

Belgian Cancer Registry



Course on Liver Tumours

Epidemiology of liver tumours

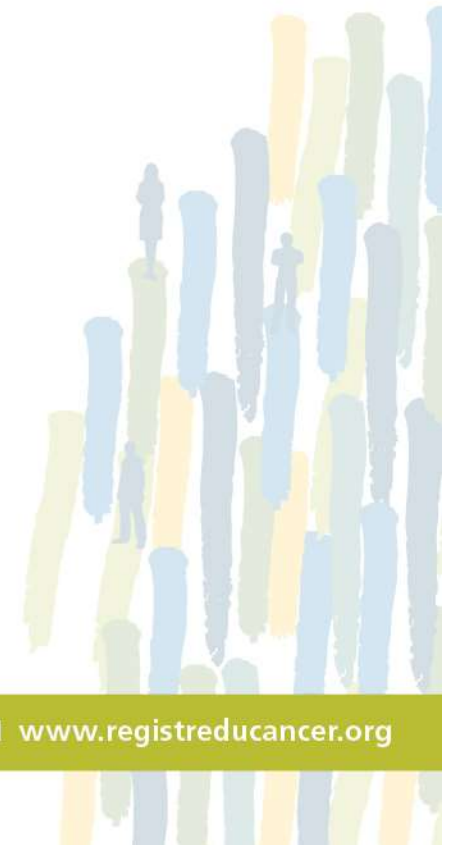
Nancy Van Damme

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3/12/2022

Outline

- Background
- Introduction Belgian Cancer Registry
- Epidemiology - Belgium
 - Incidence
 - Incidence trends
 - Stage
 - Survival
 - Prevalence
 - Childhood hepatic tumours



Background (1)

- Liver cancer
 - Sixth most common cancer
 - Third most frequent cause of cancer-related death globally
 - Estimated 826,000 new cases and 810,000 deaths per year
 - In most countries M:F ratio between 2-4
 - Risk factors
 - Hepatitis B and C virus
 - Alcohol
 - Obesity
 - Diabetes
 - Aflatoxins

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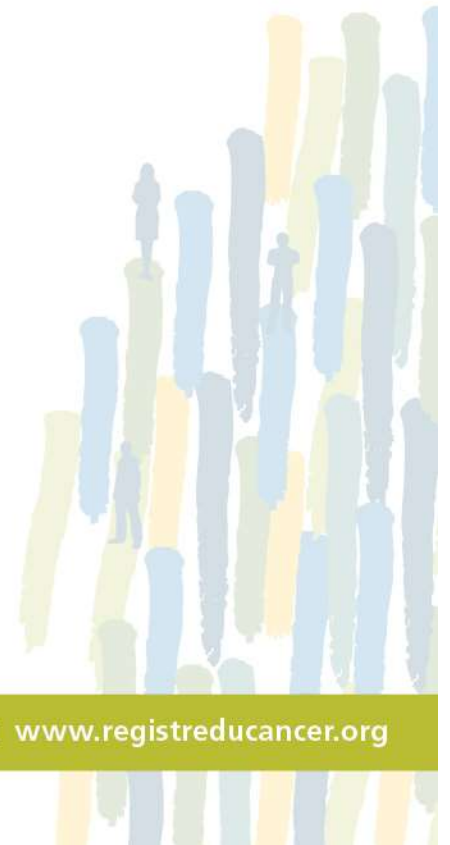


