

DIGESTIVE CANCERS EUROPE  
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## Burden, economic impact & research gaps in GI oncology

Key findings from the Pan-European study  
on digestive diseases and cancers by the UEG

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# This presentation is based on the results of the White Book 2 Study:

**Executive Summary:** Rose, TC, Pennington, A, Kypridemos, C, Chen, T, Subhani, M, Hanefeld, J, et al. Analysis of the burden and economic impact of digestive diseases and investigation of research gaps and priorities in the field of digestive health in the European Region—White Book 2: executive summary. United European Gastroenterol J. 2022; 10( 7): 659–64.

<https://doi.org/10.1002/ueg2.12298>

**Part 1:** Rose TC, Pennington A, Kypridemos C, Chen T, Subhani M, Hanefeld J, Ricciardiello L, Barr B. Analysis of the Burden and Economic Impact of Digestive Diseases in the European Region—White Book 2: Part 1, 2022, [ueg.eu/white-book2-part1](https://ueg.eu/white-book2-part1)

**Part 2:** Rose TC, Barr B. Analysis of Research Gaps and Priorities in the Field of Digestive Health in the European Region—White Book 2: Part 2, 2022, [ueg.eu/white-book2-part2](https://ueg.eu/white-book2-part2)

**Publication for lay audience:** Burden, economic impact & research gaps: Key findings from the Pan-European study on digestive diseases and cancers: [nxtbook.com/ueg/UEG/burden-economic-impact-and-research-gaps](https://nxtbook.com/ueg/UEG/burden-economic-impact-and-research-gaps)

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## Burden of digestive diseases and priorities for digestive health research



New data are needed to raise political and public awareness of digestive diseases.

The White Book 2 commissioned by UEG provides an international analysis on:

### 1 The burden of digestive diseases:

- Disease incidence, prevalence, mortality, Disability-Adjusted Life Years and trends on disease evolution
- Modifiable risk factors, including alcohol use, drug use, smoking and high BMI
- Socioeconomic factors that contribute to an unequal burden of digestive diseases

### 2 The economic impact of digestive diseases:

Measures of indirect and inpatient costs: estimated for 31 UEG member countries

### 3 The priority areas for digestive health research:

- Research priorities and preferences of UEG national society members
- Bibliometric analysis on the distribution of research activity in the field of digestive health
- Horizon 2020 funded research projects in digestive disease research

# Overview: Publication of the White Book 2



# The Burden of Digestive Diseases

Digestive diseases are common and currently affect over 300 million people across UEG's member countries alone.

Between 2000 and 2019, there has been an increase in ...





# The Burden of Digestive Diseases

In 2019, amongst UEG member countries, there were approximately:

**72,000,000** incident cases

**498,000** deaths

**332,000,000** prevalent cases



# The Economic Burden of Digestive Diseases

**€ 25.3 billion** (0.12%) in **direct costs**

for digestive diseases in 2019 (% of GDP) for the 31 countries investigated

**€ 89 billion** (0.47%) in **indirect costs**

for digestive diseases in 2019 (% of GDP) for the 31 countries investigated

Note: these numbers exclude digestive cancers

## Digestive Cancers

### Major health and societal burden for the member countries

- 15,165,491 years of **life lost** due to **premature mortality**
- 1,419,672 years of **healthy life lost** due to **disability**
- Modifiable risk factors:
  - Smoking
  - Alcohol
  - High BMI
  - Sedentary lifestyle
  - Drug use

We need effective preventive strategies across Europe focusing on **positive lifestyle changes!**



