Review of HPV\cervical cancer Screening and treatment challenges in Eastern Europe and Central Asia:

Russia, Georgia, Belorussia, Ukraine, Moldova, Armenia, Azerbaijan, Uzbekistan, Kazakhstan, Kirgizstan.

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Disclosure

nothing to declare

Basic facts

- No system of epidemiological observation of HPV
- State statistics exists for anogenital warts and malignancy (somewhere CIS). No correlation with HPV. The cancer register is mainly based on oncological institutions data
- Data of HPV types are based on selective researches with various methodology and tools.
- Impact of HPV -46.7% are accounted for anogenital warts, cervical cancer - 19.5%, anal cancer - 15.6%, vulvar cancer - 2.3%, vaginal cancer - 0 , 5%, CIN- 15.5% (Chernova, 2018)
- System should consider psychosocial damage of patient with positive test results, additional clinical visits, overtreatment, risk of lost to follow up, etc.

AGW – the interdisciplinary problem

Country	Incidence anogenital warts	Reference
 Russia	18.8 cases per 100,000 population It is noted less intensive decrease in the incidence of anogenital venereal warts - 38.2%	Clinical guidelines, RODVK 2019 Briko N.I.,Kaprin A.D 2019; 21 (1): 45–50. DOI: 10.26442/18151434.2019.190199
 Belorussia	30 cases per 100,000 population (10,4%)	A.Navrotsky, M.Romashko et al, 2015

Georgia, Ukraine, Moldova, Armenia, Azerbaijan, Uzbekistan, Kazakhstan, Kirgizstan - *official statistics are not available*




Tests applied in screening and clinic

Pap tests

- LBC
- Papanicolau test (wet smear)
- Pappenheim test (dry smear)

Truescreen?

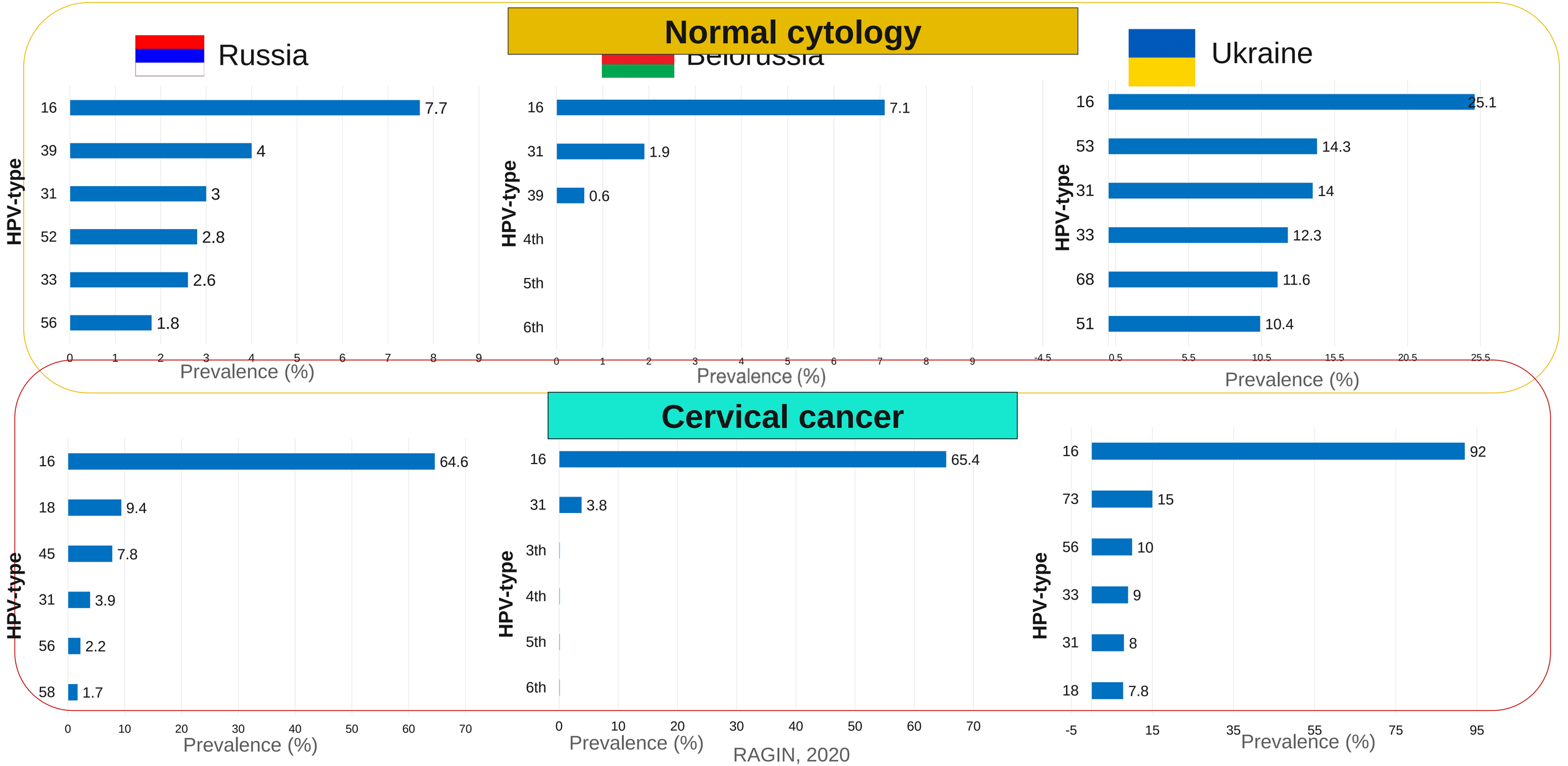
HPV tests

More than 90 tests are licensed
HR-HPV DNA tests, rare
HPV DNA -PCR **Real-time** (AmpliSens,Russia, Anyplex™, domestic tests) mainly
Hybrid Capture 2 HPV DNA-Test, expensive
HR-HPV E6/E7 mRNA tests, rare

