

## Skin cancers in Europe

### Sources of data

The most complete and up to date (2020) data for melanoma in Europe is provided by ECIS, European Cancer Information System (<https://ecis.jrc.ec.europa.eu/>). The ECIS initiative was launched in 2018 and considers the data submitted by population-based cancer registries (PCR).

The coverage rate, data output, and quality of PCRs differ largely across Europe. Currently there are close to 200 national or regional PCRs covering together approximately 60% of the European population; the coverage is growing. 22 European countries have reliable national PCRs, covering the entire population while some countries in South-Eastern Europe reported only estimated incidence rates, often calculated from partial registration data and neighbouring countries registries. A negative aspect of ECIS is that it does not include “non-melanoma skin cancers”; for them we used the Globocan 2020 data (<https://gco.iarc.fr/today>).

### Skin cancers in EU 27

In EU 27 melanoma is the 6th type of cancer in terms of incidence (new cases per year) after breast, colorectum, prostate, lung and bladder and the 16th in terms of mortality (yearly deaths).

A particular attention must be paid for the population in the age range of 0 to 44 years where the melanoma represents the 3rd type of cancer after breast and thyroid cancers.

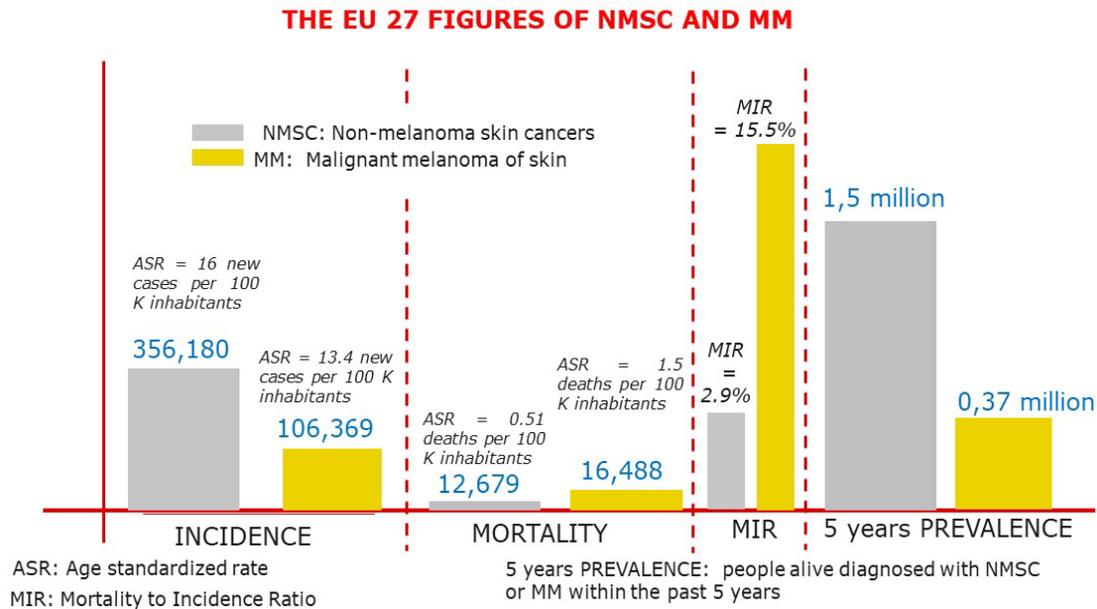
The diagram of fig. 1 reports the incidence, mortality, 5 years prevalence and mortality to incidence rate (MIR)<sup>1</sup> of non-melanoma skin cancers and melanoma. For incidence and mortality, we report the absolute values and the ASR (age standardized rate) i.e., the number of cases per 100,000 inhabitants by assuming a standard age structure for all countries / regions. To allow a comparison with data related to other geographical regions the age standardization is done at a worldwide level. Information provided in fig.1 refers to 2020.

New diagnosed cases were 106,369 for melanoma (MM) and 356,180 for non-melanoma skin cancers (NMSC) (basal cell carcinomas, BCC, and squamous cell carcinomas, SCC); for both MM and NMSC they represent about 1/3 of the total new cases of skin cancers at a worldwide level. Yearly deaths due to MM were 16,488 and 12,679 those due to NMSC.