# Digestive Cancers

Ageing contributes to the growing burden of digestive cancers

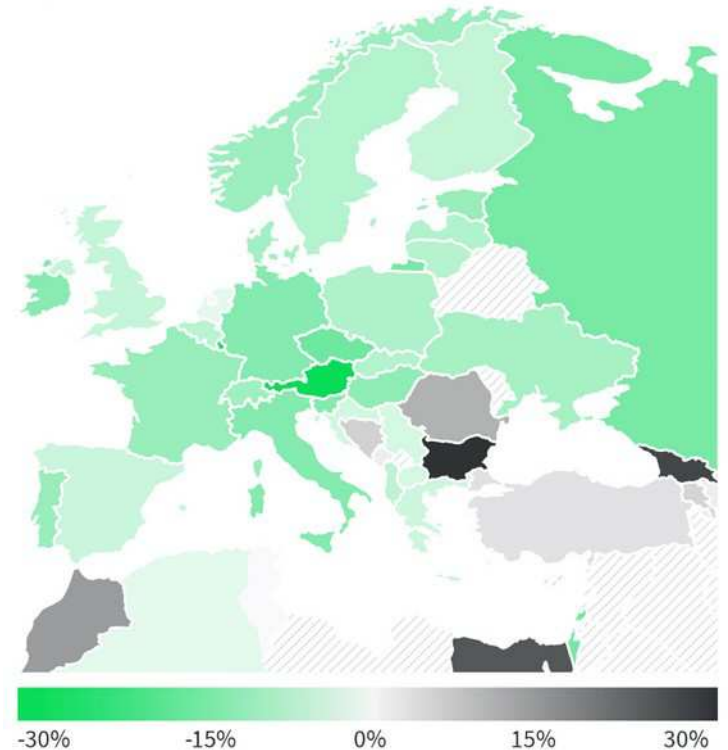
10 out of 44 member countries already experienced a percentage change increase in age-standardised DALY rates from 2000 – 2019

- Southeast, Central and Eastern Europe
- Expected to increase further given the demographic trends
- Need to be prepared



Source: NHS

Percentage change in age-standardised DALY rates from 2000 to 2019, for 44 UEG member countries



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# Esophageal cancer

Increase in incident cases and deaths since 2000:

In 2019, there were approximately:

**61,000**

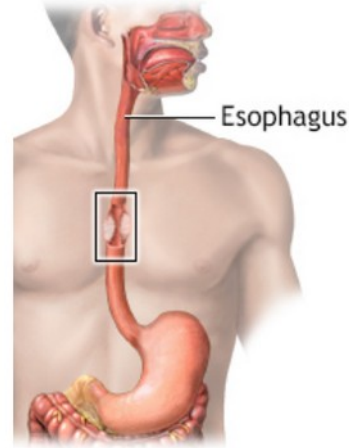
incident cases

20%  
increase  
since 2000

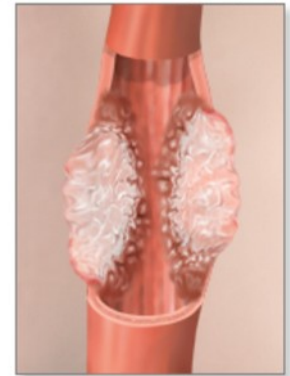
**55,000**

deaths

16%  
increase  
since 2000



Tumor narrowing esophagus



## Esophageal cancer

Across the 44 countries, up to:

**43%**

of the proportion of oesophageal cancer age-standardised DALY rates are associated with **alcohol** use. The highest rates are in Germany

**56%**

of the proportion of oesophageal cancer age-standardised DALY rates are associated with **smoking**. The highest rates are in Montenegro

**37%**

of the proportion of oesophageal cancer age-standardised DALY rates are associated with a **high BMI**. The highest rates are in Montenegro

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**Alcohol**

**Smoking**

**High BMI**

Burden associated with **high BMI** has increased in **all countries**

# Stomach cancer

Incidence remains high, despite some decreases:

In 2019, there were approximately:

**179,000**

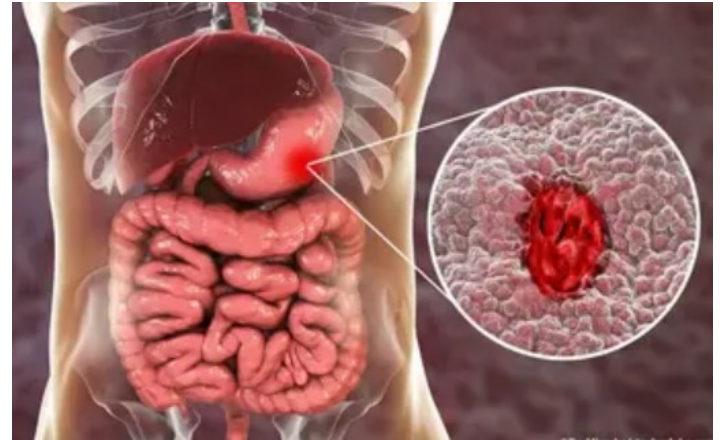
incident cases

9%  
decrease  
since 2000 ↓

**144,000**

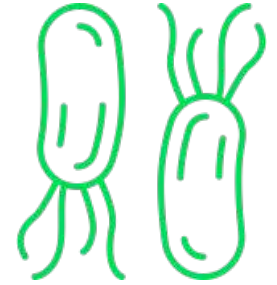
deaths

17%  
decrease  
since 2000 ↓



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# Stomach cancer



Burden associated with smoking, across the 44 countries, up to:

**28%**

of the proportion of stomach cancer age-standardised DALY rates are associated with **smoking**. The highest rates are in Montenegro

**12 out of 44**

member countries experienced a percentage change increase in the proportion of burden associated with **smoking** from 2000 to 2019, including several countries within Southeastern Europe

**Helicobacter pylori** is the **major risk factor** for gastric cancers

- Approx. 90% of global non-cardiac gastric cancers attributable to this bacterium
- Socioeconomic factors linked to increased risk of infection

# Liver cancer

General increase in incidence and mortality rates:

In 2019, there were approximately:

**81,000**

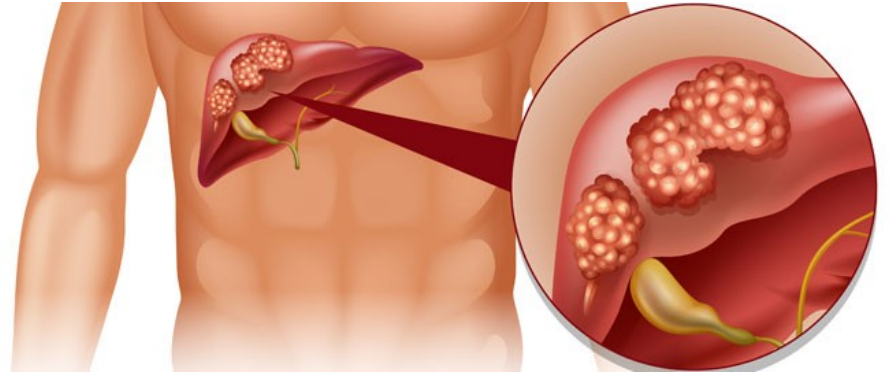
incident cases

61%  
increase  
since 2000

**75,000**

deaths

56%  
increase  
since 2000



## Liver cancer

Risk factors across the 44 countries, up to:

54%



of the proportion of liver cancer age-standardised DALY rates are associated with **alcohol** use. The highest rates are in Austria

40%



of the proportion of liver cancer age-standardised DALY rates are associated with **drug use**. The highest rates are in Italy

25%



of the proportion of liver cancer age-standardised DALY rates are associated with a **high BMI**. The highest rates are in Egypt

26%



of the proportion of liver cancer age-standardised DALY rates are associated with **smoking**. The highest rates are in Greece and Montenegro

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Alcohol

Drug use

High BMI

Smoking

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## Colorectal cancer

Increase in incident cases and deaths since 2000:

In 2019, there were approximately:

**600,000**

incident cases

33%  
increase  
since 2000



**307,000**

deaths

19%  
increase  
since 2000



Source: German Cancer Society

There is a particularly worrisome increase in CRC in people under the age of 50 –  
EO-CRC



# Early onset CRC

CRC incidence in the population < 50 years of age increases in the Western world:

- +63% between 1988 and 2015 (7.9-> 12.9/100.000)
- 10% of all newly diagnosed CRC