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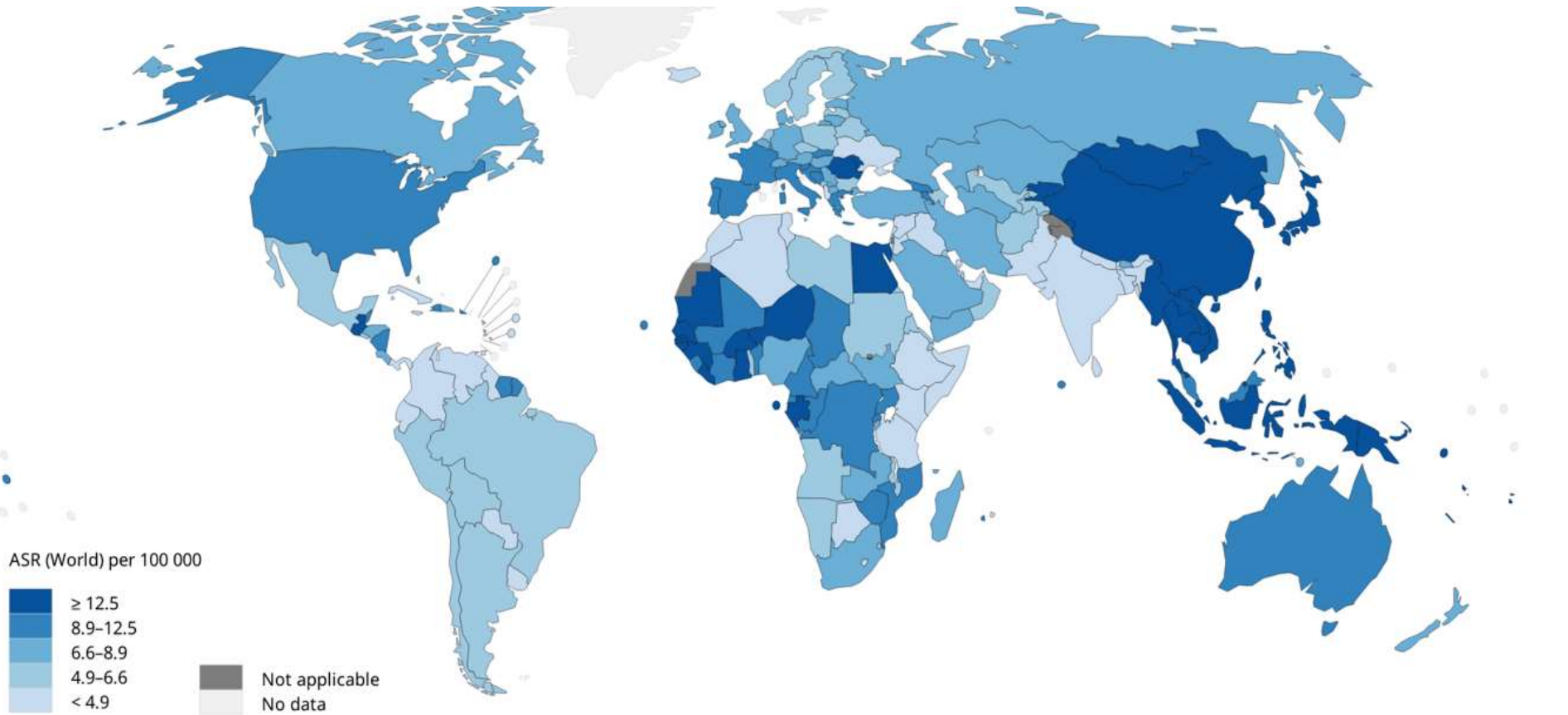
Global, regional and national burden of primary liver cancer by subtype. Runggay et al. Eur J Cancer 2022, 161: 108-118

Background (2)

- Histology
 - Hepatocellular carcinoma (HCC): ICD10 C22.0
 - Intrahepatic cholangiocarcinoma (iCCA): ICD10 C22.1
 - Other specified histology: ICD10 C22.2 – C22.9



Estimated age-standardised incidence rates in 2020, liver, males



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Data source: GLOBOCAN 2020
Map production: IARC
(<http://gco.iarc.fr/today>)
World Health Organization



