Cancer in the SEE region

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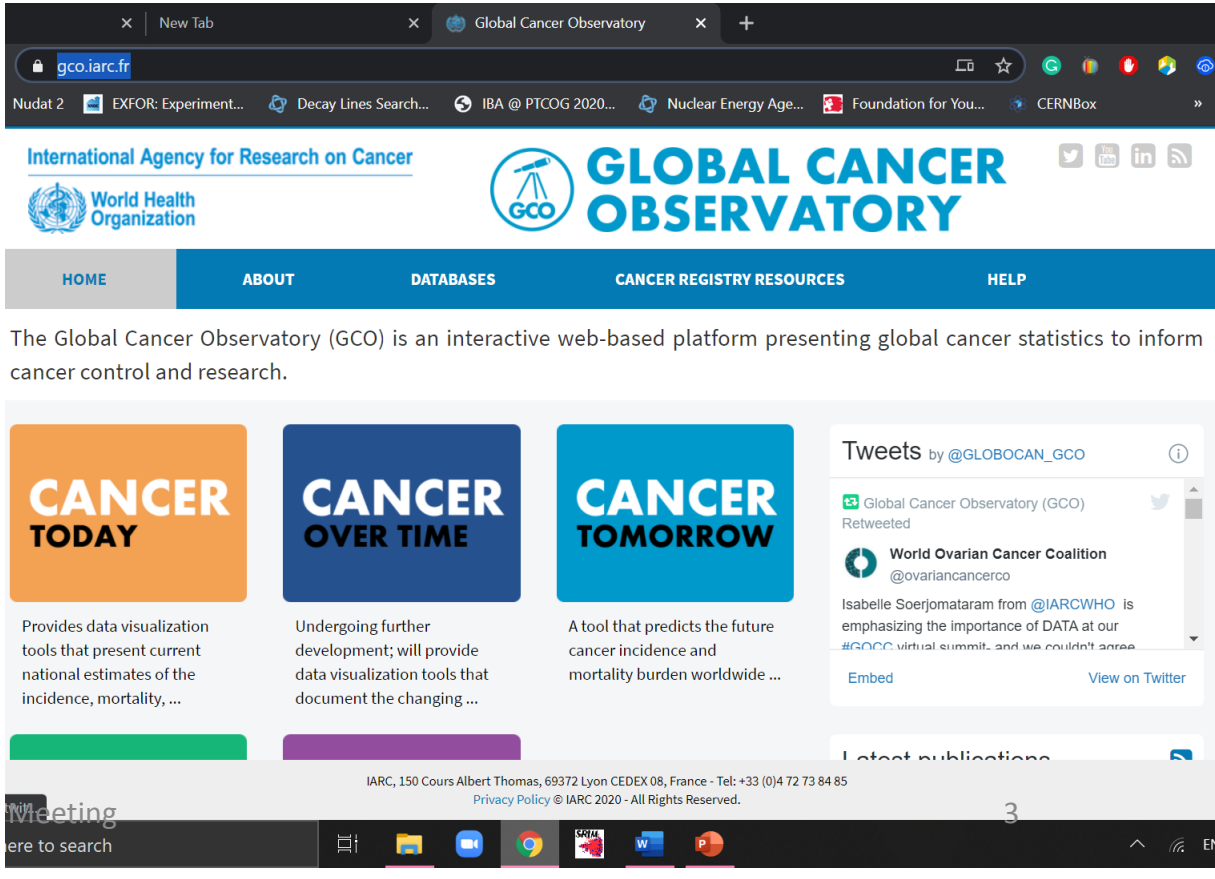
South East European (SEE) countries are facing more challenges in combating cancer compared to Western Europe because of the lack of

- **equipment,**
- **cancer registries & data analysis,**
- **advanced treatment.**

Globocan as a cancer incidence and mortality projection tool (https://gco.iarc.fr/)

… cancer predictions for future should be interpreted with due caution (Bray and Møller, 2006) because they were based on the key assumption that the national migration rates have a known regular behavior.



Challenges in projections

2020–2030 period brings a considerable uncertainty, making the future dynamic of the national population migrations unknown, mostly due to the:

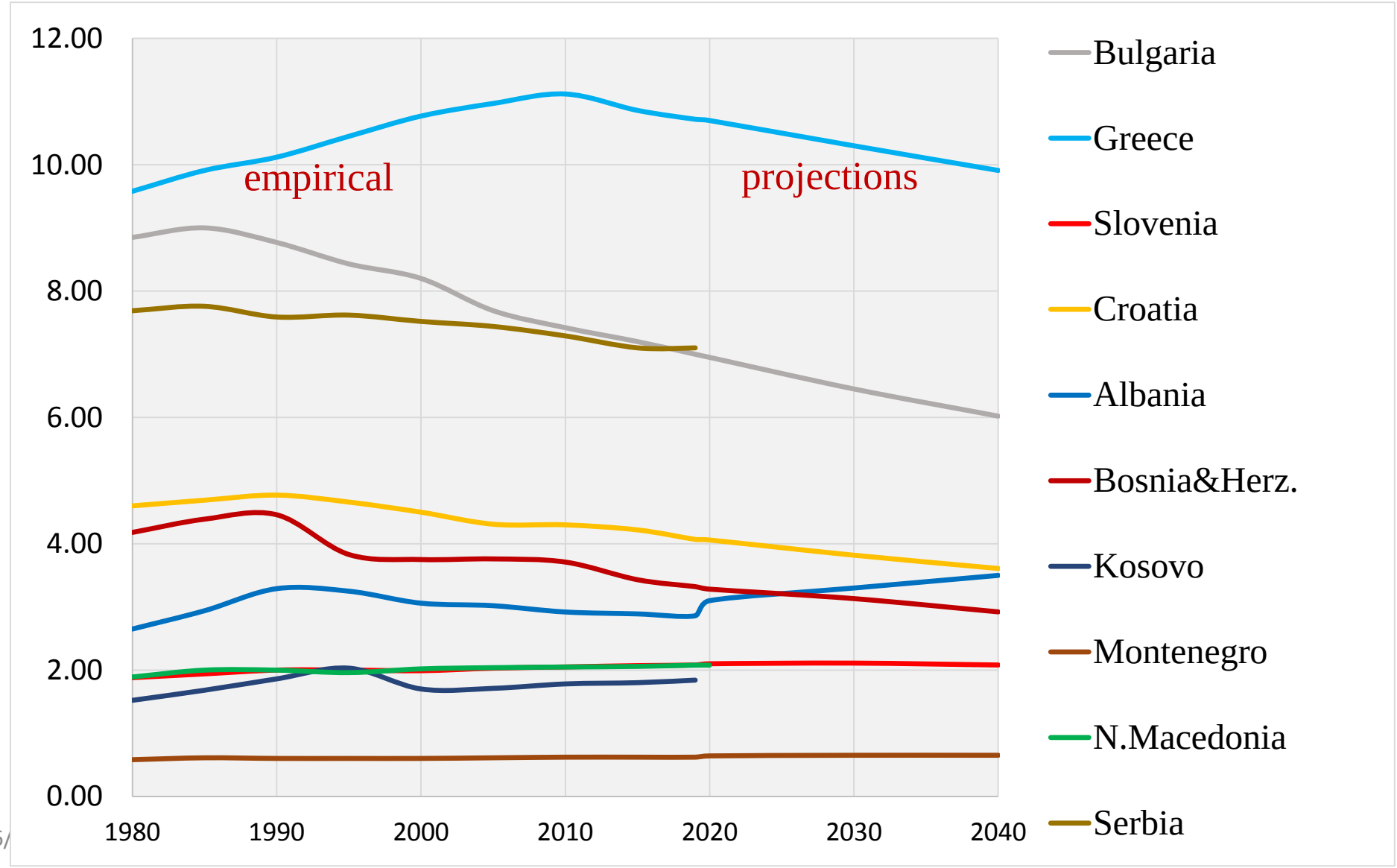
- **Global pandemic** of the new Corona virus SARS-2 and the states measures are changing on a daily basis will affect **immigration**.
- **Impact of BREXIT** on the **reversal migration** towards the SEE countries is also unpredictable.
- Covid -19 Pandemic will impact on the **population age pyramid** (due to the **higher death rate with the age**).