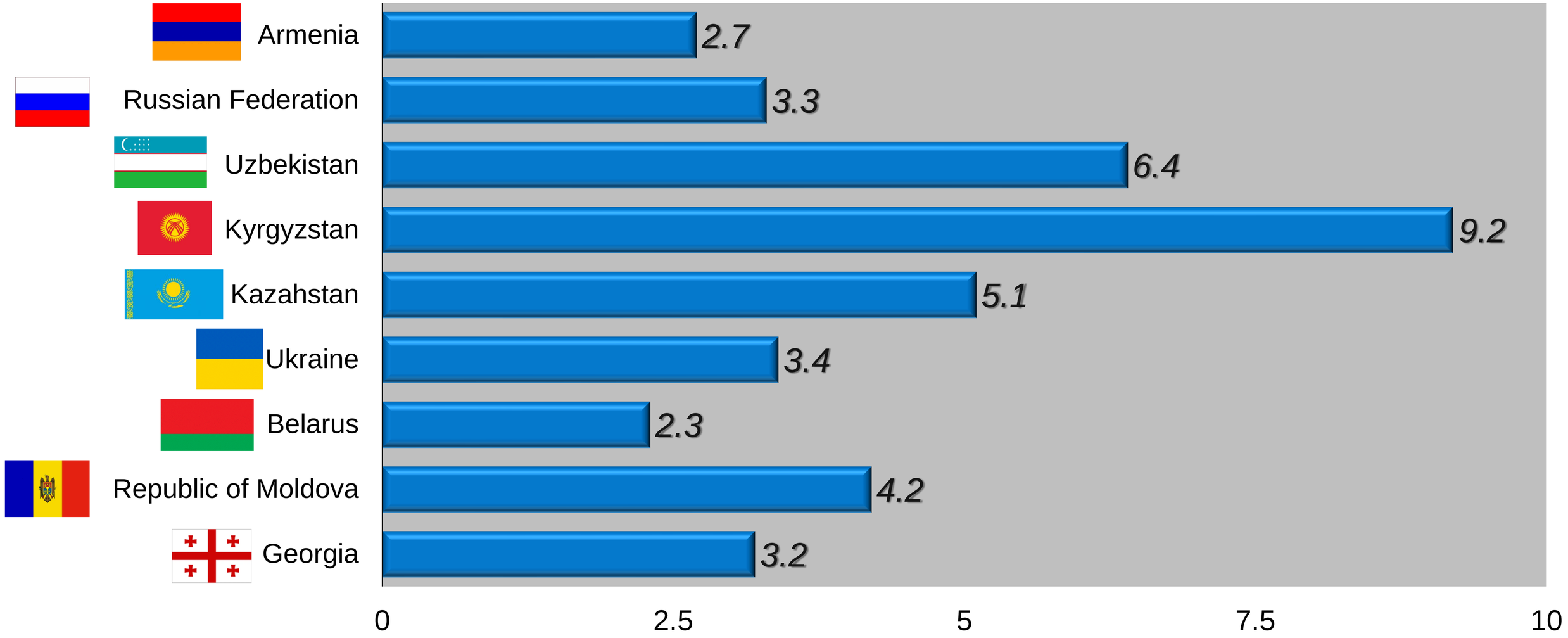
The burden of HPV infection in women with normal cytology by country (2015-2020)

	Prevalence range of HPV (%)	Population description	HPV test, Genotyping	Reference
 Russia	20,7%	General population	RT-PCR, AmpliSens	Ministry of Health Rosstat, 2016
 Belorussia	29%-54,2%	General population Gynecological patients	RT-PCR, AmpliSens	Ministry of Health statistics,2016 Stukalova et al, 2016 Talkovskaya et al, 2016
 Ukraine	40%	General population	RT-PCR, Anyplex™	Suhanova, 2016
 Moldova	15-20 %	General population	RT-PCR	Jarynowski, 2019
 Armenia	no data available	no data available	no data available	no data available
 Georgia	11,5%	General population	no data available	ICO/IARC Information Centre on HPV and Cancer
 Azerbaijan	8,7%	General population	RT-PCR, AmpliSens	Gadzhieva,2016
 Uzbekistan	18,1% -19,4%	General population Gynecological patients	RT-PCR RT-PCR, AmpliSens	Rakhmanova, 2020 Sharipova et al, 2016
 Kazakhstan	25%- 55,8%	General population Gynecological patients	RT-PCR, AmpliSens	Bekmukhambetov et al, 2016 Balmagambetova et al, 2019 Junerbayeva et al., 2015 Niyazmetova et al., 2017
 Kirgizstan	no data available	no data available	no data available	no data available

Comparison of the HPV oncogenic types among women with normal cytology and cervical cancer in RF , Belarus, Ukraine (Modified from ICO/IARC Information Centre on HPV and Cancer, 2019)



New cases cervical cancer (% from all cancers)