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<sup>1</sup> Incidence is the number of newly diagnosed cases of a disease in a given year; mortality represents the number of yearly deaths due to a disease; 5-year prevalence represents the total number of alive citizens diagnosed within the past 5 years in a given population.

The mortality to incidence ratio (MIR) is indicative of the capability of the local healthcare system to address the skin-related cancers and to limit the number of deaths through earlier and appropriate interventions.



Source: Globocan 2020 for non-melanoma screen cancers and ECIS 2020 for melanoma

**Fig. 1** – EU27 data for non-melanoma skin cancers and melanoma

## Trends

According to the European Cancer Information System (ECIS) in the EU 27 the incidence and the mortality of melanoma are growing.

In twenty years i.e., in 2040 the incidence is expected to rise from the 106 K new case of 2020 to 121,000 i.e., with an average increase of 13.7%. The countries with the higher growths are Malta (+ 61%), Ireland (+58%) and Cyprus (+ 37%) while in Romania a reduction of new yearly cases of melanoma is expected (- 1.1%). For Germany, Italy, Finland, France, Netherland, Sweden, and Spain ECIS reports an expected growth from 6.8% in Germany to 25.3% in Spain.

Regarding mortality an increase is reported in all EU 27 countries with a rate going from the +8.7% in Latvia to 67% in Luxembourg, 80% in Ireland and 82% in Malta. The average growth of MM mortality for EU 27 is 29,4% (from 16.5 K deaths in 2020 to 21.3 K deaths in 2040).

## Skin cancers in EU 27 vs other regions/countries

The following table shows how EU 27 is positioned at a worldwide level regarding skin cancers; it reports the incidence and mortality for melanoma and non-melanoma skin cancers (expressed in age-standardized rate per 100,000 inhabitants) and the mortality to incidence ratio (MIR). This last parameter is indicative of the capability of the local health care system of limiting the degenerative evolution of the disease up to the death.

Geographical area	INCIDENCE	MORTALITY	MIR (%)
	ASR per 100,000 persons		
<b>MELANOMA OF SKIN</b>			
EU 27	13.4	1.5	15.5%
European geographic region	11.4	1.6	17.4 %
USA	16.6	1.1	7.5%
AUSTRALIA	36.6	2.4	9%
CHINA	0.36	0.18	53%
JAPAN	0.48	0.17	45%
Russian Federation	5.0	1.6	33%
United Kingdom	16	1.7	14%
<b>NON-MELANOMA SIN CANCERS</b>			
EU 27	18.1	0.44	2.9%
European geographic region	16	0.51	3.6%
USA	64.9	0.59	0.9%
AUSTRALIA	140	1.1	1.3%
CHINA	1.0	0.44	46%
JAPAN	2.2	0.18	10%
Russian Federation	5.1	0.49	10.7%
United Kingdom	23.8	0.91	4.1%

EU 27 vs other regions/countries

**Table 2:** – Melanoma and non-melanoma skin cancers in EU27 vs other regions/countries.

Except for Australia, it is confirmed the trend of a growing incidence moving from south to north and from east to west. It explains also why the incidence rate for EU 27 is higher than that related to the overall European geographic region that includes – in addition to the EU 27 Member States - other eastern countries less affected by skin-related disorders. The MIR coefficients for MM and NMSC have acceptable values and it indicates that the policies used in EU27 to prevent deaths are satisfactory; nevertheless EU 27 is positioned after USA and Australia that report lower values of mortality to incidence ratio.

It is interesting to notice how in the Asiatic regions a very low incidence both for MM and NMSC is combined with a relatively high mortality (high mortality-incidence ratio).

## Distribution of skin cancers across EU 27

As shown in the following table 2 the epidemiological picture across EU 27 is highly heterogeneous. Once again, to allow a comparison with other regions the ASR figures for incidence and mortality are based on a world-related age standardization i.e., on the assumption that all the countries of the world have the same age distribution structure.