SEEIIST – PT center to be commissioned in 2029-30

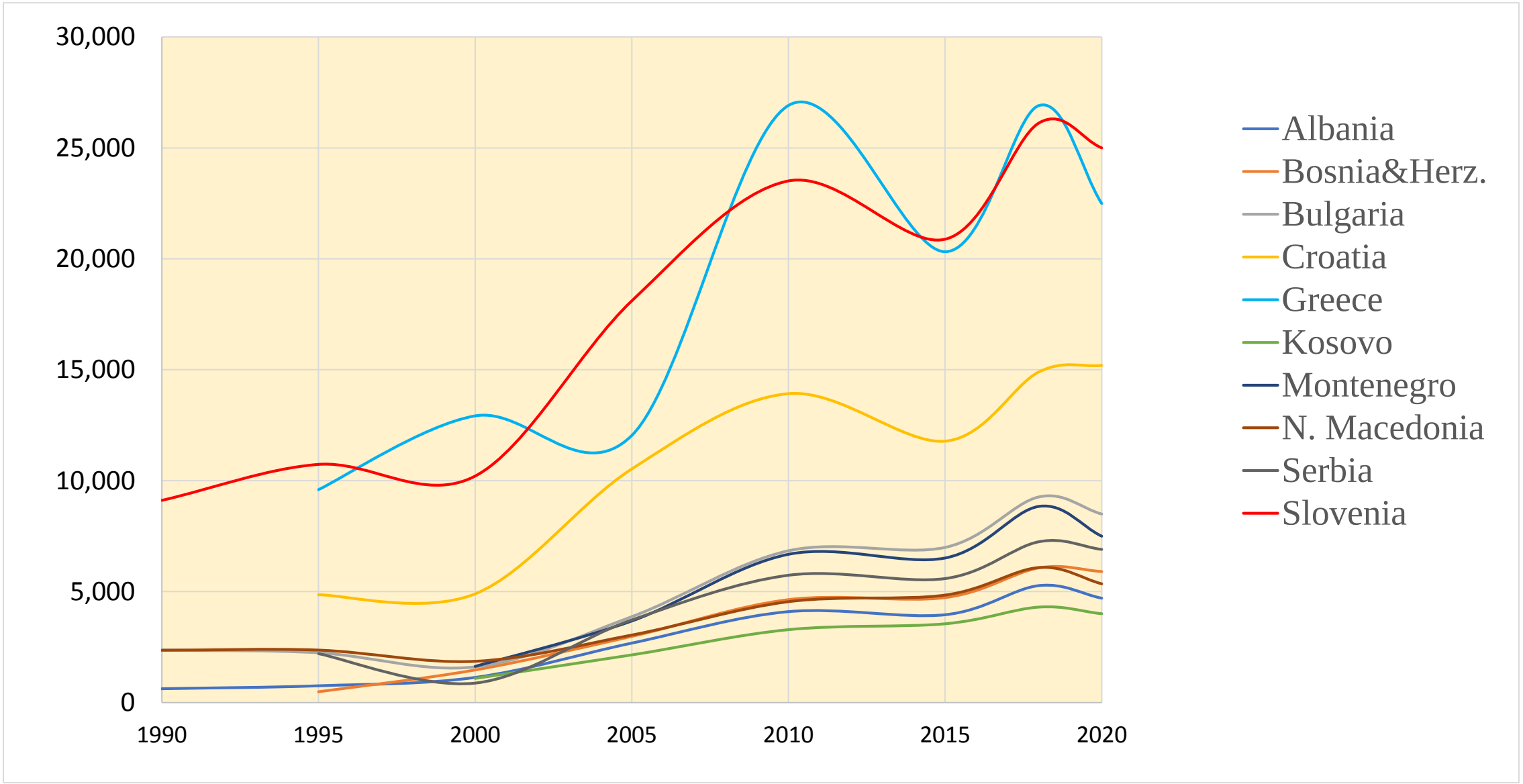
- **375 patients (at the beginning)**
- **1000 patients (after optimization)**

… patient selection criteria needed

Population in the SEE countries in Millions (empirical data till 2018, projected for later than 2018)



GDP per capita in the SEE region in USD (1990-2020)