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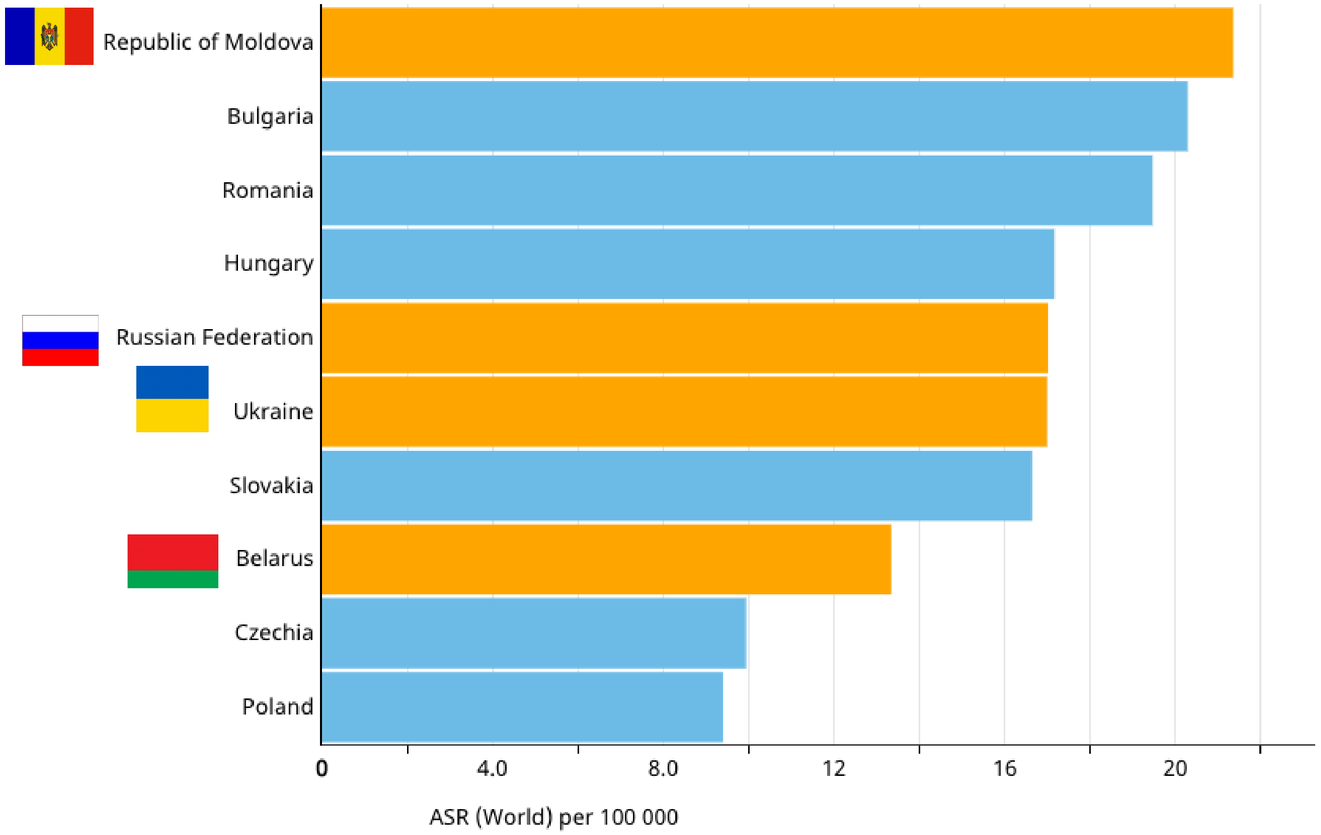
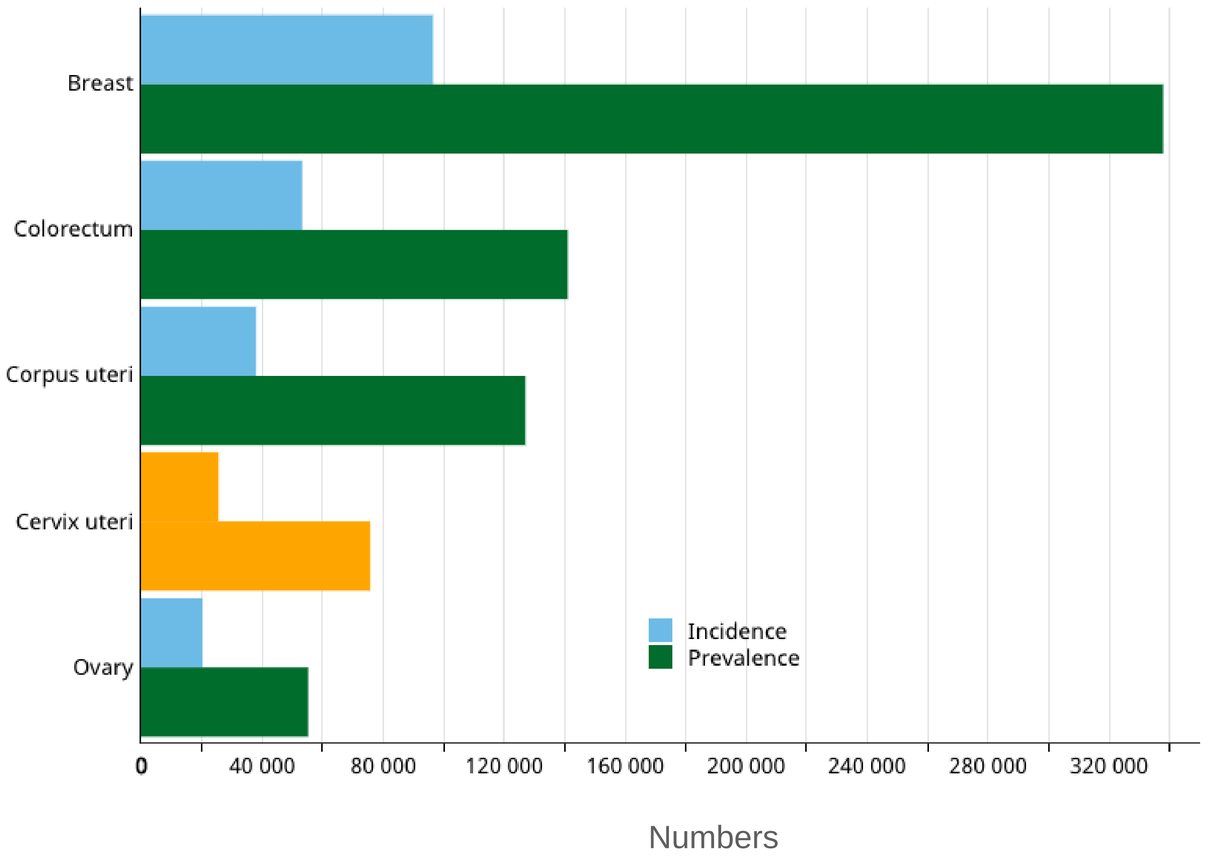
Modified The Global Cancer Observatory May, 2019

Epidemiology of cervical cancer in Central and Eastern Europa

Age-standardized incidence rates (World) in 2018, cervix uteri, females, all ages[1]



Average number of cases Belarus, Republic of Moldova, Russian Federation, Ukraine, females, all ages[2]