Source = for melanoma (MM): Globocan 2020 data; for non-melanoma scree cancers (NMSC): ECIS 2020	ASR = Age Standardized Rate per 100K (age standardization is world-related) MIR = Mortality to Incidence Ratio in %
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**MELANOMA**

COUNTRY	INCIDENCE		MORTALITY		MIR in %	5 years PREVALENCE cases	Source
	cases	ASR	deaths	ASR			
<b>EU 27</b>	<b>106,369</b>	<b>13.4</b>	<b>16,488</b>	<b>1.5</b>	<b>15,5</b>	<b>369768</b>	ECIS 2020 data
AUSTRIA	2043	13.8	415	4,6	20		
BELGIUM	2372	18.4	413	3,6	17		
BULGARIA	627	4.7	213	2,9	34		
CROATIA	706	9.0	236	5,4	33		
CYPRUS	85	4.5	32	3,4	38		
CZECH REPUBLIC	2587	13.1	427	4,1	17		
DENMARK	2886	29.9	341	6	12		
ESTONIA	277	12.0	47	3,5	17		
FINLAND	2090	19.5	246	4,1	12		
FRANCE	16449	14.8	2125	3,1	13		
GERMANY	31468	20.9	3169	3,3	10		
GREECE	1313	7.0	295	2,4	22		

**NON-MELANOMA SKIN CANCERS**

COUNTRY	INCIDENCE		MORTALITY		MIR in %	5 years PREVALENCE cases	Source
	cases	ASR	deaths	ASR			
<b>EU 27</b>	<b>266411</b>	<b>18.1</b>	<b>7677</b>	<b>0.44</b>	<b>2.9</b>	<b>1464980</b>	Globocan 2020
AUSTRIA	3947	14	142	0.40	3.6	23414	
BELGIUM	9105	26.4	125	0.31	1.4	54505	
BULGARIA	1710	8.6	138	0.65	8.1	7075	
CROATIA	1091	6.7	110	0.65	10.1	4565	
CYPRUS	252	8.6	24	0.82	9.5	1105	
CZECH REPUBLIC	3638	11.4	166	0.48	4.6	16369	
DENMARK	2895	16.2	78	0.38	2.7	17554	
ESTONIA	182	4.3	29	0.54	15.9	1055	
FINLAND	2031	10.2	52	0.21	2.6	12203	
FRANCE	45137	21.7	985	0.36	2.2	260694	
GERMANY	90379	31.3	1128	0.32	1.2	550973	
GREECE	1953	4.3	159	0.26	8.1	8529	

**MELANOMA**

COUNTRY	INCIDENCE		MORTALITY		MIR in %	5 years PREVALENCE cases	Source
	cases	ASR	deaths	ASR			
HUNGARY	1482	8.3	334	3,4	23		
IRELAND	1316	18.4	181	5,1	14		
ITALY	12515	12.0	2224	3,1	18		
LATVIA	234	6.3	80	4	34		
LITHUANIA	511	10.0	116	4	23		
LUXEMBOURG	144	15.7	18	3,5	13		
MALTA	52	6.9	11	2,5	21		
NETHERLANDS	8310	27.2	906	5,3	11		
POLAND	3732	5.1	1765	5,0	47		
PORTUGAL	1071	5.6	289	2,5	27		
ROMANIA	1547	4.7	502	2,6	32		
SLOVAKIA	823	8.6	317	6,7	39		
SLOVENIA	735	19.7	127	5,8	17		
SPAIN	5728	7.0	1097	2,2	19		
SWEDEN	4266	23.3	562	5,4			

**NON-MELANOMA SKIN CANCERS**

COUNTRY	INCIDENCE		MORTALITY		MIR in %	5 years PREVALENCE cases	Source
	cases	ASR	deaths	ASR			
HUNGARY	4475	16.5	231	0.82	5.2	19229	
IRELAND	4788	46.2	90	0.75	1.9	29340	
ITALY	32599	14.2	1290	0.46	4	144088	
LATVIA	322	5.4	59	0.88	18.3	1805	
LITHUANIA	512	6.0	54	0.46	10.5	2914	
LUXEMBOURG	389	27.3	3	0.12	0.8	2310	
MALTA	108	6.7	3	0.17	2.8	477	
NETHERLANDS	17413	34.5	140	0.23	0.8	106034	
POLAND	9135	6.9	1010	0.73	11.1	35704	
PORTUGAL	2725	6.8	217	0.49	8	11666	
ROMANIA	3610	7.3	512	0.98	14.2	14895	
SLOVAKIA	836	6.3	87	0.60	10.4	3636	
SLOVENIA	608	8.8	42	0.44	6.9	2767	
SAIN	21966	12.7	719	0.36	3.3	97829	
SWEDEN	5605	17.5	84	0.21	1.5	34245	