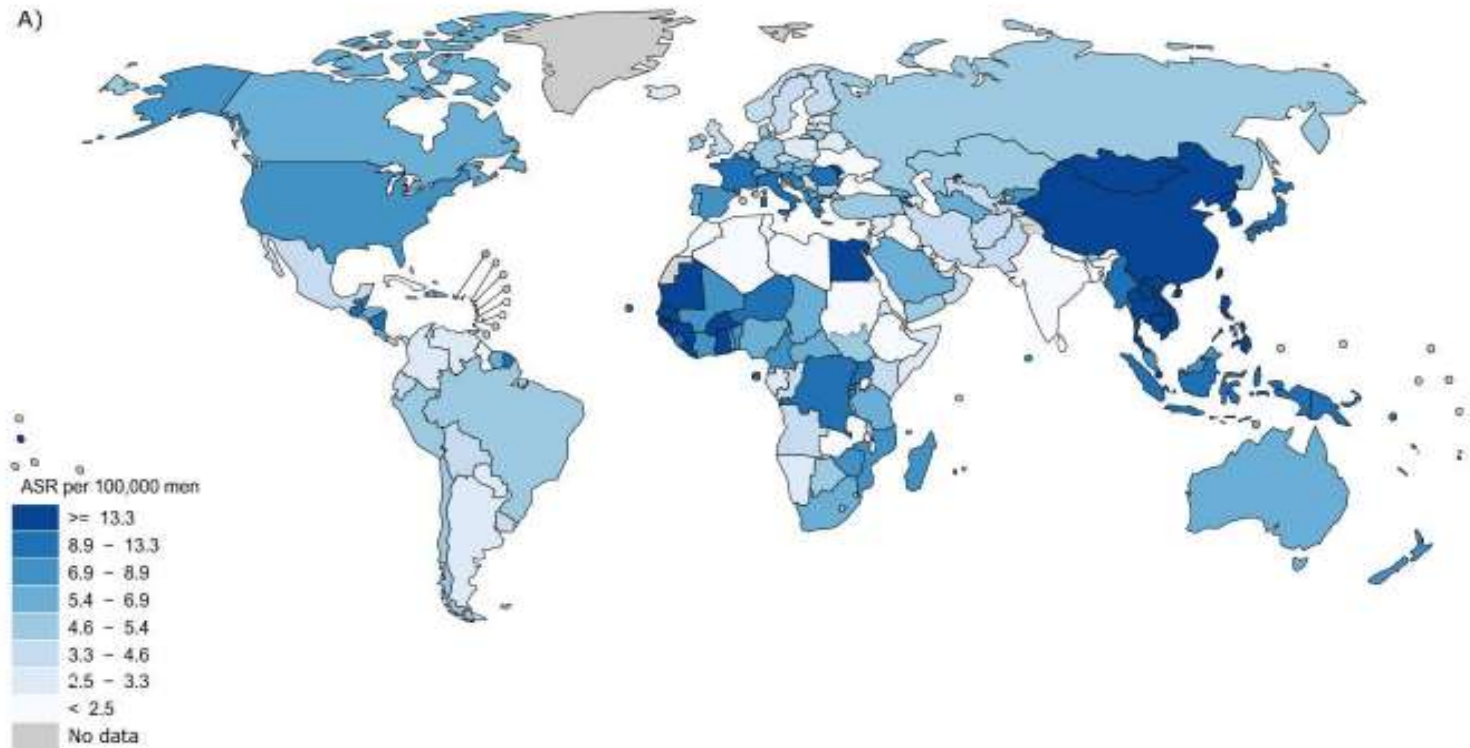
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Age-standardised incidence rate of HCC - men