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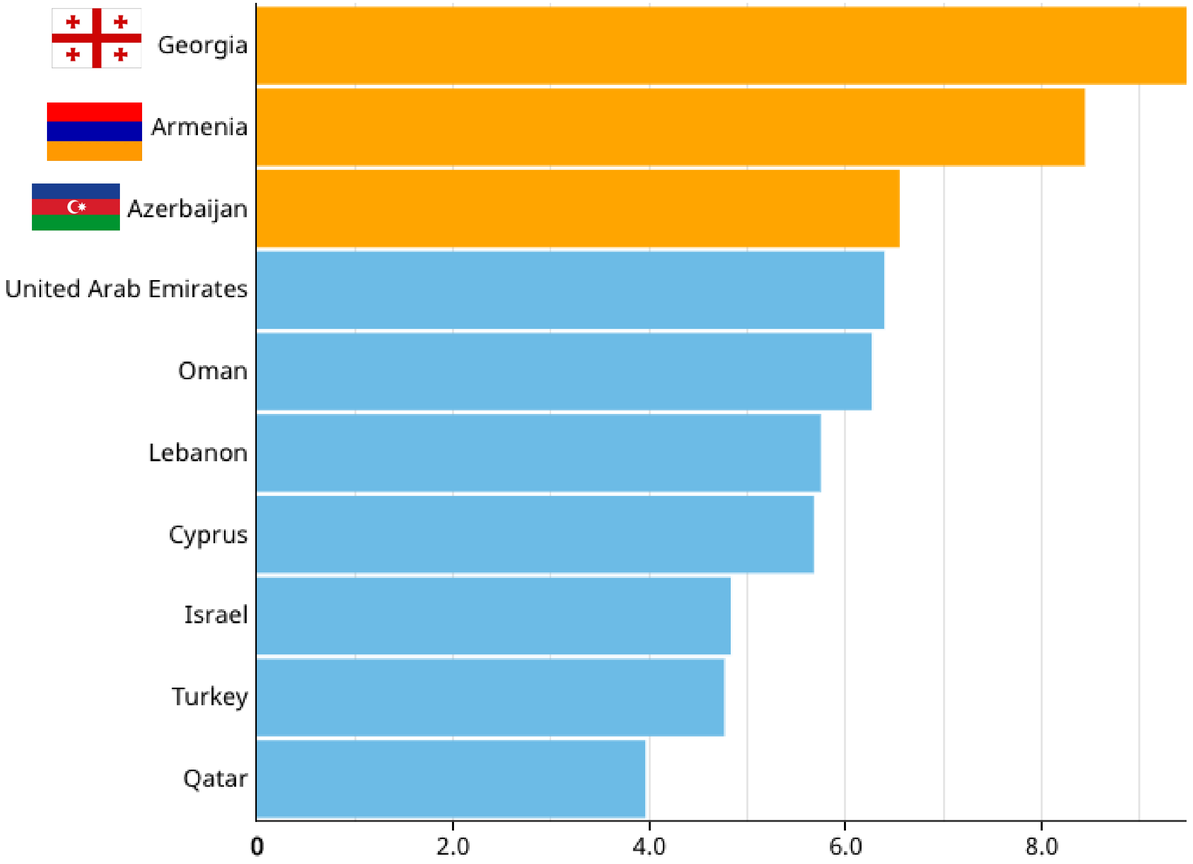
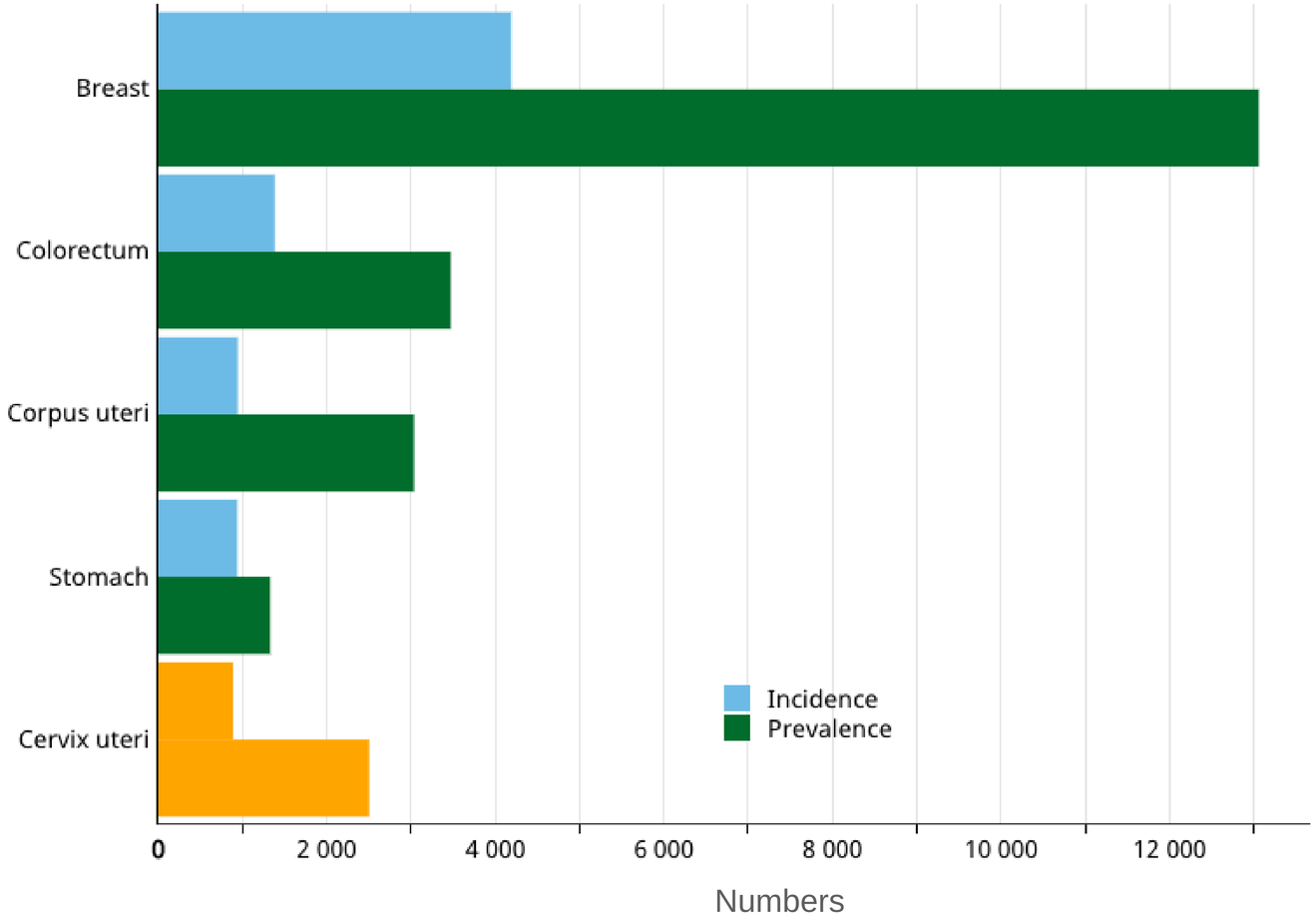
Epidemiology of cervical cancer in Western Asia