**Table 2: – MM and NMSC across EU 27**

## Non melanoma skin cancers

For non-melanoma skin cancers, the age standardized rates (ASR) of incidence vary more than 10 times from a value of 4.3 in Estonia up to 46.2 in Ireland; the changes in the mortality ASR are less pronounced and it goes from 0.12 in Luxembourg up to 0.98 in Romania. An interesting parameter is the “mortality to incidence rate (MIR)”; as already mentioned, it is indicative of the capability of the local healthcare system to address the skin cancer burden in terms of early intervention and appropriate treatment and as a result a reduced mortality. Luxembourg and The Netherlands excel; for them the mortality to incidence ratio (MIR) is below 1%. On the contrary central-eastern countries are those with the highest MIR both for melanoma end non-melanoma skin cancers; the only exceptions are represented by Portugal and Greece. It is a clear indication that the economic situation of the countries represents a key determinant of the MIR indicator.

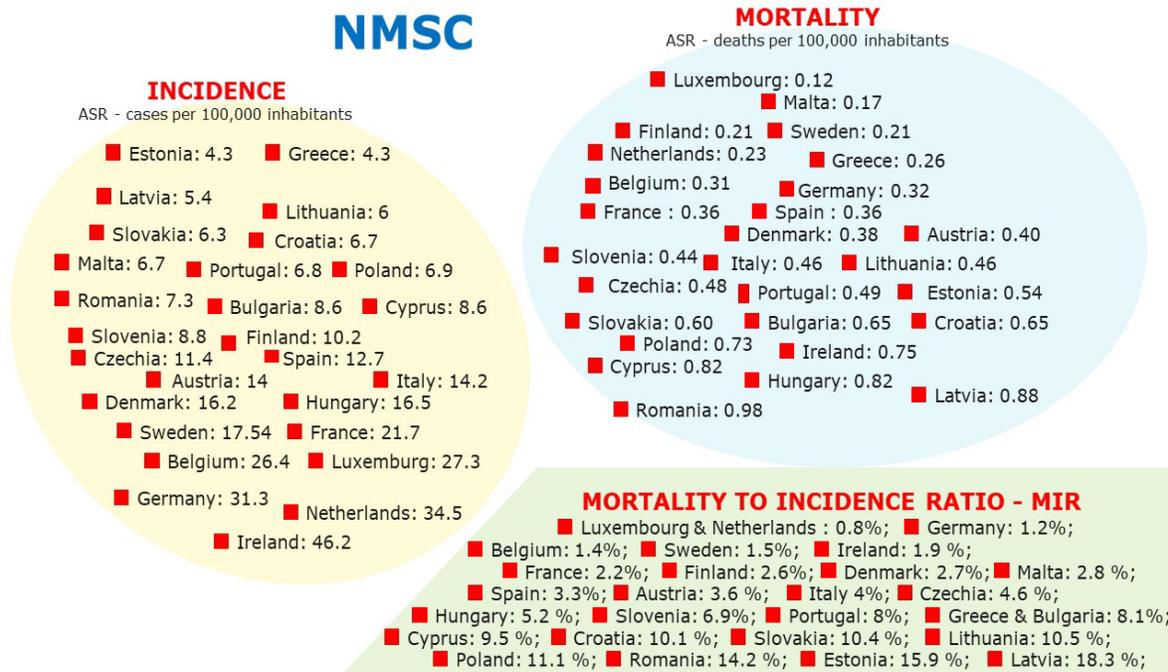


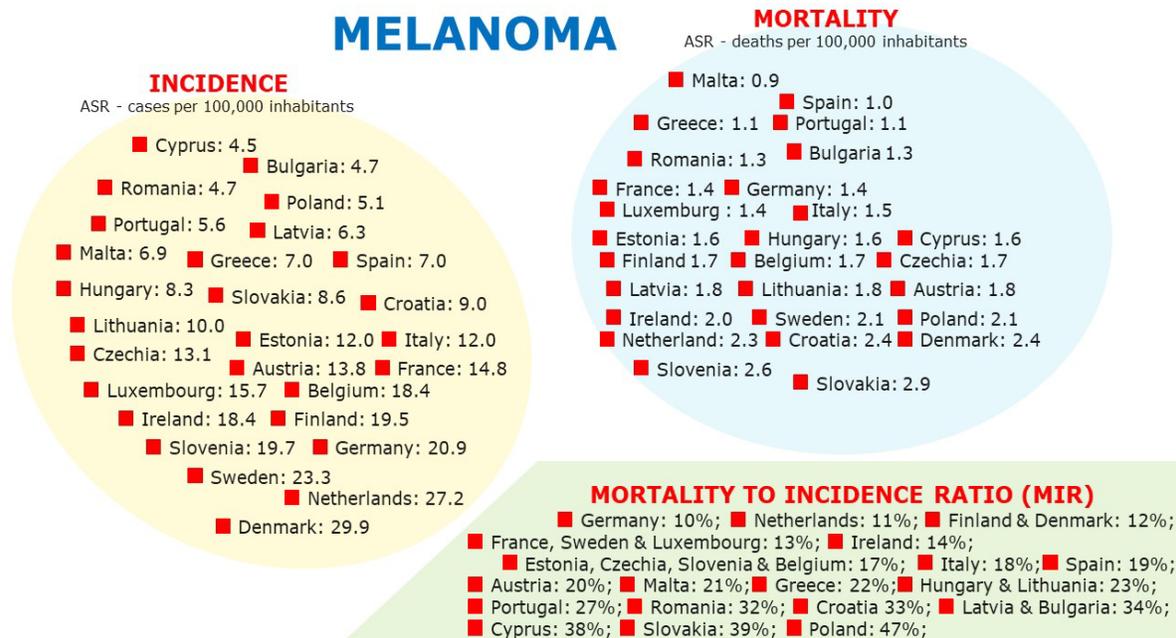
Fig. 2: – Non melanoma screen cancers in EU 27 -Age standardized rates for incidence and mortality and MIR

## Malignant Melanoma (MM)

The differences in the melanoma data are less pronounced: the incidence ASR varies from 4.5 in Cyprus up to 29.9 in Denmark and the mortality ASR from 0.9 in Malta up to 2.9 in Slovakia. The mortality to incidence ratio is relatively low in Germany (10%), The Netherlands (11%), Finland and Denmark (12%) while it is over 30% in Romania (32%), Croatia (33%), Latvia and Bulgaria (34%), Cyprus (38%), Slovakia (39%) and Poland (47%).

Looking closer, we notice how for MM incidence 3- to 4-fold differences exist even between neighbouring countries, such as Romania and Hungary or Poland and Germany.

As the population genotypic and phenotypic characteristics, sun exposure behaviour, and UV index do not diverge much between these countries sharing borders, it is likely that these incidence disparities reflect inequalities in melanoma case diagnosis and registration, beyond the true burden of new melanoma.



**Fig. 3:** – Melanoma in EU 27 – Age standardized rates for incidence and mortality and MIR

## Shortage in the medical workforce for the management of skin-related disorders

For EU 27 statistics report a quantity of approx. 24,000 dermatologists and 323,000 general practitioners. This data refers to 2015 for dermatologists (source: [www.statista.com](http://www.statista.com)) and to 2018 for the general practitioners (GPs) (source: Eurostat 2018).

Once again there is a large differentiation across the European Union:

the number of dermatologists per 100,000 inhabitants varies from 1.5 in Ireland to 13 in Greece with an average in EU 27 of 5.3 dermatologists per 100 K inhabitants; the number of GPs per 100,000 inhabitants ranges from 22 in Poland to 244 in Portugal (data related to 2018).