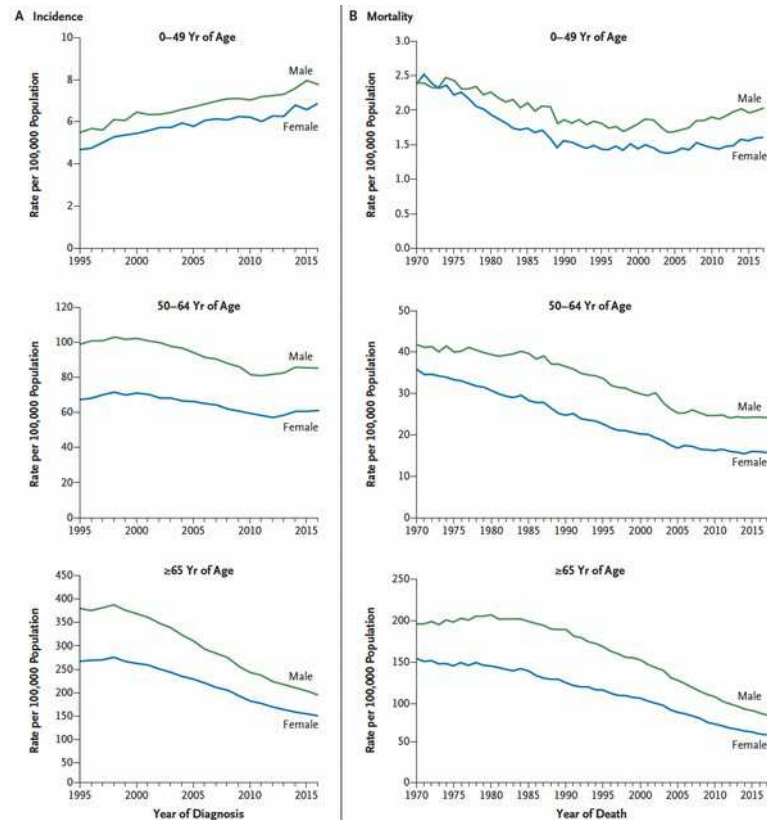
**Mortality** of younger patients with CRC is increasing.

**Median age at diagnosis of CRC is decreasing**

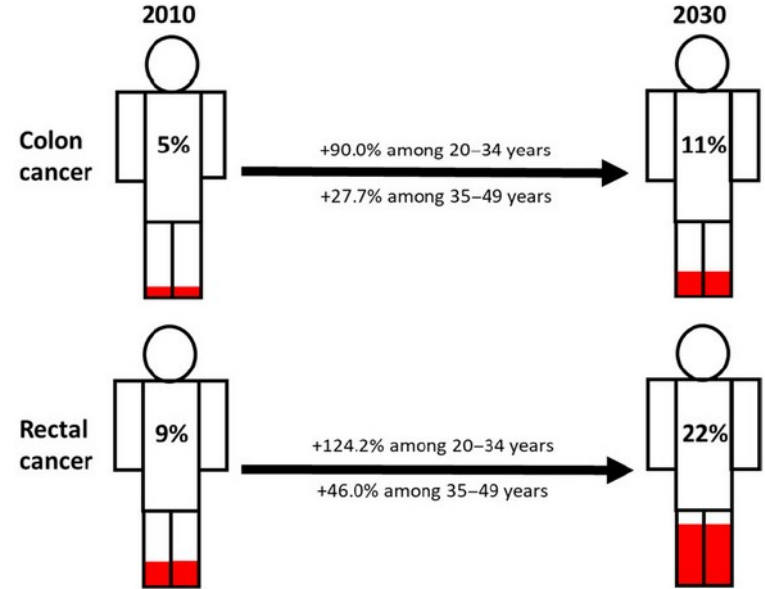
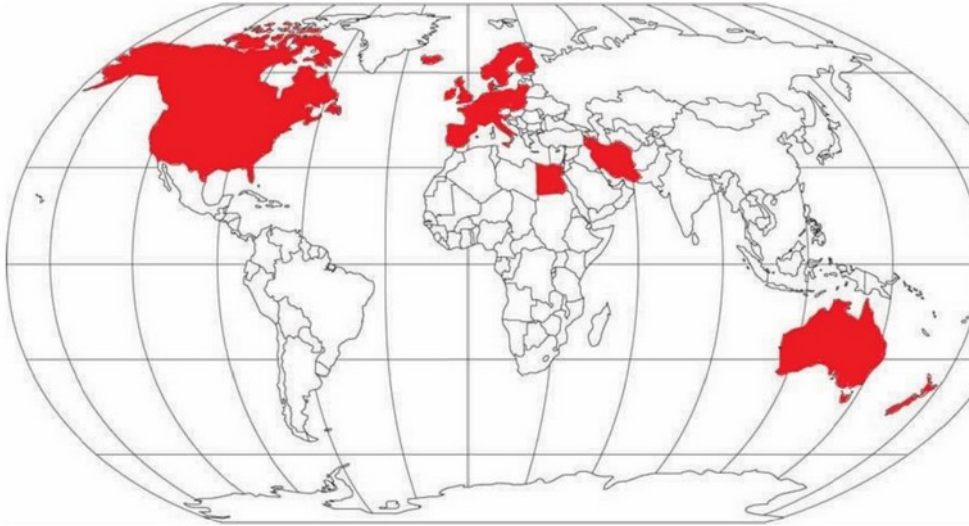
- 72 years early 2000
- 66 years currently