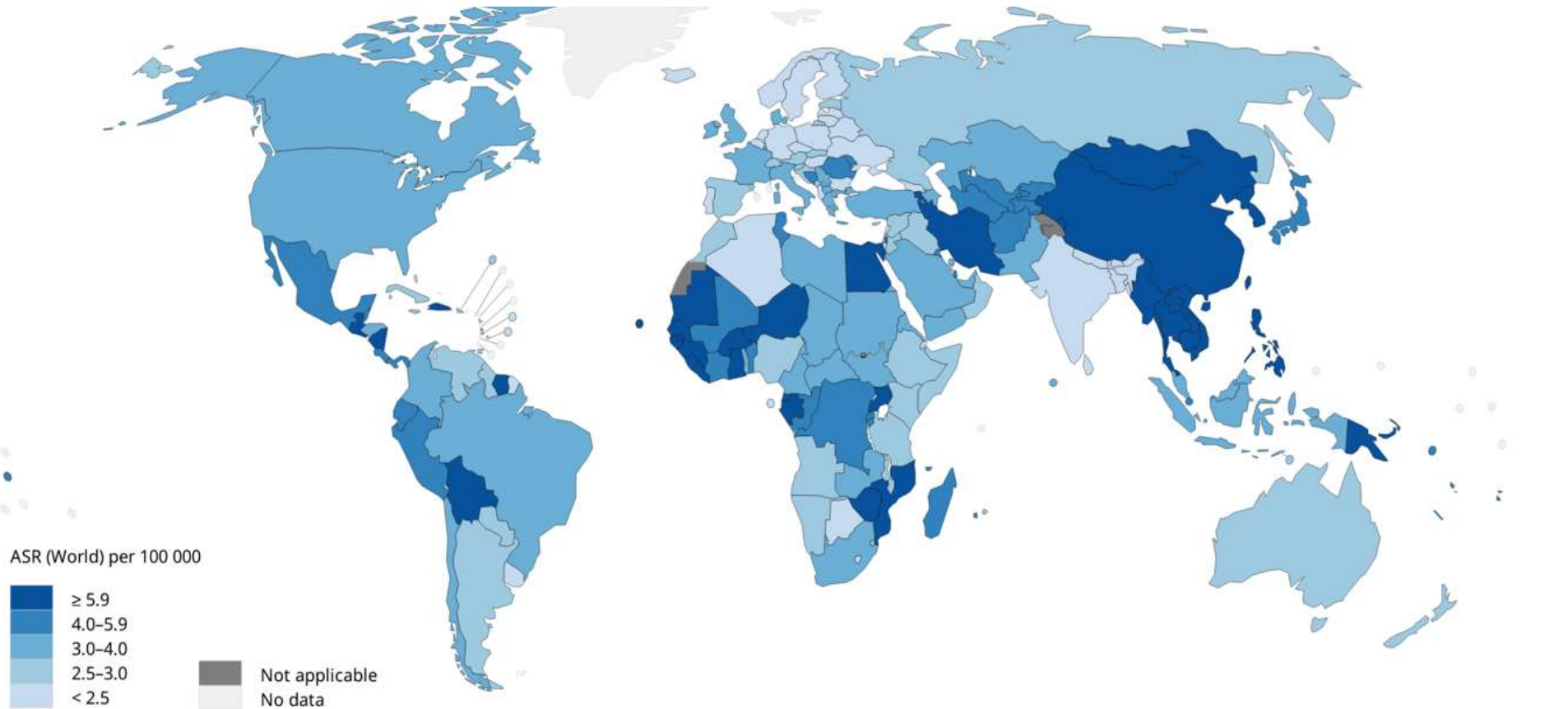


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Estimated age-standardised incidence rates in 2020, liver, females