Estimated age-standardized incidence rates (World) in 2018, cervix uteri, females, all ages, Western Asia[1]



Average number of cases Armenia, Georgia, Azerbaijan, females, all ages[2]



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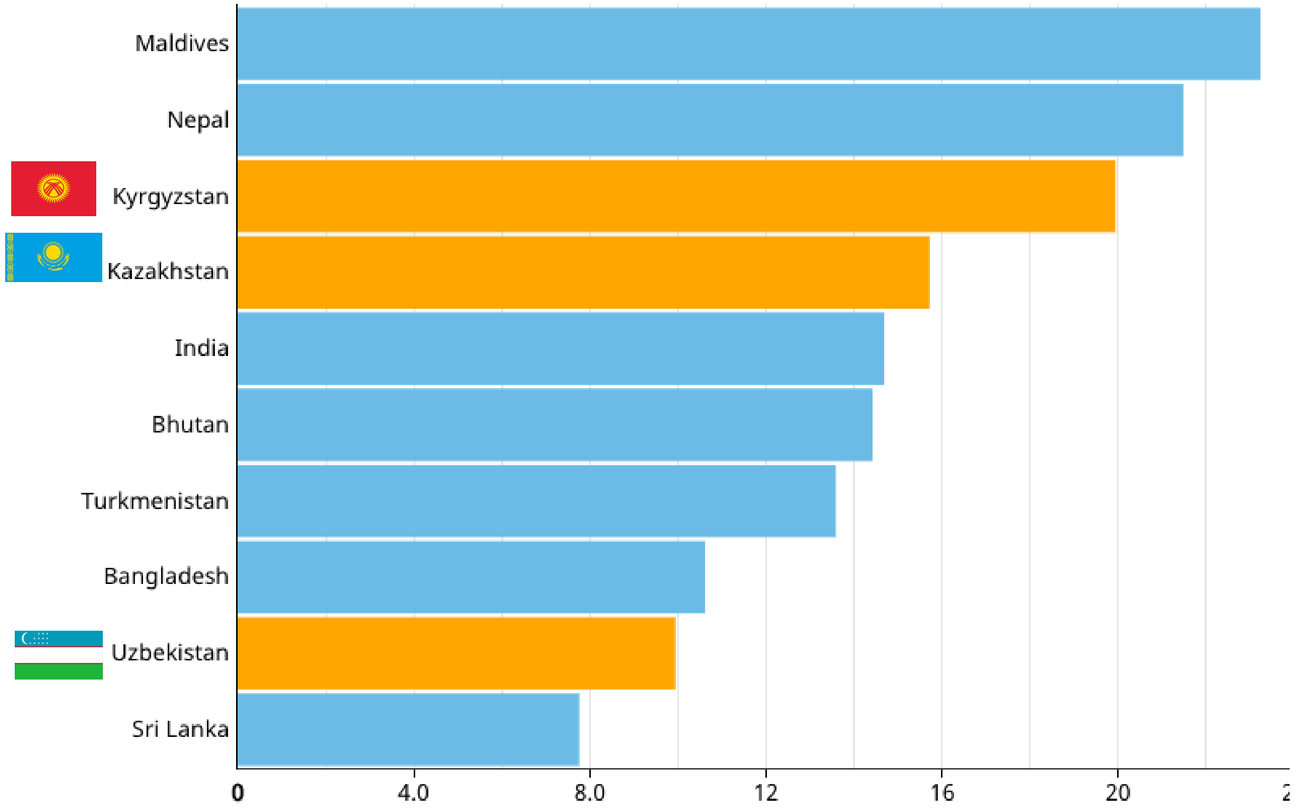
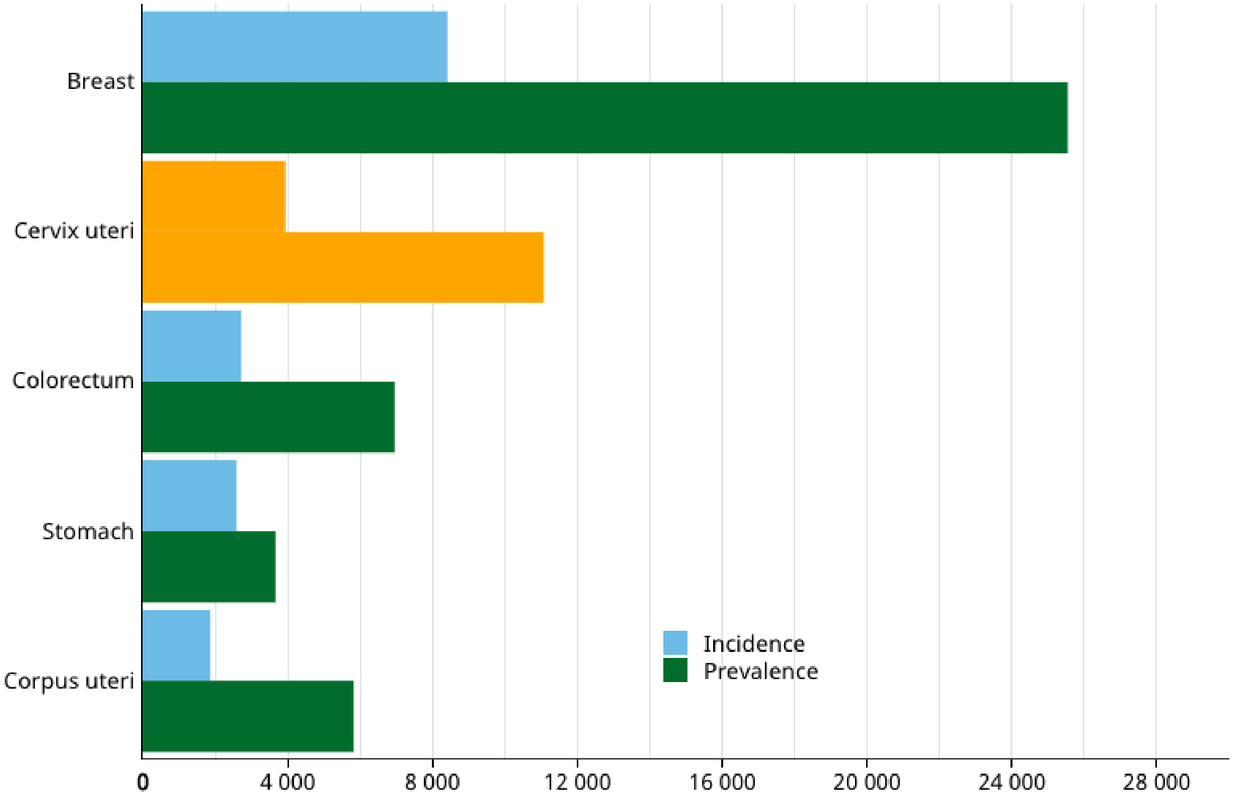
Epidemiology of cervical cancer in South-Central Asia