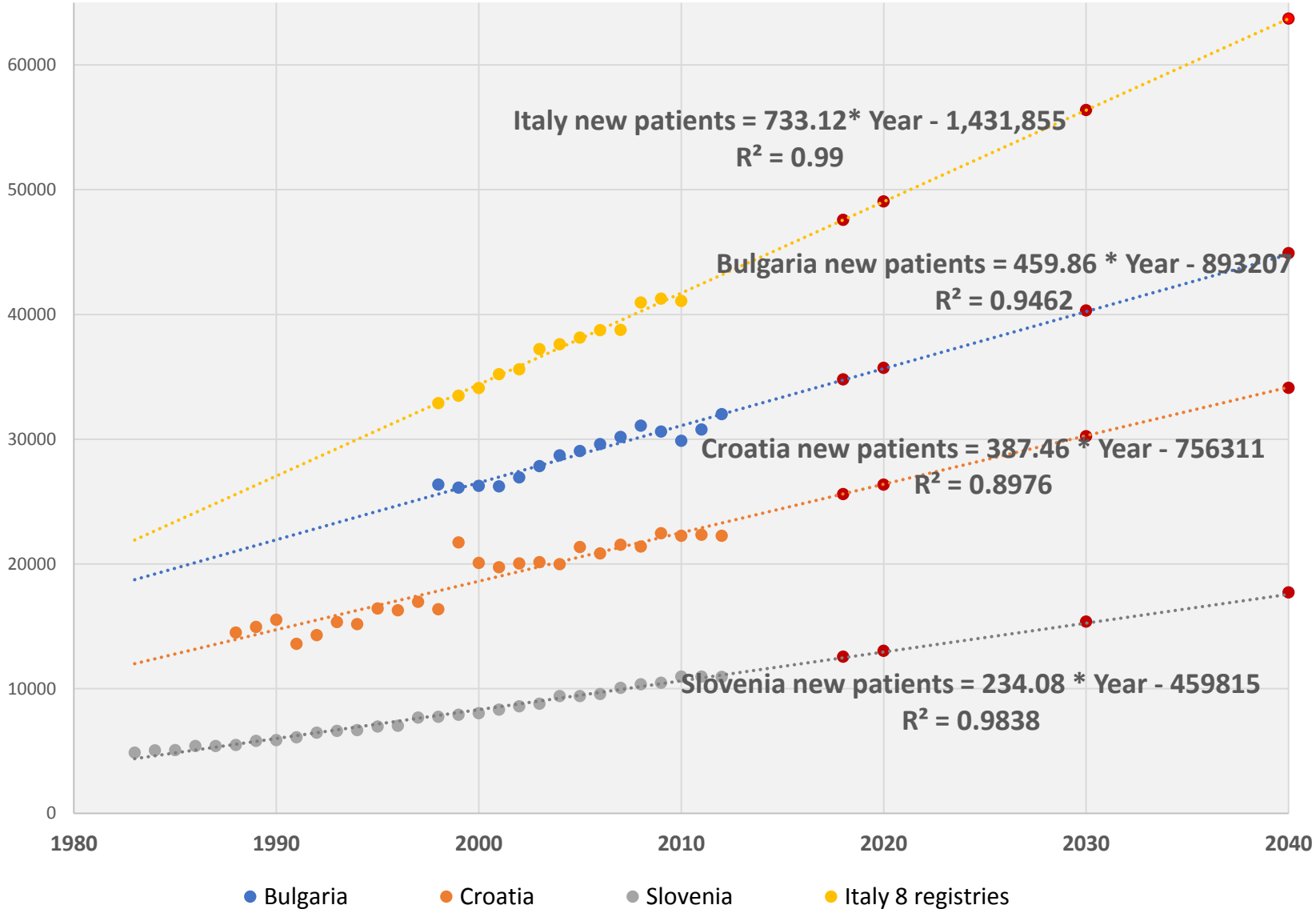


Available cancer registry databases for the SEE region

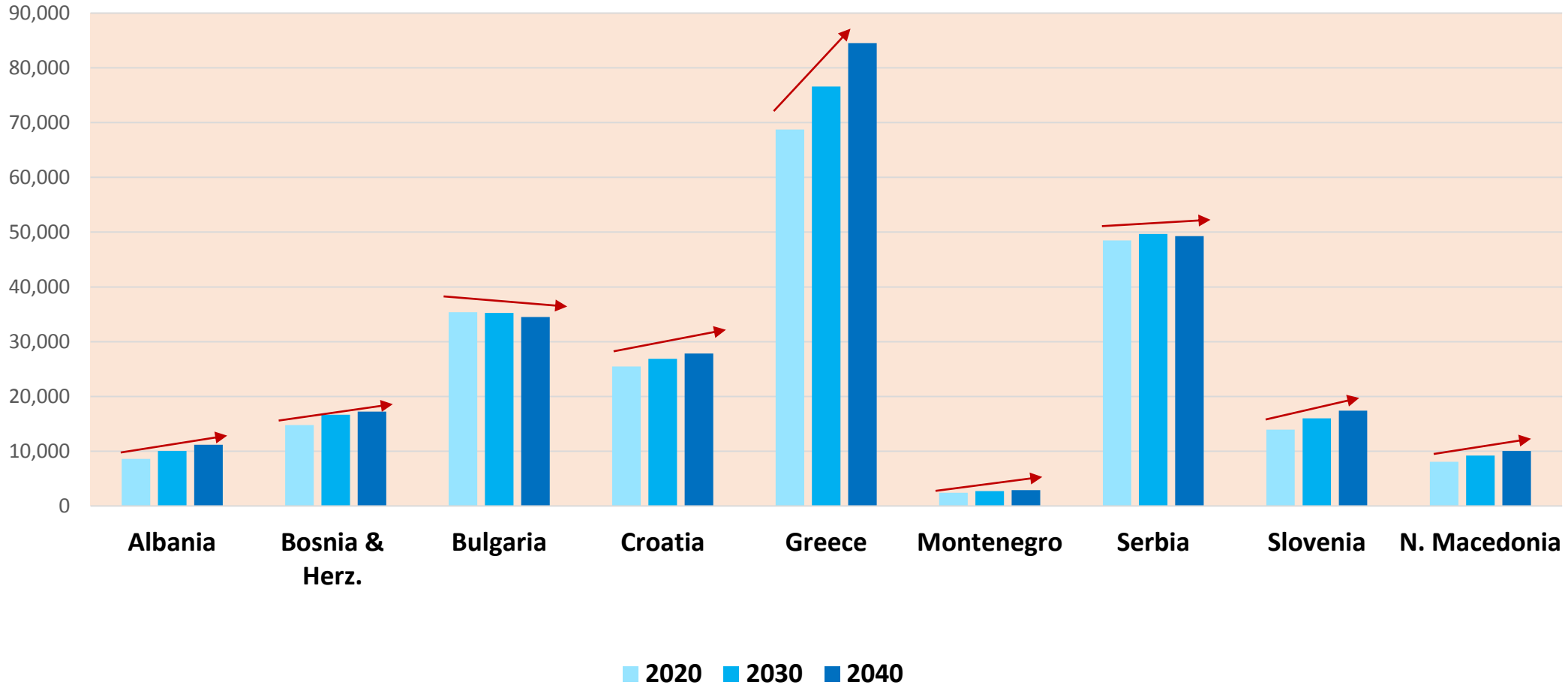
Country	Period covered	Data provider for the IARC @WHO	Data Range
Bulgaria	**1998-2012**	Bulgarian National Cancer Registry, National Hospital of Oncology 6, Plovdivsko Pole Street Sofia	National
Croatia	**1988-2012**	Croatian National Cancer Registry Croatian National Institute of Public Health P.O. Box 684 Rockefellerova 7, Zagreb	National
Central Serbia	**1999-2002**	Central Serbia Cancer Registry Department for Prevention and Control of Noncommunicable Diseases, NCD Registry Unit Institute of Public Health of Serbia, Belgrade	**Regional**
Slovenia	**1956-2012**	Cancer Registry of the Republic of Slovenia Institute of Oncology Ljubljana Zaloska Cesta 2 1000 Ljubljana	National

New cancer cases (all cancers except non-melanoma SC, both sexes)

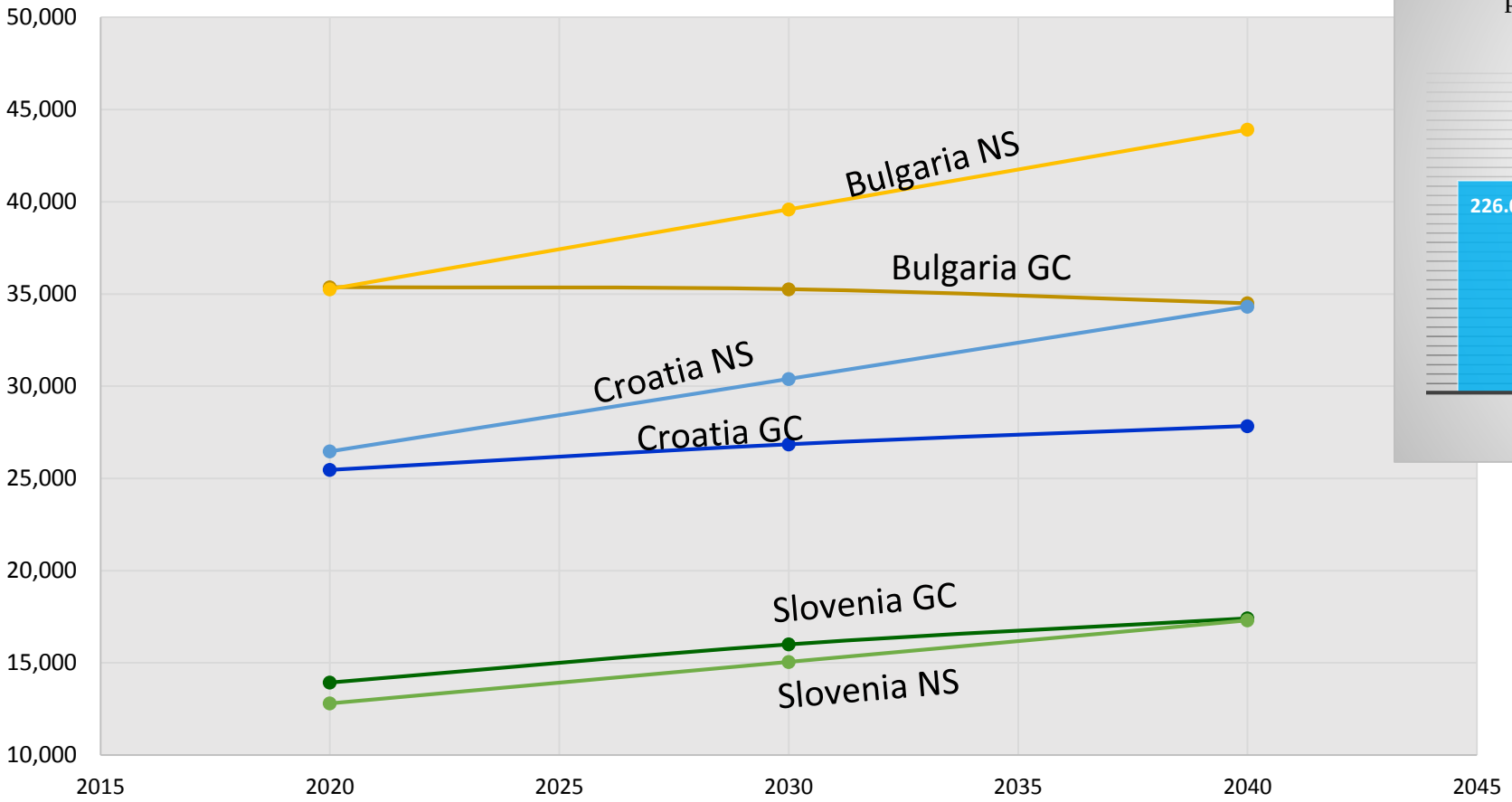
Data Source: National statistics/cancer registries (NS)