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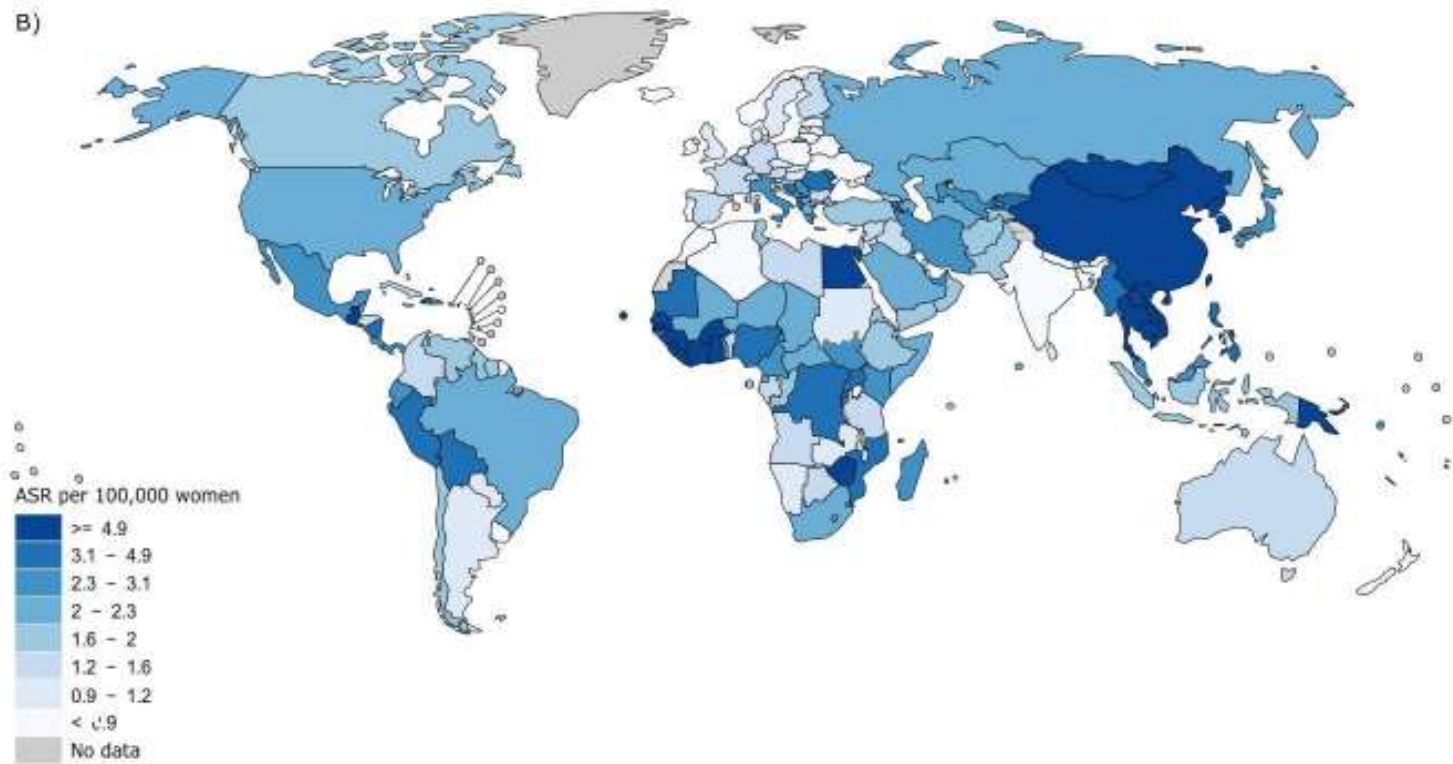
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Age-standardised incidence rate of HCC - women



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Belgian Cancer Registry: data collection