Estimated age-standardized incidence rates (World) in 2018, cervix uteri, females, all ages, South-Central Asia[1]



Average number of cases Uzbekistan, Kazakhstan, Kirgizstan, females, all ages[2]



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Cervical cancer incidence (2018)

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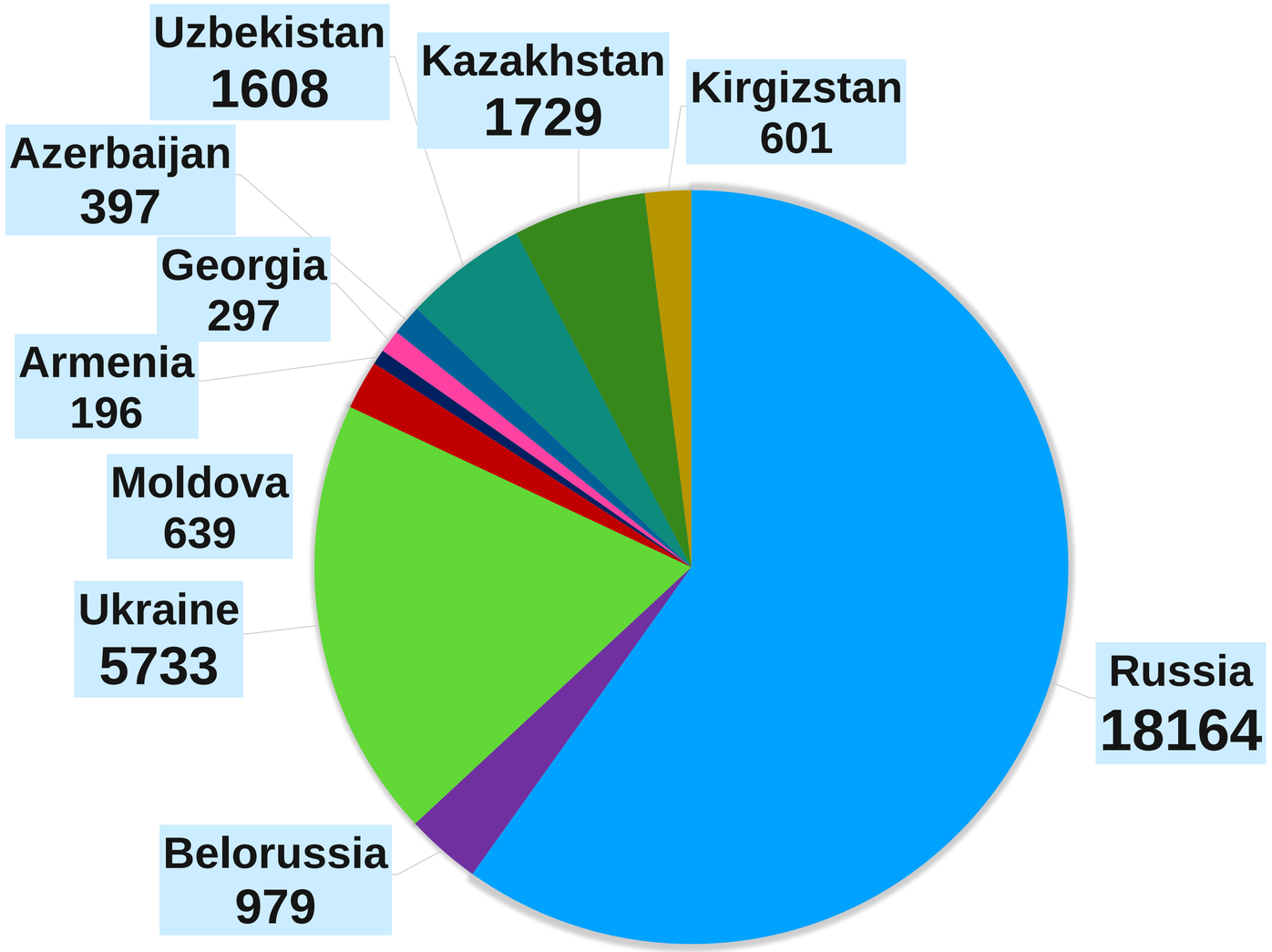
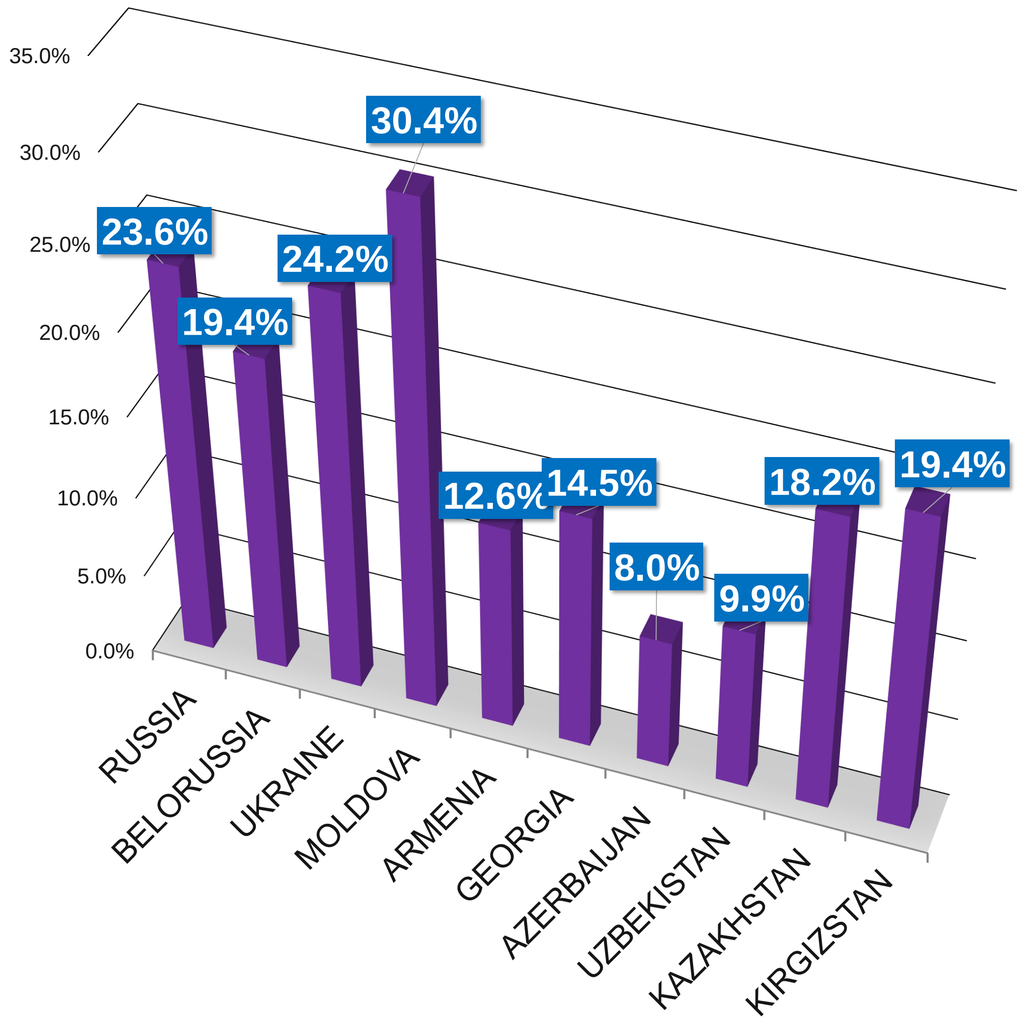
ANNUAL NUMBER OF NEW CANCER CASES