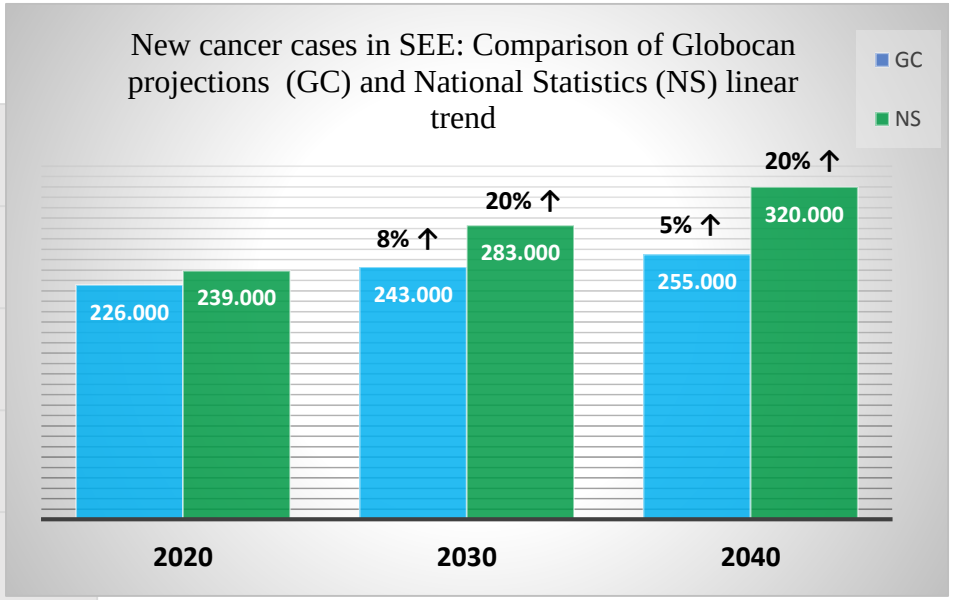


(GC) Dynamics of the Projected number of new cancer cases in 2020, 2030 and 2040 in each of the SEE Countries (Data Source: Globocan)

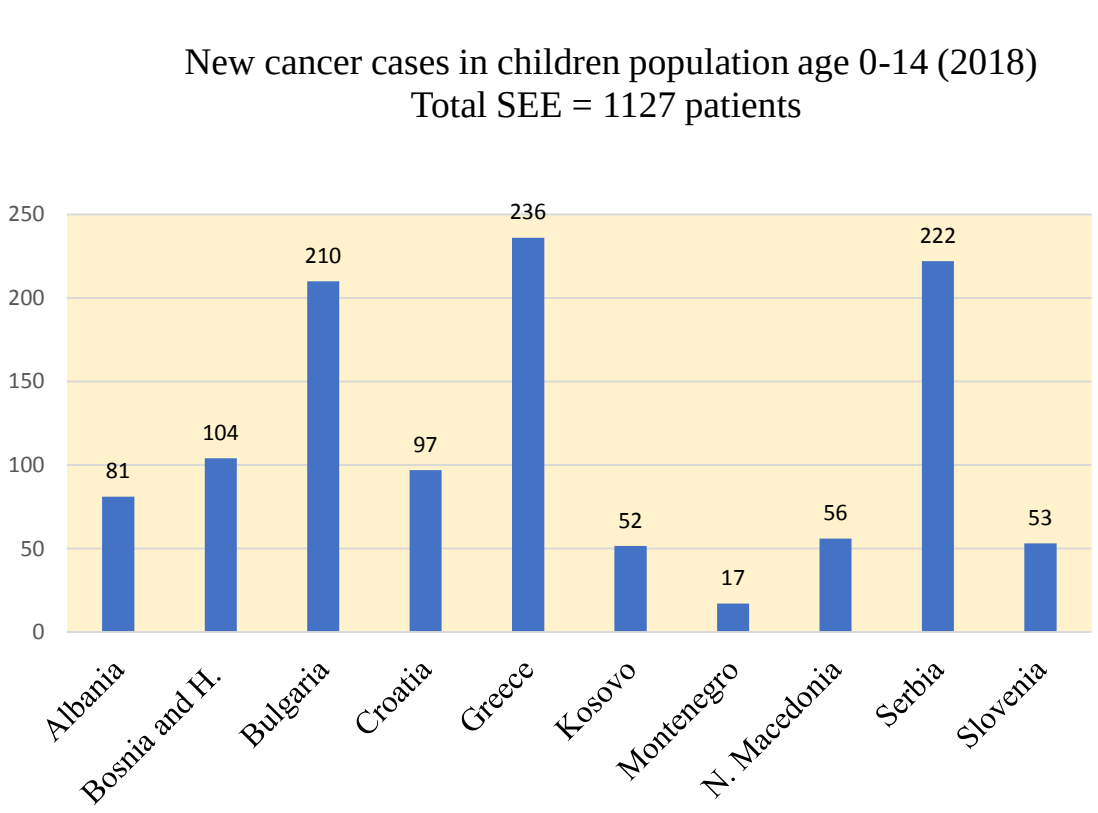


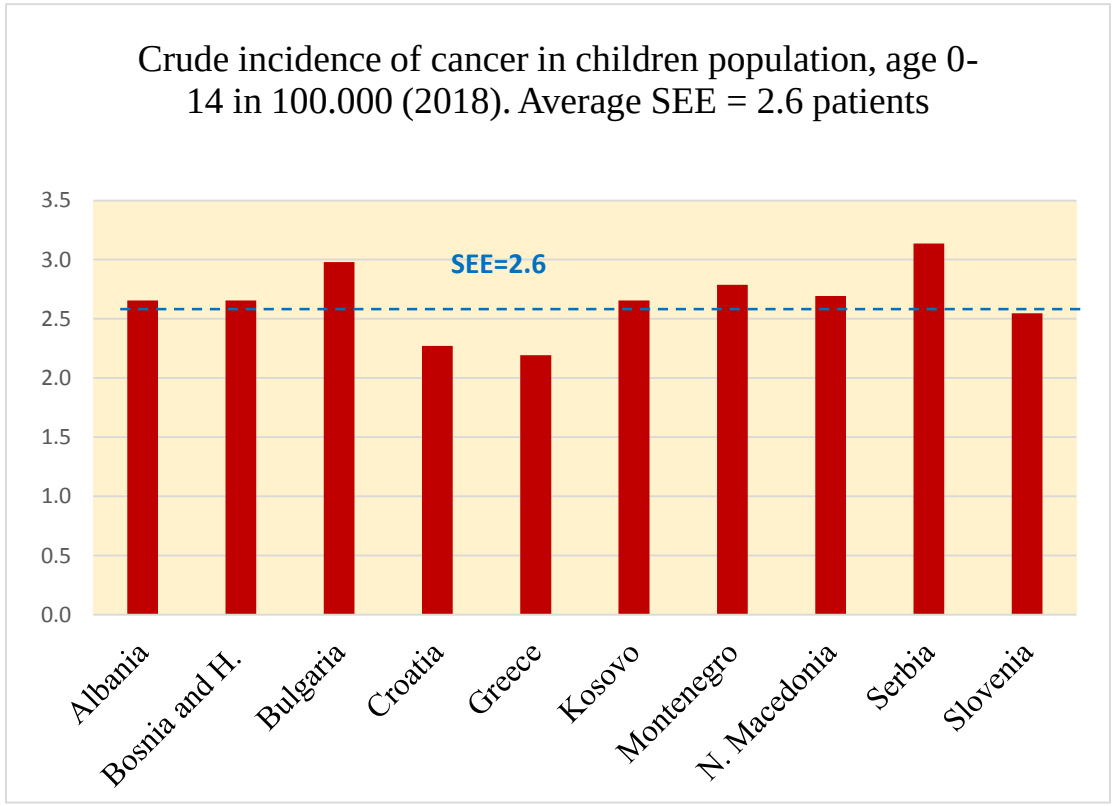
Comparison of projections (NS and GC)