~100 Hospitals
120,000 records per year

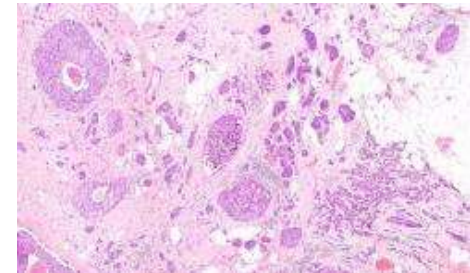


Secure File
Transfer Protocol

Web
application



**72 Laboratories for
Pathological Anatomy**
640,000 records per year



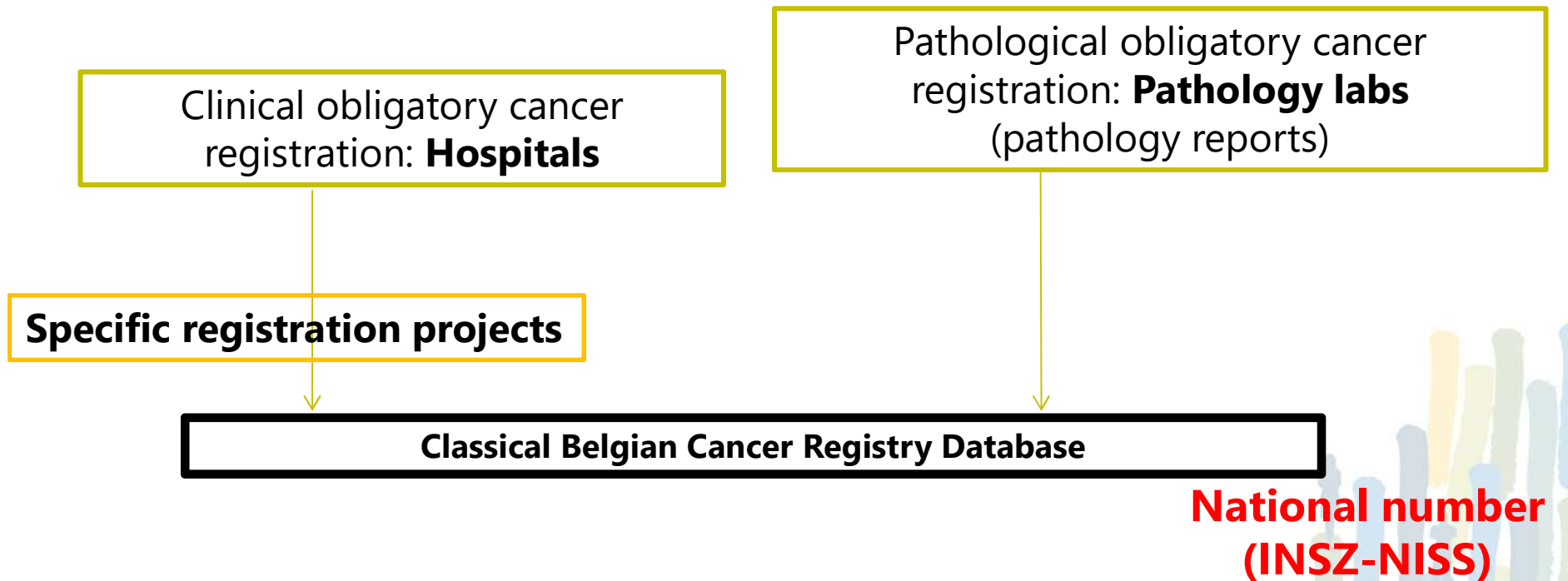
BCR registration form

Pathology report

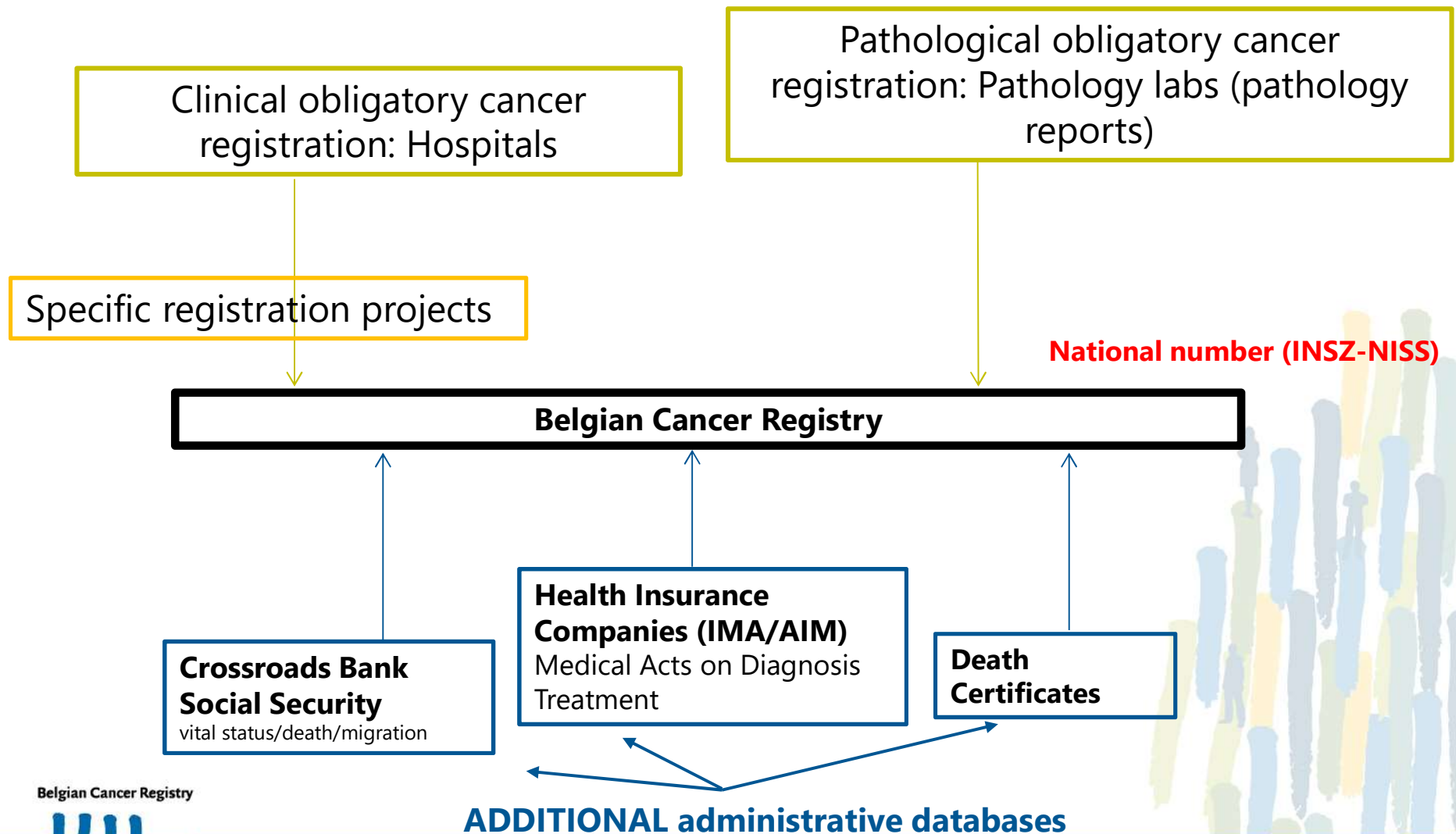
Belgian Cancer Registry



Belgian Cancer Registry: dataflow ⁽¹⁾



Belgian Cancer Registry: dataflow (2)



A cancer registry is a basic tool for cancer surveillance

a. To serve public health by monitoring changes in cancer occurrence and prognosis (epidemiology) and evaluating mass interventions like **screening**, descriptive epidemiology: **incidence**, **survival** and **prevalence**.

b. To serve **oncology** by studying access and variation in **quality of care and outcomes**, including the **patient perspective**, and cause-specific mortality. The methods of quality-of-care research also include **interpretation** of context and regular **feedback** to the clinicians involved.

