deaths due to most tobacco-related causes are much higher among men, the number of prevented deaths is greater for men.

Other factors may have had an impact on the observed mortality decline, but decreased tobacco consumption in 2014/2015 could have made a substantial contribution. The decrease was induced by the high excise tax increase, which caused reduction in tobacco affordability and consequent decline in tobacco sales and smoking prevalence in the country.

The greater mortality decline among males aged 30–69 in 2014 could also be caused by the decline in alcohol consumption. Excise rates for spirits in Kazakhstan were increased two-fold in 2014 with some mortality decline observed, especially among young males, for:

- 1 direct alcohol causes of death (alcoholic liver disease; mental and behavioural disorders due to use of alcohol);

- 2 indirect alcohol internal causes of death (fibrosis and cirrhosis of liver; cardiomyopathy; acute pancreatitis); and
- 3 indirect alcohol external causes of death (transport accidents; suicides; poisoning by unspecified chemicals).

More detailed research is needed to estimate the decline in alcohol-attributable mortality.

Outcomes and perspectives on tobacco excise taxation policies in Kazakhstan

Smoking prevalence and tobacco consumption in Kazakhstan increased between 2003 and 2007 as excise rates were very low. Excise rates increased annually between 2007 and 2012, but tobacco consumption and smoking prevalence remained stable. Only in 2014/2015 did cigarette sales and smoking prevalence decline.

Tobacco consumption declines when cigarettes become less affordable. The reduction in affordability can be caused by the following factors:

- 1 a tobacco excise increase, which results in increasing the cigarette price above income growth;
- 2 the tobacco industry increasing the non-tax part of the cigarette price; and
- 3 population income decline.

All three factors reduce cigarette consumption and sales, but only the first brings an increase in government excise revenues.

As Kazakhstan uses a specific excise system, the tobacco industry can achieve large profits by increasing the (net-of-tax) part of the cigarette price. Such increases potentially can decrease volumes of cigarettes sales and would be beneficial for public health, but without tax-rate increases, excise revenues will decline.

All three factors mentioned above contributed to the tobacco affordability reduction in 2015: the excise rate increased by 28%; the industry increased its price by 20% (see Table 3); and nominal income growth (3.6%) was below the inflation rate (6.6%). The respective figures in 2014 were excise 94%, industry price 9%, income 6.8% and inflation 6.7%. Excise growth was therefore the dominant factor in reducing tobacco affordability in 2014, while the industry's pricing policy and population income were much greater contributors in 2015. The

tobacco affordability reduction and cigarette sales decline had similar magnitudes in both years, but the increase in excise revenue was much higher in 2014.

According to the current Tax Code, annual increases in excise rates in 2015/2016 constituted 28–30% and annual increases from 2017 to 2019 will be only 19–24% (see Table 1). This actually signals a return to the policies of 2010–2013, which increased revenue but did not produce public health benefits.

Kazakhstan has the sovereign right to determine and establish its taxation policies (including the level of tax rates to apply, and the structure and system of tobacco taxes), taking national circumstances into account to achieve public health, fiscal and other objectives (3). Tobacco taxation policy in neighbouring countries should also be considered.

Excise rates and cigarette prices in neighbouring countries

Comparison of excise rates and cigarette prices in Kazakhstan and neighbouring countries (Table 6) reveals that taxes in Kazakhstan are higher than in Kyrgyzstan and Uzbekistan, but lower than in the Russian Federation and Turkmenistan. The current exchange rate for the tenge, however, means that cigarettes in Kazakhstan in dollar terms are cheaper than in most neighbouring countries.

Such price differences encourage movement (both licit and illicit) of taxed cigarettes from countries with lower prices, so cigarette **outflow from** Kazakhstan could be much greater than cigarette **inflow to** the country. Price differences are not the only factor in the phenomenon of cigarettes being taxed in one country but smoked in another.