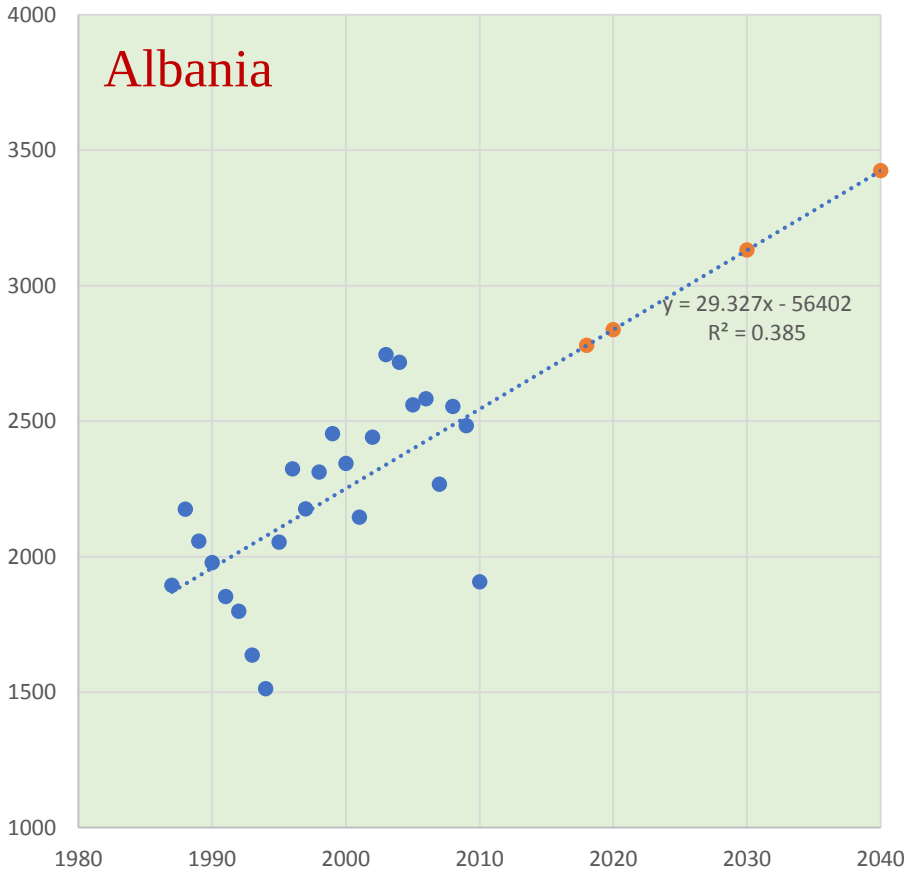


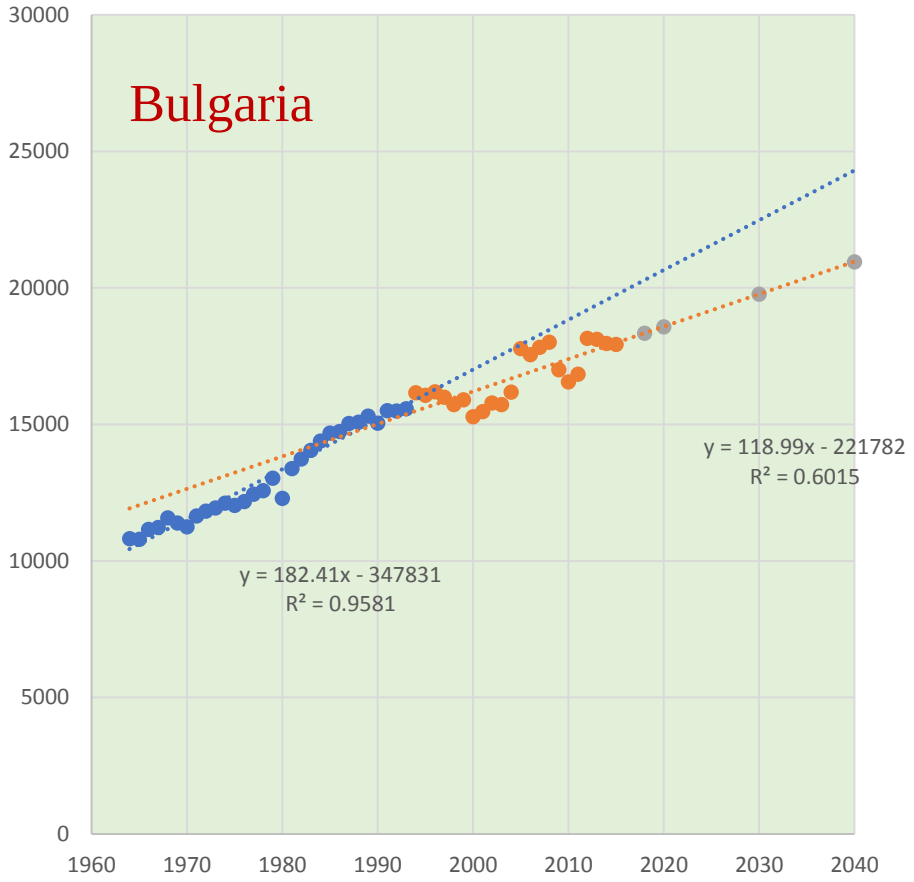
Cancer in the SEE Children population (2018)





Cancer related deaths





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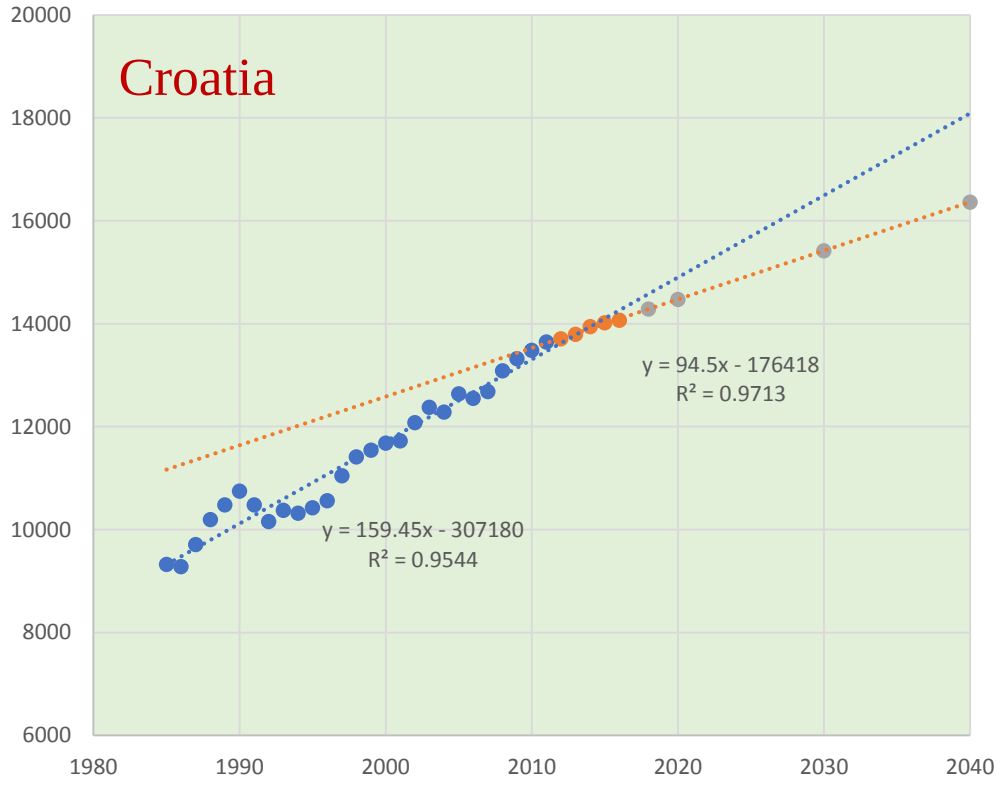