Crude incidence rate*

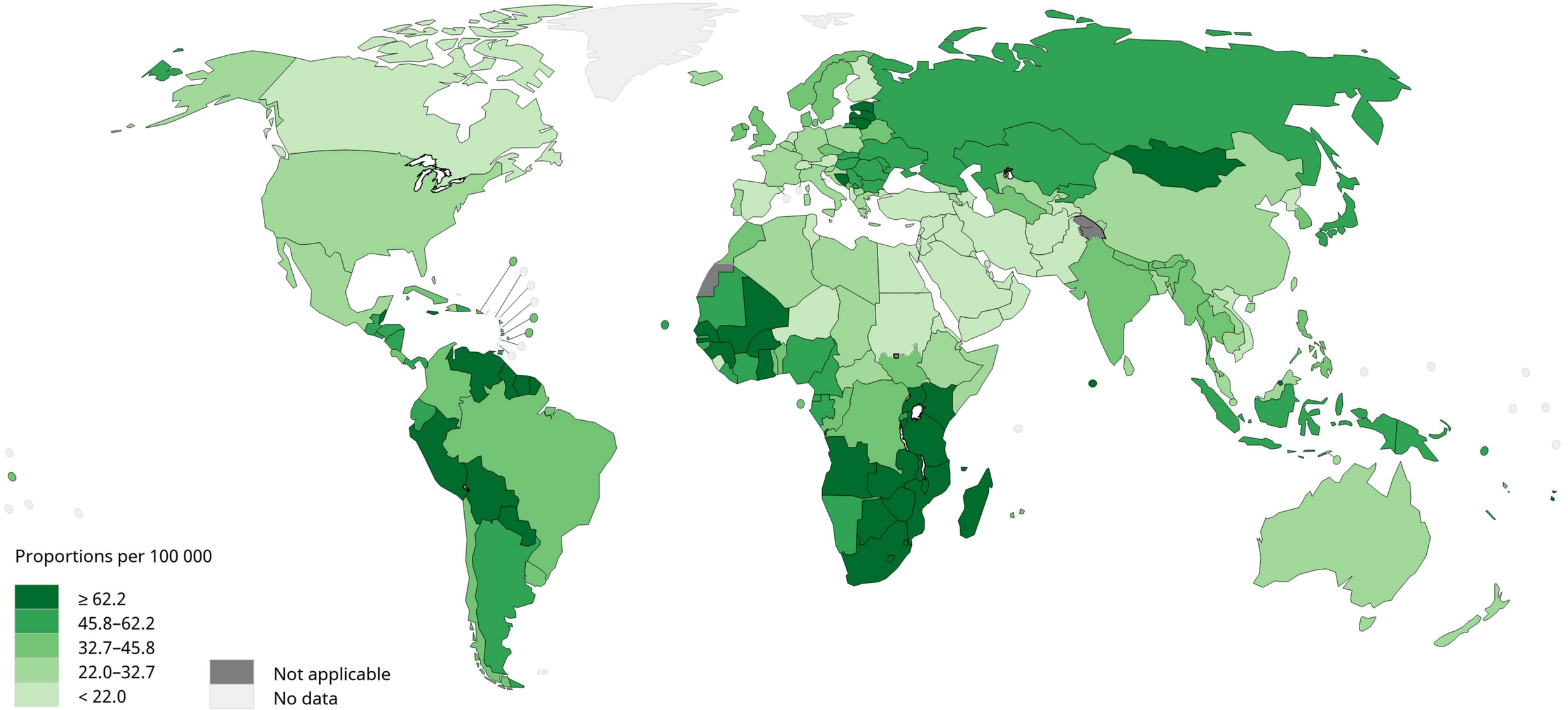


*Rates per 100,000 women per year

RAGIN, 2020

Modified The Global Cancer Observatory May, 2019.