Opposite trend to development in elderly patients!

- result of screening and early detection



# Increase in EO-CRC particularly in the Western world



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## Colorectal cancer

Increase in cases linked to several modifiable risk factors, across the 44 countries, up to:

**20%**



of the proportion of colon and rectum cancer age-standardised DALY rates are associated with **alcohol** use.

The highest rates are in Germany

**15%**



of the proportion of colon and rectum cancer age-standardised DALY rates are associated with a **high BMI**.

The highest rates are in Czechia

**22%**



of the proportion of colon and rectum cancer age-standardised DALY rates are associated with **smoking**.

The highest rates are in Montenegro

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**Alcohol**

**High BMI**

**Smoking**

All countries have experienced increases in the proportion of burden associated with a high BMI from 2000 to 2019.

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## Pancreatic cancer

Responsible for the **second highest number of deaths** due to digestive cancers

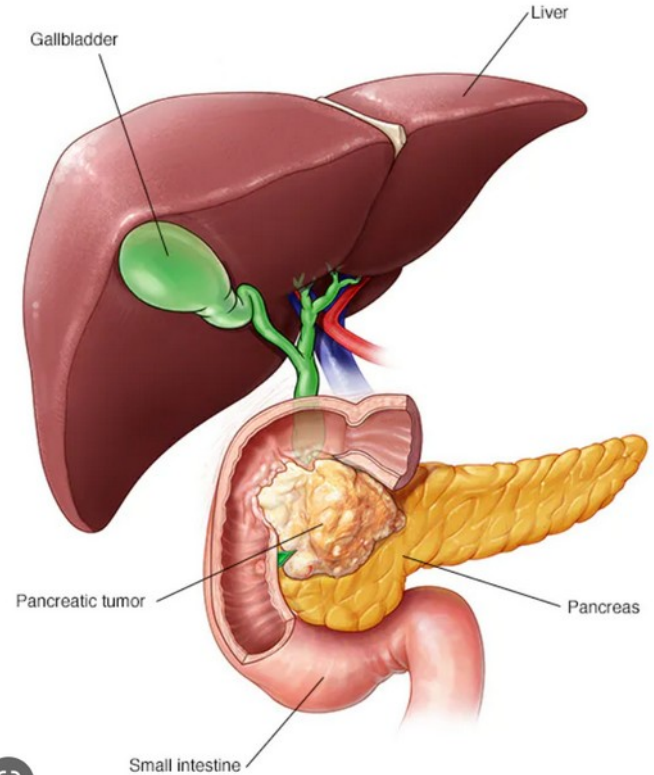
In 2019, there were approximately:

**154,000**  
incident cases

53%  
increase  
since 2000

**155,000**  
deaths

53%  
increase  
since 2000



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## Pancreatic cancer

Across the 44 countries, up to:

### 36%

of the proportion of pancreatic cancer age-standardised DALY rates are associated with **smoking**.  
The highest rates are in Montenegro



### 10%

of the proportion of pancreatic cancer age-standardised DALY rates are associated with a **high BMI**.  
The highest rates are in Egypt



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**Smoking**

**High BMI**

The majority of patients with PDAC die within one year after diagnosis!

## Reducing the burden of digestive cancers

### Prevention through healthy lifestyle

- Reduced alcohol consumption
- No smoking policy
- Tackling obesity
- Promoting physical activity

### Screening

- Colorectal cancer
- Helicobacter



### Increased Research Funding

- Early detection, biomarker (pancreatic cancer!)
- Novel mechanisms and therapeutics
- **Implementation research for preventive measures**
- ...
- **Of note: 40% of all digestive cancers could be prevented!**





# There is an Economic Value of Reducing Premature Mortality

If, across the 31 countries studied, digestive disease-related premature mortality rates were **reduced by**

**25%** 

**50%** 

**75%** 

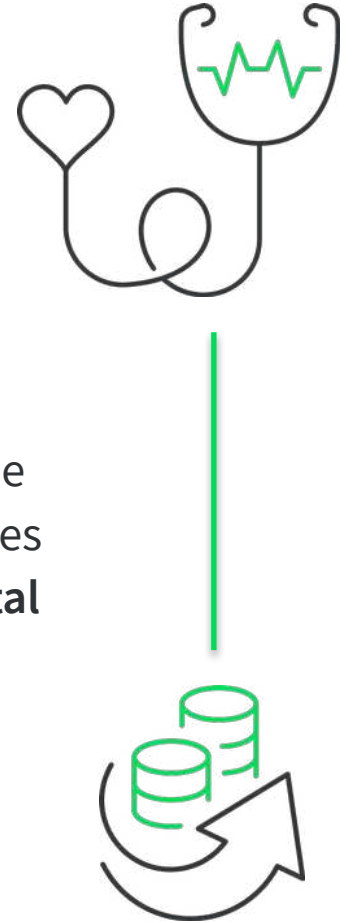
in 2019

The **estimated savings** from the prevention of productivity losses would have amounted to a total of

**€11.4 billion**

**€22.8 billion**

**€34.2 billion,**  
respectively.





# The Economic Value of Reducing Premature Mortality

Country	Value of reducing mortality					
	by 25%		by 50%		by 75%	
	Euros (millions)	% of GDP	Euros (millions)	% of GDP	Euros (millions)	% of GDP
Austria	225.72	0.06	451.44	0.11	677.17	0.17
Belgium	359.91	0.08	719.83	0.15	1079.74	0.23
Bulgaria	67.57	0.11	135.15	0.22	202.72	0.33
Croatia	48.18	0.09	96.35	0.18	144.53	0.27
Czechia	132.56	0.06	265.12	0.12	397.68	0.18
Denmark	219.64	0.07	439.28	0.14	658.93	0.21
Finland	194.00	0.08	387.99	0.16	581.99	0.24
France	1401.28	0.06	2802.57	0.11	4203.85	0.17
Germany	2971.79	0.09	5943.58	0.17	8915.37	0.26
Greece	58.49	0.03	116.98	0.06	175.47	0.10
Hungary	129.70	0.09	259.40	0.18	389.10	0.27
Ireland	68.45	0.02	136.90	0.04	205.35	0.06
Israel	76.72	0.02	153.45	0.04	230.17	0.07
Italy	974.65	0.05	1949.30	0.11	2923.94	0.16
Latvia	22.94	0.08	45.88	0.15	68.81	0.23
Lithuania	52.59	0.11	105.19	0.22	157.78	0.32