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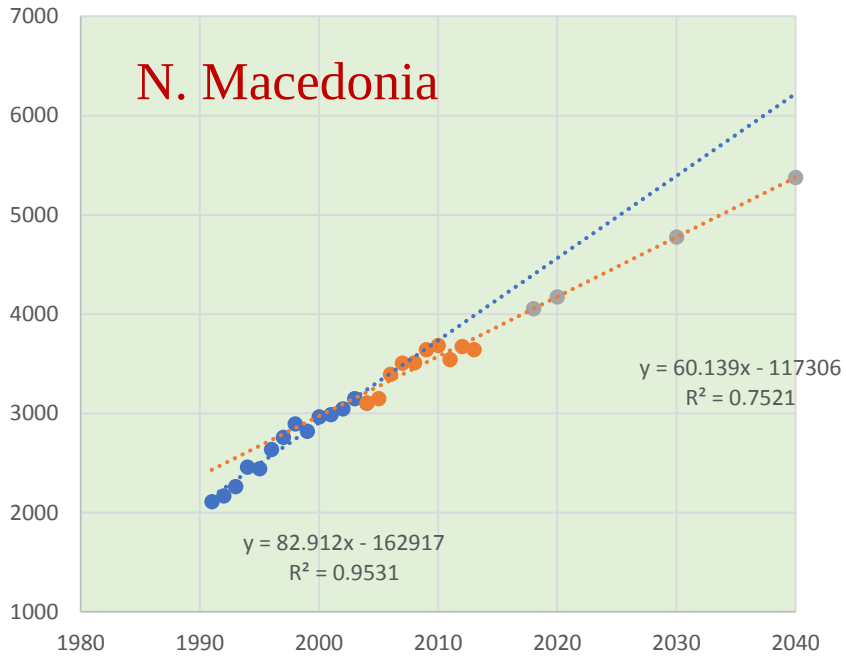
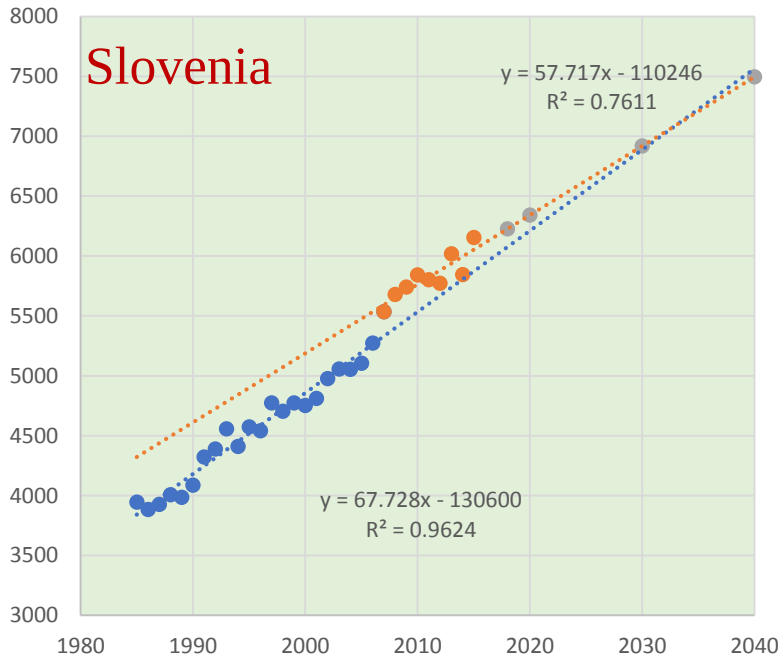
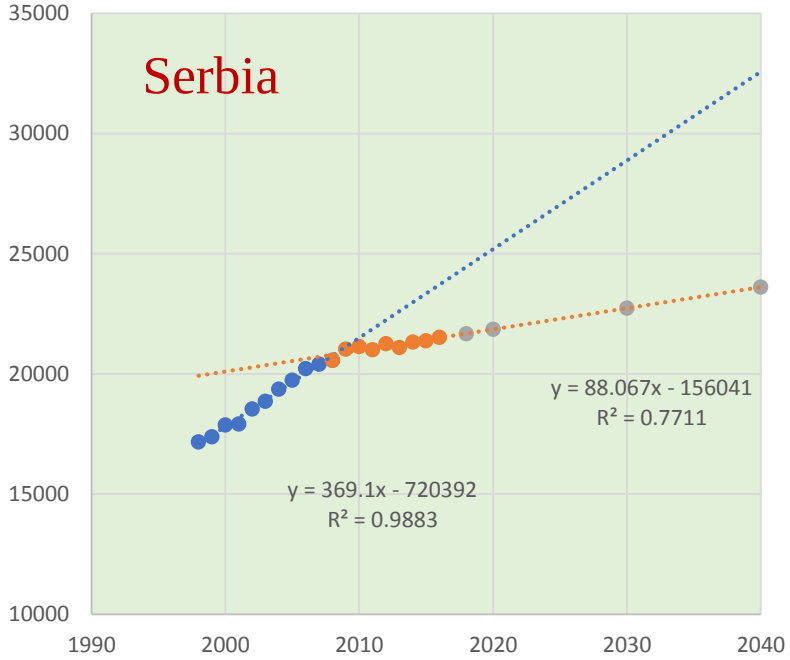
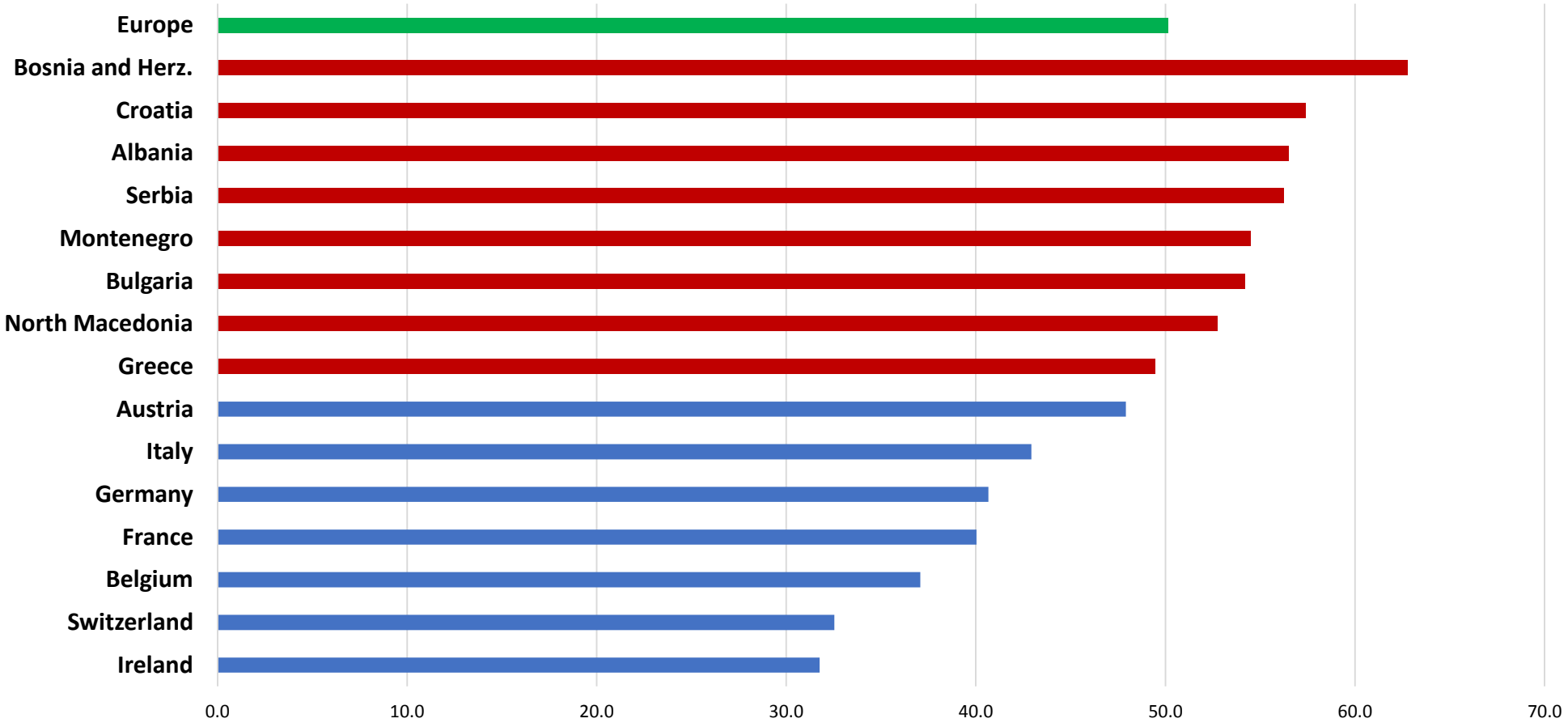