	Specific excise rate per 1 000 cigarettes (January 2017)		Ad valorem excise (%)	VAT (%)	Price of a pack of Winston (July 2016)	
	National currency	US\$			National currency	US\$
Kazakhstan	6 200	18.8	0	12	310	0.91
Kyrgyzstan	1 000	14.4	0	12	50	0.72
Russian Federation	2 123	35.8	12	18	100	1.54
Turkmenistan	–	25.0	30	20	10	2.86
Uzbekistan	37 432	11.5–18.2 (import)	0	20	6 500	2.18

TABLE 6.
Excise rates and cigarette prices in Kazakhstan and neighbouring countries

The GATS report (9) states that there were 2.4 million daily cigarette smokers in Kazakhstan in 2014, on average smoking 14.9 cigarettes a day. The estimate for number of cigarettes smoked in 2014 therefore is:

$$2.4 * 14.9 * 365 = 13 \text{ billion cigarettes.}$$

The number of taxed cigarettes in 2014 was much greater (see Table 1), so a large part of the cigarettes taxed in Kazakhstan were eventually smoked in other countries. Tobacco excise

hikes in Kazakhstan therefore not only reduce tobacco consumption within the country, but also decrease the total number of cigarettes taxed in Kazakhstan but smoked in other countries.

Cigarette excise rates have been increased in three of the neighbouring countries in recent years.

Uzbekistan increased cigarette excise rates by 50% from January 2016 and 30% from January 2017.

In **Kyrgyzstan**, the minimum excise rate for filter cigarettes between 2009 and 2014 was increased four-fold and tobacco excise revenue five-fold (15). The only tobacco factory in the country was closed in 2014. The excise rate was increased again from May 2015 and further increased by 33% from January 2017.

The average cigarette excise rate in the **Russian Federation** increased 4.8-fold between 2010 and 2015 and annual tobacco excise revenues grew from 108 billion rubles in 2010 to 386 billion in 2015. The cigarette market decreased by 22% (or 83 billion cigarettes), from 377 billion in 2010 to 294 billion in 2015. Smuggling and counterfeiting, according to tobacco industry estimates, comprised 1.1% of the market in 2015, or 3 billion cigarettes. These data confirm the general trend that tobacco excise hikes can increase illicit cigarette consumption, but the increase will be much smaller than the decline in legal consumption, and total cigarette consumption will reduce.

The Russian Federation increased tobacco excise rates in 2015, 2016 and 2017, but only by 27% annually (against increases in previous years of 40%). Low excise rates in Belarus and Kazakhstan were presented as the main argument for slowing down rates of excise increases in the Russian Federation, so harmonization of tobacco excise increases has been proposed for these countries.

Eurasian Economic Union

Kazakhstan is a member of the Eurasian Economic Union.

The draft agreement of principles for tobacco excise tax policy implementation in the countries of the Eurasian Economic Union was published in October 2015 (16). Article 4 proposes indicative, minimum and maximum cigarettes excise tax rates for 2016–2020, expressed in euro. The proposed rates are presented in Table 7.

Established excise rates in Kazakhstan (see Table 1) in 2016 were below the proposed minimum rates. Excise rates adopted for 2017–2019 are slightly above the minimum rates, but are well below the indicative rates.

The rates proposed in the draft agreement set the annual increase for the minimum excise rates in the range 13–19% (see Table 5), but even in 2020 the rates will constitute €27.2–5.2 per 1000 cigarettes, while the European Union has a minimum rate of €90 for every member. The experience of Belarus, Kazakhstan, the Russian Federation and other countries reveals that given their inflation rates, the annual excise increase should exceed 30% to ensure declines in tobacco affordability.