Country	Value of reducing mortality					
	by 25%		by 50%		by 75%	
	Euros (millions)	% of GDP	Euros (millions)	% of GDP	Euros (millions)	% of GDP
Luxembourg	19.67	0.03	39.33	0.06	59.00	0.09
Montenegro	2.36	0.05	4.71	0.10	7.07	0.14
Netherlands	303.38	0.04	606.75	0.07	910.13	0.11
Norway	78.37	0.02	156.74	0.04	235.11	0.06
Poland	490.54	0.09	981.09	0.18	1471.63	0.28
Portugal	121.07	0.06	242.13	0.11	363.20	0.17
Romania	246.87	0.11	493.73	0.22	740.60	0.33
Serbia	44.58	0.10	89.17	0.19	133.75	0.29
Slovakia	81.96	0.09	163.93	0.17	245.89	0.26
Slovenia	42.38	0.09	84.76	0.18	127.14	0.26
Spain	671.96	0.05	1343.91	0.11	2015.87	0.16
Sweden	147.19	0.03	294.38	0.06	441.57	0.09
Switzerland	267.88	0.04	535.77	0.08	803.65	0.12
Turkey	121.31	0.02	242.61	0.04	363.92	0.05
United Kingdom	1768.80	0.07	3537.60	0.14	5306.40	0.21



## Research and Funding Opportunities



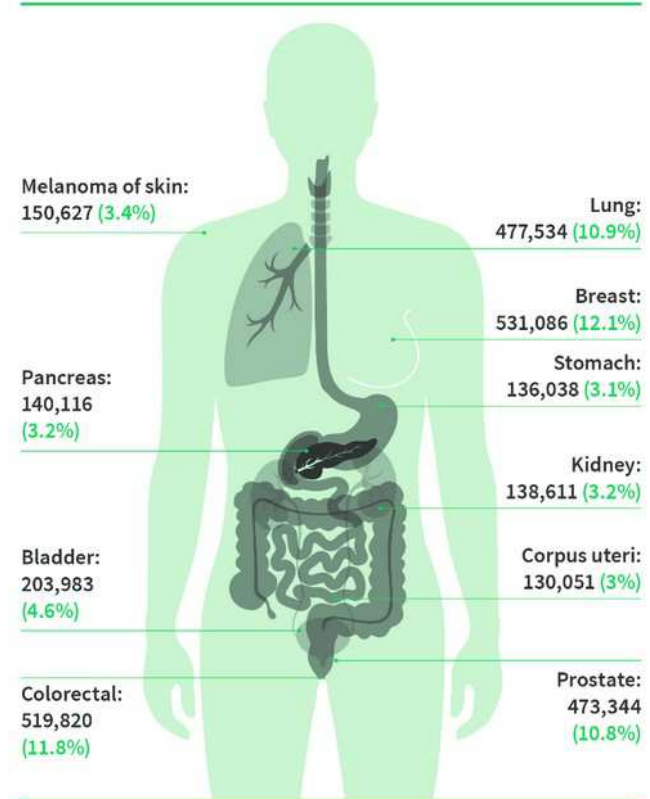
- A **lack of information** exists regarding the financial burden of digestive diseases and cancers
- Digestive cancers (pancreatic cancer!) are **underfunded in relation to their disease burden** compared with other non-digestive diseases
- **Prevention research** is an underexamined area (primary, secondary and tertiary, including implementation research)

## Digestive Cancers - Conclusion

### Digestive Cancers are on the rise in Europe

- **26% increase** in incident cases between 2000 and 2019
- Responsible for **1/3 of cancer-related deaths** in the UEG member countries
- **Colorectal cancer** accounts for the greatest proportion of cancer-related deaths in Europe
- Colorectal, pancreas and stomach cancer make up **18% of all new cancers** in Europe
- We have to do something about it

Number of new cases in 2020, both sexes, all ages<sup>16</sup>





# Thank you for your attention!

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**Link to the publication:** [ueg.eu/white-book](https://ueg.eu/white-book)

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