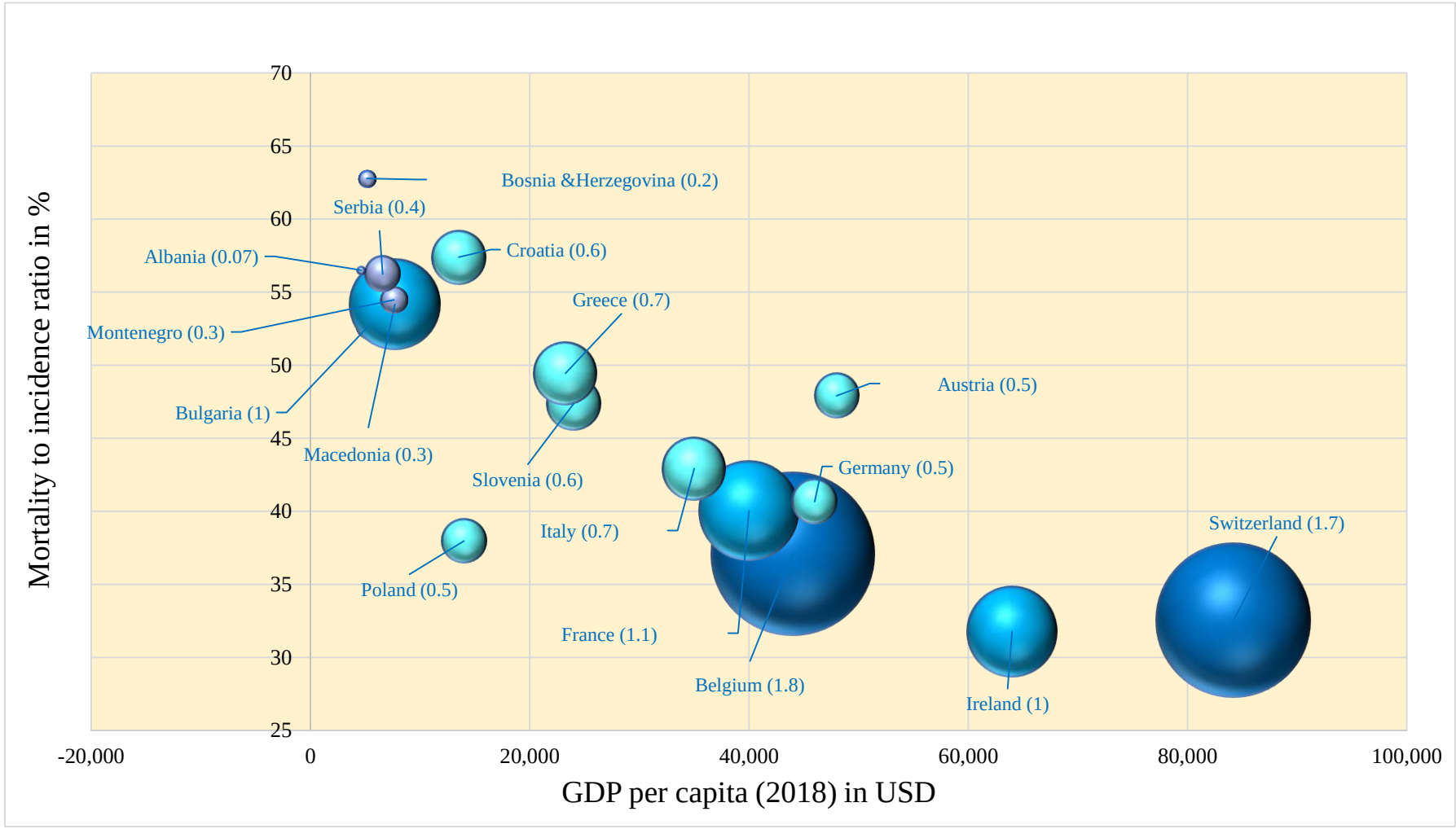




Mortality-to-Incidence ratio, All cancers, Both sexes (2018)



Incidence-to mortality ratio dependence on GDP/capita and number of Linacs/100.000 population