	Indicative rate per 1 000 cigarettes		Allowed decrease of the indicative rate (%)	Allowed minimum rate per 1 000 cigarettes		
	Euro	Tenge ^a		Euro	Tenge ^a	Increase of minimum rate (%)
2016	22	7 810	30	15.4	5 467	–
2017	25	8 875	30	17.5	6 213	14
2018	27	9 585	25	20.25	7 189	16
2019	30	10 650	20	24	8 520	19
2020	32	11 360	15	27.2	9 656	13

TABLE 7.
Excise tax rates proposed in the Eurasian Economic Union draft agreement

Perspectives on tobacco excise taxation policies in Kazakhstan in 2018

A model of excise tax rates is proposed to illustrate the potential of increases. The model estimates the impact of tobacco taxation policy on tobacco consumption and revenue in 2016 and three scenarios of excise-rate increase in 2018:

- 1 excise rate will increase to 7500 tenge per 1000 cigarettes (as stated by the current legislation), or by 21%;
- 2 excise rate will increase to 9600 tenge per 1000 cigarettes (the indicative rate proposed in the Eurasian Economic Union draft agreement for 2018), or by 55%; or
- 3 excise rate will increase to 11 400 tenge per 1000 cigarettes (the indicative rate proposed in the Eurasian Economic Union draft agreement for 2020), or by 84%, repeating the successful tax hike of 2014.

The following assumptions are used for the model:

- the inflation rate in 2017 and 2018 will be 6% (average rate for 2012–2015);
- the PRP will increase in line with inflation; and
- the population income increase in 2017 and 2018 will be 6.5% (average for 2013–2015).

Based on these assumptions, average cigarette prices and the tobacco affordability index for 2016 and three options in 2017 were estimated (Table 8).

	2014	2015	2016	2017	2018-1	2018-2	2018-3
Cigarette pack price	241.0	296.0	324.0	364.0	407.0	454.0	494.0
CPI (December to December)	107.4	113.6	108.5	106.0	106.0	106.0	106.0
Excise	60.0	78.0	100.0	124.0	150.0	192.0	228.0
VAT	26.0	32.0	35.0	39.0	44.0	49.0	53.0
PRP	155.0	186.0	189.0	201.0	213.0	213.0	213.0
PRP increase	109.1	120.0	101.6	106.2	106.2	106.1	106.0
Cigarette price increase	124.2	122.8	109.5	112.3	111.8	124.7	135.7
Income increase	106.8	103.6	106.5	106.5	106.5	106.5	106.5
TAI	-14.0	-15.7	-2.7	-5.2	-4.8	-14.6	-21.5

TABLE 8.
Excise tax rates
proposed in
the Eurasian
Economic Union
draft agreement

As can be seen in 2017 and 2018 (scenario 1), tobacco affordability does not decrease much, leading to expectations of a rather small decline in tobacco consumption. Scenarios 2 and 3 for 2018 provide for a much greater decline in tobacco affordability and so have higher potential for reduction in tobacco consumption.

Tobacco excise revenue for 2017 and each scenario in 2018 was also estimated (Table 9). The model assumes that a high tobacco-affordability reduction will lead to cigarette **outflow out of** the country decreasing and cigarette **inflow into** the country increasing, with both processes reducing the number of taxed cigarettes. As there were no reliable estimates of outflow and inflow, the levels used in Table 9 are assumptions based on the information presented above. Actual levels will depend on enforcement activities against illicit sales, taxation policies in neighbouring countries, currency exchange rates and other factors.

	2014	2015	2016	2017	2018-1	2018-2	2018-3
Consumption, billion cigarettes	23.0	22.0	22.5	22.0	21.5	20.0	19.0
Outflow out of the country, billion cigarettes	4.0	3.5	3.5	3.5	3.5	3.0	2.5
Inflow into the country, billion cigarettes	1.0	1.0	1.0	1.0	1.0	1.5	2.0
Taxable sales, billion cigarettes	26.0	24.5	25.0	24.5	24.0	21.5	19.5
Excise rate, tenge per 1 000 cigarettes	3 000.0	3 900.0	5 000.0	6 200.0	7 500.0	9 600.0	11 400.0
Revenue, billion tenge	78.0	96.0	125.0	152.0	180.0	206.0	222.0

TABLE 9.
Forecast of
consumption
and revenue
impacts of the
model taxation
policies

Tobacco excise revenue will increase across all options in 2017 and 2018, but options 2 and 3 for 2018 provide higher revenue increases and greater declines in tobacco consumption. The possible additional revenue (about 25–40 billion tenge) could be used for different purposes, including national health insurance. The forecast figures are based on several assumptions, but reveal trends that are very similar to those observed recently in Kazakhstan and other countries.