Country	General Practitioners (GPs)		Dermatologists	
	Source: EUROSTAT 2018 (1)	GPs per 100K inhabitants	<a href="http://www.statista.com">www.statista.com</a> - 2015 (3)	Dermatologists per 100K inhabitants
AUSTRIA	7163	81	<b>805</b>	9,10
BELGIUM	13178	115	<b>740</b>	6,46
BULGARIA	4199	60	<b>354</b>	5,06
CYPRUS	912	105	<b>95</b>	10,94
CROATIA	2478	61	<b>208</b>	5,12
CZECHIA	6981	66	<b>845</b>	7,99
DENMARK	4649	80	<b>180</b>	3,10
ESTONIA	964	73	<b>87</b>	6,59
FINLAND	6837	125	<b>192</b>	3,51
FRANCE	59399	89	<b>4003</b>	6,00
GERMANY	58940	71	<b>5391</b>	6,49
GREECE	3642	34	<b>1387</b>	12,95
HUNGARY	4390	45	n.a.	n.a.
IRELAND	4081	84	<b>71</b>	1,46
ITALY	42987	71	<b>4441</b>	7,34
LATVIA	1411	73	<b>140</b>	7,24

**GENERAL PRACTITIONERS AND DERMATOLOGISTS IN EU 27**

Country	General Practitioners (GPs)		Dermatologists	
	EUROSTAT 2018 (1)	GPs per 100K inhabitants	<a href="http://www.statista.com">www.statista.com</a> - 2025 (3)	Dermatologists per 100K inhab.
LITHUANIA	2560	91	<b>202</b>	7,18
LUXEMBOURG	534	90	<b>43</b>	7,25
MALTA	396	82	<b>17</b>	3,52
NETHERLANDS	15091	88	<b>691</b>	4,03
POLAND	8418	22	<b>1260</b>	3,29
PORTUGAL	25123	244	<b>373</b>	3,62
ROMANIA	12026	62	<b>957</b>	4,93
SLOVENIA	1275	61	<b>74</b>	3,54
SLOVAKIA	n.a.	n.a.	n.a.	n.a.
SPAIN	35798	76	<b>1652</b>	3,51
SWEDEN	6411	64	<b>386</b>	3,85
Total EU 27	322,680	72	<b>23,789</b>	5.3
For reference				
UNITED KINGDOM	49569	75	<b>2482 (4)</b>	3,76
USA	99659		19957 (5)	3.65 (6)
AUSTRALIA	39971		484 (7)	

NOTE: Total 2020 EU 27 population= 446,097,878

(1) <https://ec.europa.eu/eurostat/statistics-explained/pdfscache/37382.pdf>

(2) [www.who.int/data/gho](http://www.who.int/data/gho)

(3) <https://www.statista.com/statistics/873707/number-from-dermatologists-in-europe/>

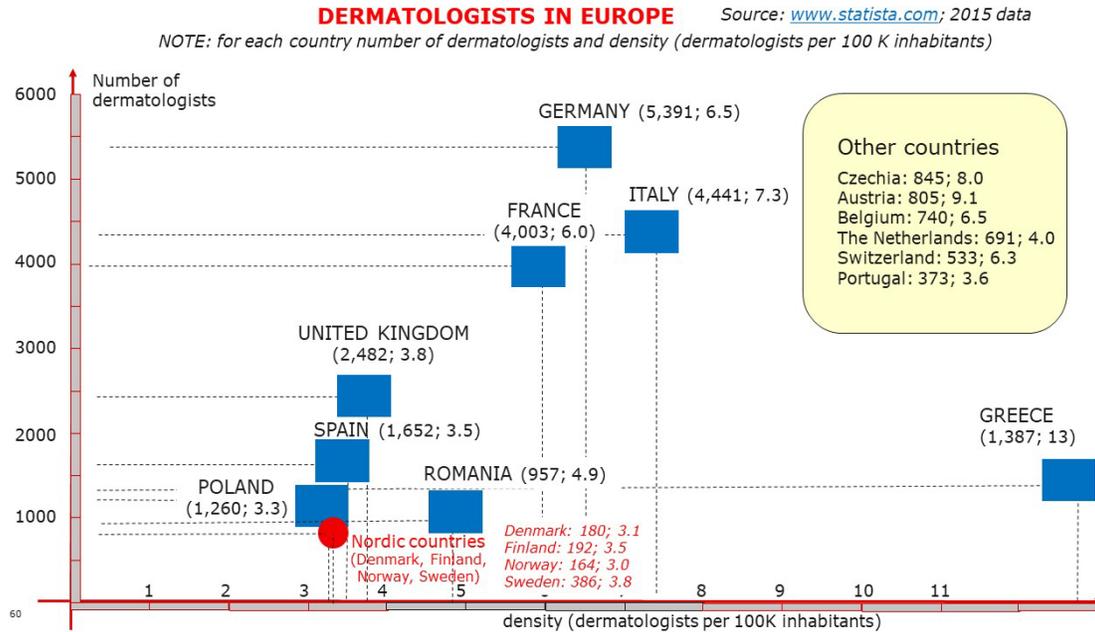
(4) In addition to registered dermatologists, this figure includes 120 FTE residents (573 trainees) and 1400 GPs with special interest in dermatology.