Estimated number of prevalent cases (5-year) as a proportion in 2018, cervix uteri, all ages



Data source: GLOBOCAN 2018
Graph production: IARC
(http://gco.iarc.fr/today)
World Health Organization

Countries	*Prevalence HPV	**Rates cervical cancer per 100,000	Free HPV tests* **	free PAP-test * **	National HPV Immunization programme* **	Reference
Belorussia	30%	13.3/3.8 16,3\6,1	NO	Yes	NO	Globocan. Cancer incidence 2018 ICO/IARC HPV Information Centre 2019 Personal communication Mavrichev S.A. 2018
Ukraine	40% (n=10 000)	**17.0/6.6** 14.7/5.1	NO	Yes	NO	ICO/IARC HPV Information Centre 2019 Kolesnik O.O.2018 Bulletin of the national stationery-register of Ukraine no. 21 2020 Personal communication T Tatarchuk
Moldova	43.2%	21.4/7.9 16,2 \ 8,4	NO	Yes	NO Partial program	ICO/IARC HPV Information Centre 2019 Andrzej Jarynowski 2019 **doi:** https://doi.org/10.1101/19009886 Personal communication Vetrichyan Nadezhda 2018 Ulyana Tabuika 2018
Armenia	30%	8.4/5.6	NO	Yes	NO	ICO/IARC HPV Information Centre 2019 Kujoyan L. S. 2019 www.nih.am 2019 Personal communication L Kujoyan
Georgia		9.8/5.5	NO	Yes	NO	ICO/IARC HPV Information Centre2019
Azerbaijan	8,7% (n=206)	6,5/4.6 9.3	NO	NO	NO	ICO/IARC HPV Information Centre2019 Personal communication SH Alyev
Uzbekistan	18,1% (n=6431)	9.9/5.4	NO	NO	Yes 2019	ICO/IARC HPV Information Centre2019 According to the statistics of the Ministry of the Republic of Uzbekistan 2018 https://www.who.int/countries/uzb/en/ Rakhmanova, J. A. 2020
Kazakhstan	28.3	15.7/7.5 18.1	yes	Yes	NO/Partial program 2013 Planning in 2021	Personal communication Lokshin V.N. 2019 Gulzhanat Aimagambetova 2018
Kirgizstan	NO	19.9/10.9	NO	NO	NO	ICO/IARC HPV Information Centre2019
Russia	25	15.08/5.07	NO/Partial program	Yes	NO/Partial program 2013	Каприн А.Д., Старинский В.В., 2018 RAGIN, 2020 https://www.hse.ie/eng/health/immunisation/infomaterials/leafletstranslations/russianhpv.pdf.

Cervical cancer screening activities in *RF and former S U (HPVcenter 2019)*

Country	Screening age	Screening interval	Screening methods	Screening system	Registries	Coverage
Russian Federation	First intercourse or 18 years– No upper	Annually	Pap test with basic Romanowsky or H&E staining	Opportunistic; call-recall in few	National Cancer Registry, national and regional population registry	20–25%
Russian Federation Moscow	age limit 35–69 years	Every 3 years	Pap test with basic Romanowsky or MGG staining	regions on irregular basis Opportunistic screening program;	Moscow Cancer Registry, population registry	40–90%
Belarus	18 years– No upper age limit	Annually	Pap test	call-recall in few regions on irregular basis Opportunistic; no call-recall system	National Cancer Registry, population registry	75–80%
Republic of Moldova	20 years– No upper age limit	Every 2 years	Pap test	Opportunistic; no call-recall system	National population registry	Not available
Ukraine	18–65 years	Annually	Smear test with basic Romanowsky And Papanicolaou staining	Opportunistic; no call-recall system	National Cancer Registry, national population registry; registration in a computerized system in two regions	20–30%

Rogovskaya et al, 2013

Cervical cancer screening activities in *RF and former S U (HPVcenter 2010)*

Country	Screening age	Screening interval	Screening methods	Screening system	Registries	Coverage (%)
Armenia	30–60 years	Every 3 years	Pap test	Opportunistic management by local, regional and national health authorities, no call-recall system	Pap smear results centrally recorded in a national database	10–20%
Azerbaijan	Not available	Not available	Pap test	Opportunistic screening	Not available	Not available
Georgia	25–60 years	Every 3 years	Pap test	Opportunistic with some elements of call-recall system	Not available	20%
Kazakhstan	30–60 years	Every 5 years	Conventional	Call-recall system in few regions on unregular basis	National Cancer	75%
Uzbekistan	20 years - No upper age limit	Not available	Pap test	Organized cervical cancer screening in four pilot regions (dated 2011)	Not available	Not available
Kyrgyzstan	Not available	Every 5 years	Pap test and HPV test	Not available	Not available	Not available

Rogovskaya et al, 2013

HPV and related diseases trends in countries

- The incidence of cervical cancer trend - no tendency to decline
- Genital wart trend - no tendency to decline
- Cervical cancer - rejuvenation of pathology
- High proportion of advanced cervical cancer
- High mortality rate
- Screening is generally available with Pap
- Treatment mainly is not available for free

Conclusion

- Organized cervical cancer screening and National programmes are needed
- In our opinion, the basis of organized screening currently, due to its economic feasibility , should be the traditional PAP test , trend – to LBC with automated staining of smears.
- Integration of HPV tests into screening on the basis of domestic economical technologies, as an addition to the already formed system of organized screening. No validity
- Epidemic studies are needed using validated tests with genotyping and a clear distribution of populations
- Implementing e-registry for HPV associated diseases cases and HPV carrying into state system of diseases
- Implementing info about HPV and its prevention into educational programs for medical staff and population.
- RAGIN project for education is ongoing

Thank you for attention!