Conclusions

In 2014, Kazakhstan implemented a tax policy on tobacco products that contributed to achieving health objectives aiming to reduce tobacco consumption. The excise rate was increased by 94%, which increased cigarette prices sufficiently to decrease tobacco affordability and cause declines in tobacco sales and smoking prevalence in the country. Tobacco excise revenues more than doubled in two years. This taxation policy was fully in line with WHO FCTC provisions.

In previous years, however, Kazakhstan followed a policy of moderate tobacco excise growth. Experience showed that the policy ensured neither increased revenues nor a reduction in tobacco consumption. Tobacco excise revenues increased between 2007 and 2013, but by too little to decrease tobacco affordability (taking into account inflation and changes in incomes) and tobacco consumption.

Kazakhstan returned to a policy of moderate tax increases in 2015/2016. The reduction in tobacco affordability in 2015 was caused not only by the excise increase, but also the tobacco industry pricing policy and decline in real incomes. Tobacco consumption in Kazakhstan decreased in 2015, but the revenue increase was smaller than expected. A moderate excise rise in 2016 could not ensure a real (inflation-adjusted) cigarette price increase and tobacco sales started to grow again.

Experience of previous years shows that a policy of moderate (20–30% annually) excise increases cannot ensure tobacco consumption reductions and revenue increases. The planned annual cigarette excise increase for 2017–2019, however, is only 19–24%.

Mortality rates of some tobacco-related causes of death substantially declined in Kazakhstan in 2013–2015 among men and women aged 30 to 79 years: by about 20% for AIHD and strokes and 30–40% for respiratory tuberculosis, chronic bronchitis and emphysema.

Increasing tobacco taxes, which reduces tobacco affordability and tobacco consumption, is an effective way of reducing mortality in the country, especially among middle-aged people. Mortality for some causes of death begins to decline in the first years after the tobacco consumption reduction. Further increasing tobacco excise rates can reinforce the health benefits.

Kazakhstan has great potential to increase tobacco excise rates in subsequent years to contribute to health objectives aiming to reduce tobacco consumption. The greater the excise tax increase, the larger the reduction in tobacco consumption and the higher tobacco excise revenue growth will be.

References

1. Фактические поступления по налогам и платежам в государственный бюджет за 2002–2016 гг [Actual income taxes and payments to the state budget for 2002–2016] [online database]. Astana: State Revenue Committee of the Ministry of Finance of the Republic of Kazakhstan; 2017 (<http://kgd.gov.kz/ru/content/fakticheskie-postupleniya-po-nalogam-i-platezham-v-gosudarstvennyy-byudzheth-za-2002-2016-gg>, accessed 2 February 2017).
2. European detailed mortality database [online database]. Copenhagen: WHO Regional Office for Europe; 2016 (<http://data.euro.who.int/dmdb/>, accessed 2 February 2017).
3. Guidelines for implementation of Article 6 of the WHO FCTC. Geneva: World Health Organization; undated (http://www.who.int/fctc/guidelines/adopted/Guidelines_article_6.pdf, accessed 2 February 2017).
4. Krasovsky K. Tobacco taxation policy in three Baltic countries after the EU accession. Tobacco Control and Public Health in Eastern Europe 2012;2(2):81–98.
5. The economics of tobacco and tobacco control. National Cancer Institute tobacco control monograph 21. Bethesda (MD), Geneva: U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute, World Health Organization; 2016 (NIH Publication No. 16-CA-8029A; https://cancercontrol.cancer.gov/brp/tcrb/monographs/21/docs/m21_complete.pdf, accessed 2 February 2017).
6. Zhylkaidarova A, Nurguzhayev K. Expansion of the Quit&Win competition in Kazakhstan as the instrument of the building capacity for a tobacco-free society. In: The 13th World Conference on Tobacco OR Health, Washington (DC), 12–15 July 2006 [website]. Atlanta (GA): American Cancer Society; 2006 (<https://2006.confex.com/uicc/wctoh/techprogram/P3865.HTM>, accessed 2 February 2017).
7. Kazakhstan. 2014 report. In: FCTC implementation database, 2014 [online database]. Geneva: World Health Organization; 2014 (<http://apps.who.int/fctc/implementation/database/parties/Kazakhstan#>, accessed 2 February 2017) (report in Russian).
8. АНОНС к проведению круглого стола по обсуждению результатов VI Национального социологического исследования по определению распространенности поведенческих факторов риска среди населения Казахстана [ANNOUNCEMENT to hold a round table to discuss the results of VI national sociological study to determine the prevalence of behavioral risk factors among the population of Kazakhstan] [website]. Almaty: National Centre for Problems of Healthy Lifestyle of the Ministry of Health and Social Development of the Republic of Kazakhstan; 2016 (http://www.hls.kz/announcements_2_2/, accessed 2 February 2017) (in Russian).