(5) Source: American Academy of Dermatology – AAD

(6) Source: JAMA Dermatology; the density of dermatologists went up from 1.7 dermatologists per 100,000 inhabitants in 1970 to 3.65 in 2019. Much of this increase comes from the larger proportion of women entering the speciality (from 7% of 1970 to 47% in 2020 according to AAD)

(7) Australian Government – Department of Health; 2016 data

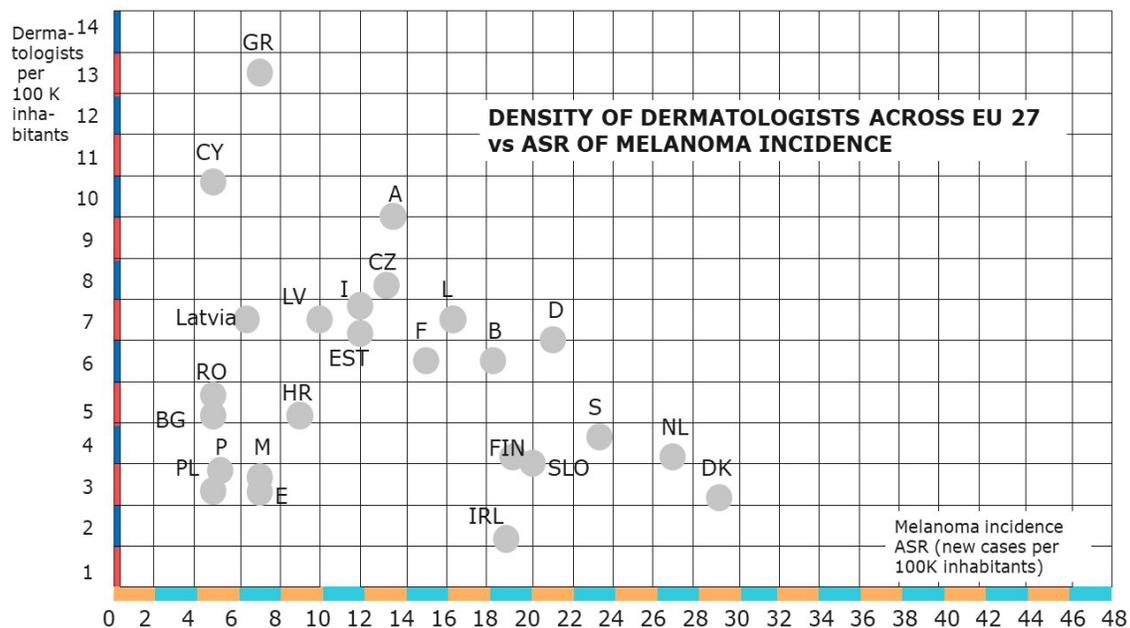
**Table 3: – GPs and dermatologists in EU 27**



**Fig. 4:** – Number and density of dermatologist in EU 27

Often the numbers of dermatologists reported by different sources are not consistent; the main reason is represented by the role of residents: for example, in some countries the trainees (residents specializing in dermatology) see patients by themselves and are considered as a part of the workforce (e.g., in Greece, Malta and U.K.) while in other countries trainees are not allowed to consult by themselves and therefore their numbers are not included.

The following diagram reports for each country the density of dermatologists vs the melanoma incidence (ASR) i.e. vs the need of care.



**Fig. 5:** – Density of dermatologists (number per 100 K inhabitants) and melanoma incidence (ASR) for the 27 countries of the European Union.