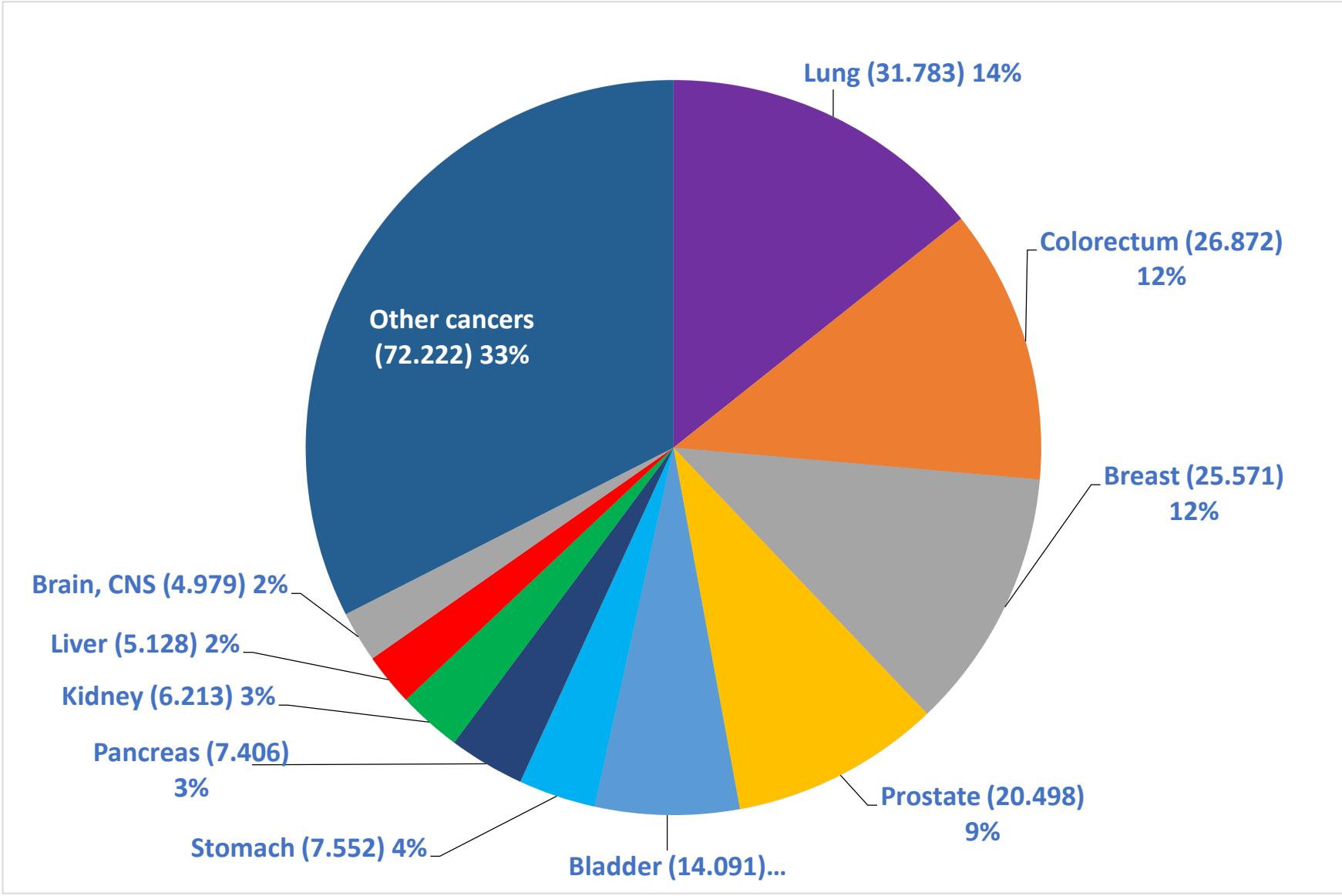


Top 10 cancers in SEE

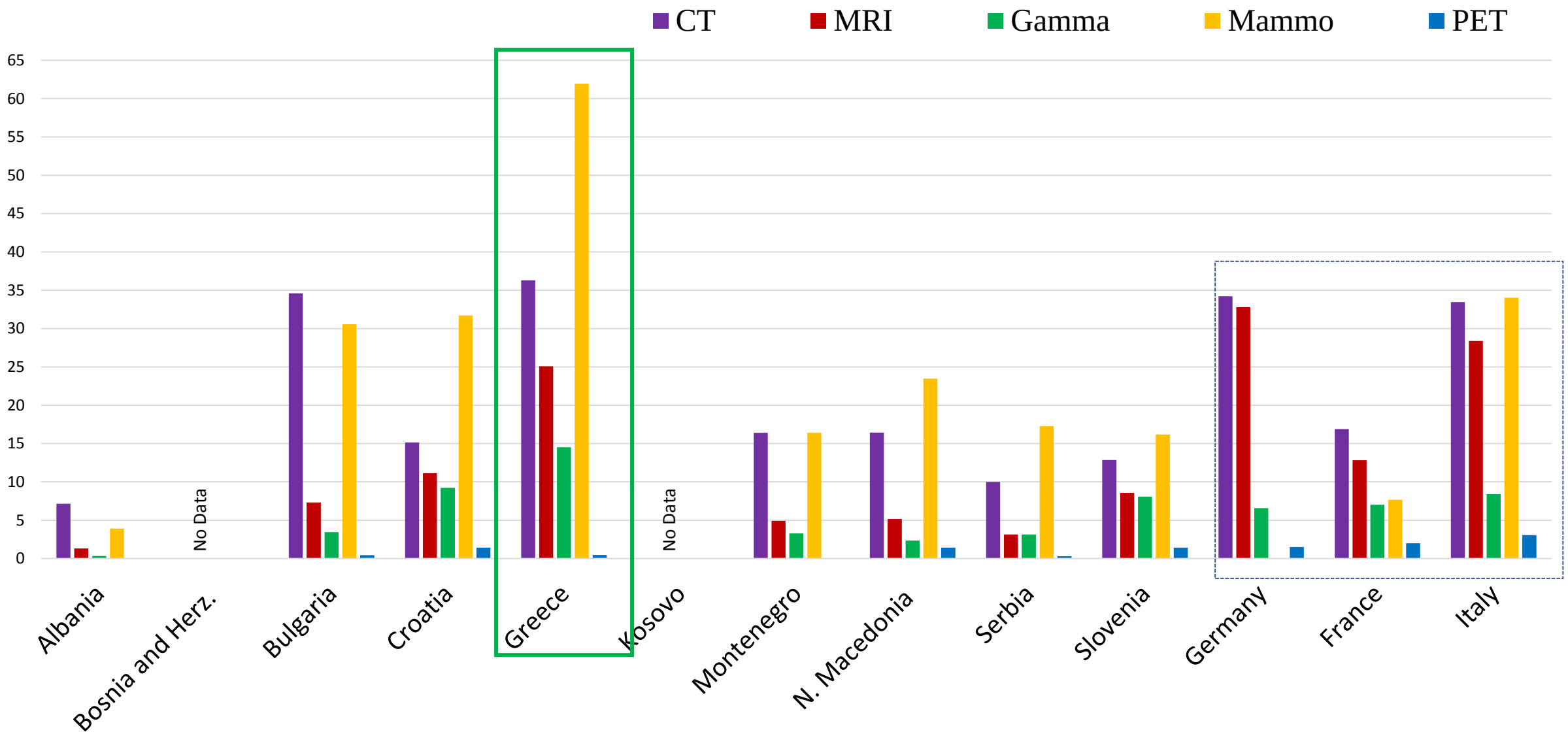
Rank	AL	BiH	BG	CRO	GR	MN	RNM	SR	SLO
#1									
#2									
#3									
#4									
#5									
#6									
#7									
#8									
#9									
#10									

Cancer site	**# in SEE**
Lung	31.783
Colorectum	26.872
Breast	25.571
Prostate	20.498
Bladder	14.091
Stomach	7.552
Pancreas	7.406
Kidney	6.213
Liver	5.128
Brain, CNS	4.979
Other sites	72.222
Top10	**150.093**
All Cancers	**222.315**

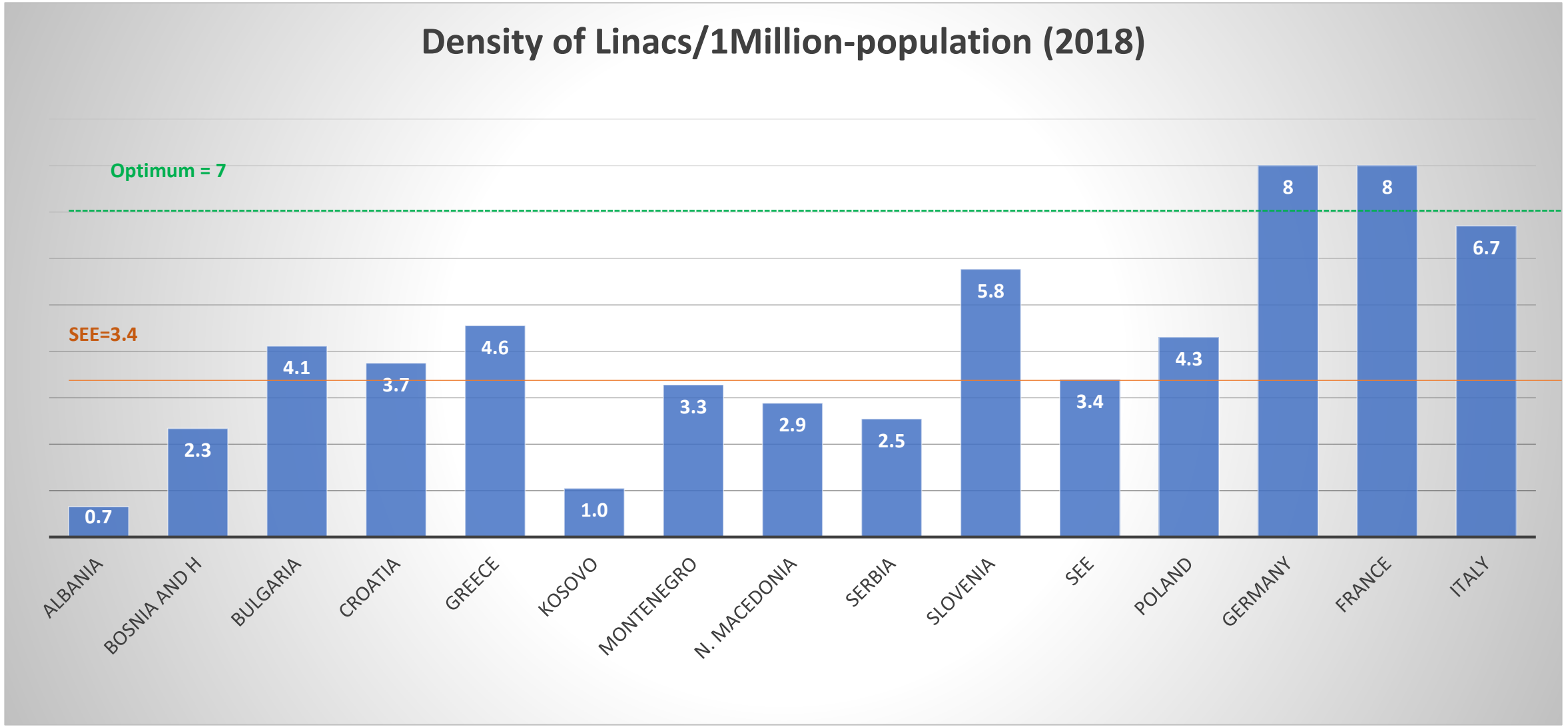
Estimated incidence in SEE region by cancer type, all ages, both sexes (2018)



Diagnostic imaging tools in SEE countries on 1 M population (2015)



Radiotherapy tools in SEE



Patients from SEE eligible for PT

Types of tumour eligible with highest priority for proton therapy	Types of tumour eligible with highest priority forC- ion therapy
Adult skull base tumours. Adult unresectable or relapsing meningioma. Other rare adults' central nervous system tumours. Child central nervous system tumours, and any other child solid tumour.	Adenoid cystic carcinomas of salivary glands, including head & neck and thorax, sinus adeno-carcinomas. Mucinous melanomas of head and neck, chordomas, chondrosarcomas of skull base, spine. Soft tissue sarcomas of low and medium grade.
~ 80 cases/year for 10 M population	~ 200 cases/year for 10 M population
~ 320 cases/year for 40 M population (SEE region)	~ 800 cases/year for 40 M population (SEE region)

Number of SEEIIST patients/year considering proportional country access

	Country	Population [Millions]	# of **priority** patients/y (BO)	# of **priority** patients/y (AO)	# **Proton** therapy patients/y (BO)	#**Proton** therapy patients/y (AO)	# **Carbon** therapy patients/y (BO)	# **Carbon** therapy patients/y (AO)
1	Albania	3.05	27	71	8	20	19	51
2	Bosnia&H.	3.85	34	90	10	26	24	64
3	Bulgaria	7.05	62	165	18	47	44	118
4	Croatia	4.27	37	100	11	29	27	71
5	Greece	10.76	94	252	27	72	67	180
6	Kosovo	1.91	17	45	5	13	12	32
7	Montenegro	0.61	5	14	1	4	4	10
8	NMacedonia	2.08	18	49	5	14	13	35
9	Serbia	7.08	62	166	18	47	44	118
10	Slovenia	2.08	18	49	5	14	13	35
	All SEE	**42.74**	**375**	**1000**	**107**	**286**	**268**	**714**

Conclusions

- Collecting cancer data is a big challenge
- Joint SEE Cancer registry is needed
- Predictions and projections for 2030 could be very inaccurate!!
- Strict patient selection criteria are needed for the SEEIIST for 2030

Thank you for your attention