9. Global Adult Tobacco Survey (GATS). The Republic of Kazakhstan, 2014 country report. Almaty: Ministry of Healthcare and Social Development of the Republic of Kazakhstan; 2014 (http://www.who.int/entity/tobacco/surveillance/survey/gats/kaz_countryreport_en.pdf?ua=1, accessed 2 February 2017).
10. WHO global report: mortality attributable to tobacco. Geneva: World Health Organization; 2012 (http://www.who.int/tobacco/publications/surveillance/rep_mortality_attributable/en/, accessed 2 February 2017).
11. Reversal of risk after quitting smoking. Lyon: International Agency for Research on Cancer; 2007 (IARC Handbooks of Cancer Prevention, Volume 11; <http://www.iarc.fr/en/publications/pdfs-online/prev/handbook11/>, accessed 2 February 2017).
12. Roberts B, Gilmore A, Stickley A, Rotman D, Prohoda V, Haerpfer C et al. Changes in smoking prevalence in 8 countries of the former Soviet Union between 2001 and 2010. *Am J Public Health* 2012;102(7):1320–8.
13. Stehr M. The effect of cigarette taxes on smoking among men and women. *Health Econ.* 2007;16:1333–43. doi:10.1002/hecl.1223.
14. European mortality database (MDB). Updated July 2016. Copenhagen: WHO Regional Office for Europe; 2016 (<http://data.euro.who.int/hfamdb/>, accessed 2 February 2017).
15. Krasovsky K. Tobacco taxation policy in Kyrgyzstan. Copenhagen: WHO Regional Office for Europe; 2015 (http://www.euro.who.int/__data/assets/pdf_file/0006/293640/Tobacco-taxation-policy-Kyrgyzstan-en.pdf?ua=1, accessed 2 February 2017).
16. Проект. Соглашение о принципах ведения налоговой политики в области акцизов на табачную продукцию государств-членов Евразийского экономического союза [Project. Agreement on the principles of conducting fiscal policy in the field of excise duties on tobacco products Member States of the Eurasian Economic Union]. Moscow: Eurasian Economic Union; 2014 (https://docs.eaeunion.org/sites/storage1/Lists/PublicDiscussions/faa22d1e-150d-4765-ba68-fdf48434bc06/b5c8ba6f-08b6-4e93-9e30-91d461fa3a88_%D0%9F%D1%80%D0%BE%D0%B5%D0%BA%D1%82%20%D0%A1%D0%BE%D0%B3%D0%BB%D0%B0%D1%88%D0%B5%D0%B-D%D0%B8%D1%8F%20%D0%BF%D0%BE%20%D0%B0%D0%BA%D1%86%D0%B8%D0%B7%D0%B0%D0%BC%20%D0%BD%D0%B0%20%D1%82%D0%B0%D0%B1%D0%B0%D1%87%D0%BD%D1%83%D1%8E%20%D0-B-F%D1%80%D0%BE%D0%B4%D1%83%D0%BA%D1%86%D0%B8%D1%8E.pdf, accessed 2 February 2017).