It is important to notice how the density of dermatologists (number of medical professionals per 100 K inhabitants) is inadequate to the needs of the citizens:

- In some countries the density of dermatologists is above the average value in EU27 (5.3 dermatologists per 100 K inhabitants) despite an incidence rate of melanoma below the average (13.4 new cases per 100 k inhabitants); examples are Greece, Cyprus, Czechia, Italy, Estonia, Latvia, Lithuania).
- On the contrary in other countries to a high incidence rate corresponds a density of dermatologists below the average; examples are Denmark, The Netherlands, Sweden, Finland, Slovenia, and Ireland.

It is interesting to also notice that in some cases a higher availability of dermatologists does not corresponds to a better management of skin cancer; if we use the mortality to incidence ratio for melanoma, we discover that countries such as Denmark, Germany, Netherlands, Sweden, Finland, Ireland have a MIR below 15% in spite of a density of dermatologists below the EU 27 main value of 5.3 per 100 K inhabitants. It is clear that an effective management of skin cancer is highly depending mainly on the overall quality of the national health system of which the availability of specialists is just an element.

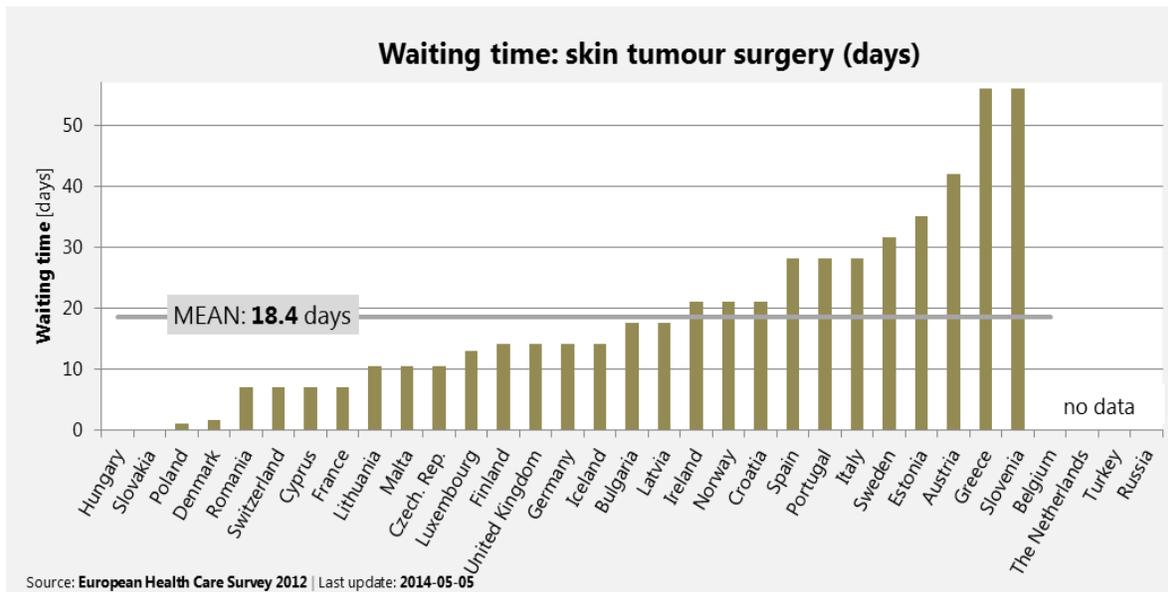
The shortage of dermatologists in Europe (and in general at a worldwide level) leads to longer waiting times for patients, overworked doctors, untreated conditions, or even patients needing to travel to a different city to get treatment.

Data related to waiting times for dermatological consultations is scarce and not updated. A study published in 2014 indicates waiting times for regular visits varying from “same day” in Romania, Greece and Bulgaria up to 13 weeks in UK or 16 weeks in Malta and Slovenia and even 19 weeks in Ireland (see fig. 6).



**Fig. 6:** – Waiting times for regular dermatologic visits across Europe

The same report indicates waiting times for skin tumour surgery from less than 2 days (e.g., in Poland and Denmark) up to 60 days in Greece and Slovenia with a mean value across Europe of 18.4 days.



**Fig. 7:** – Waiting times for skin tumor surgery across Europe