Eurocourse FP7, JW Coebergh et al. 2012



2008

Belgian Cancer Registry — Welcome to the Belgian Cancer Registry!
(kankerregister.org)



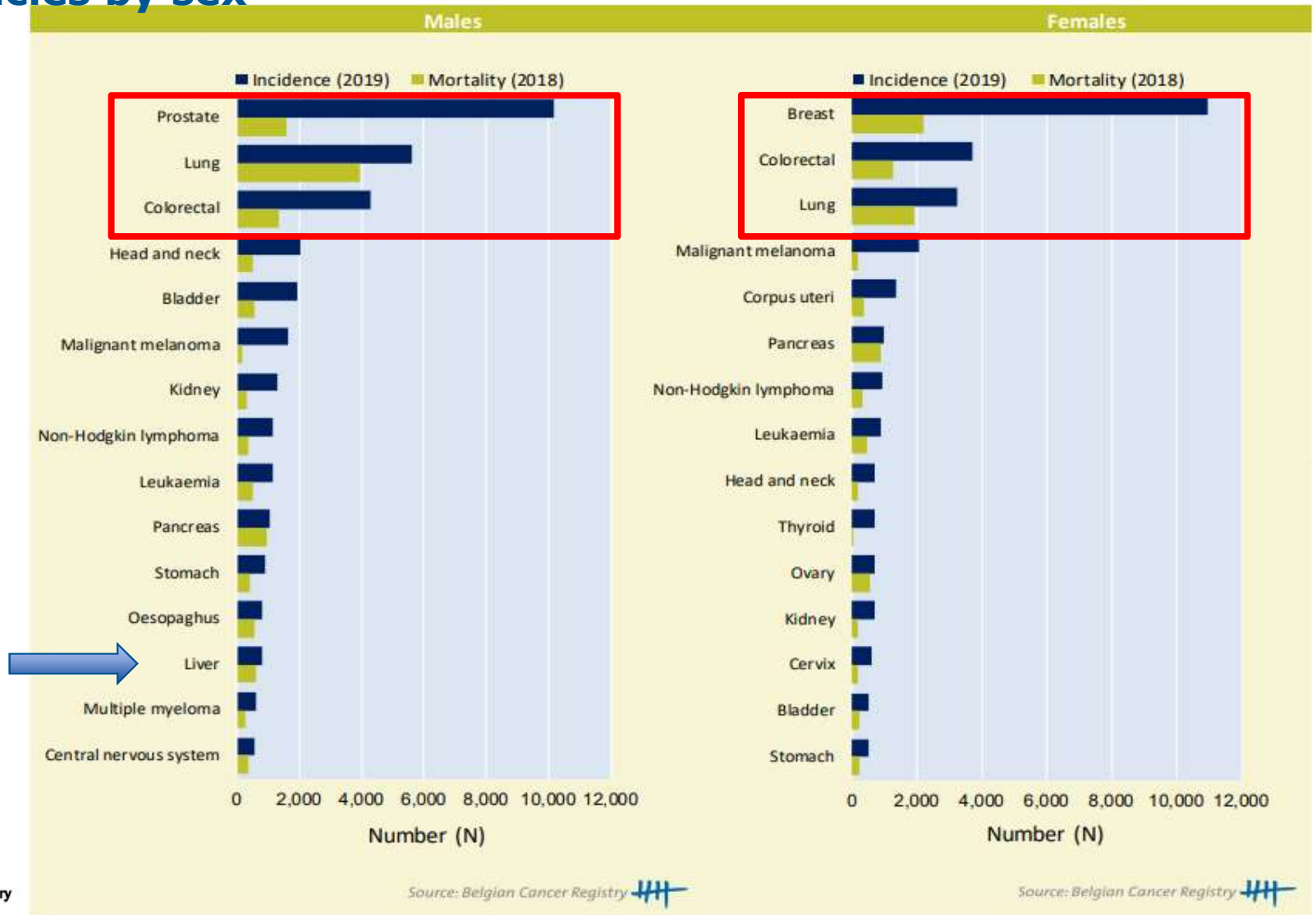
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1

3

Incidence and mortality for the 15 most frequently diagnosed malignancies by sex



* All results are represented in the ICD-10 classification.

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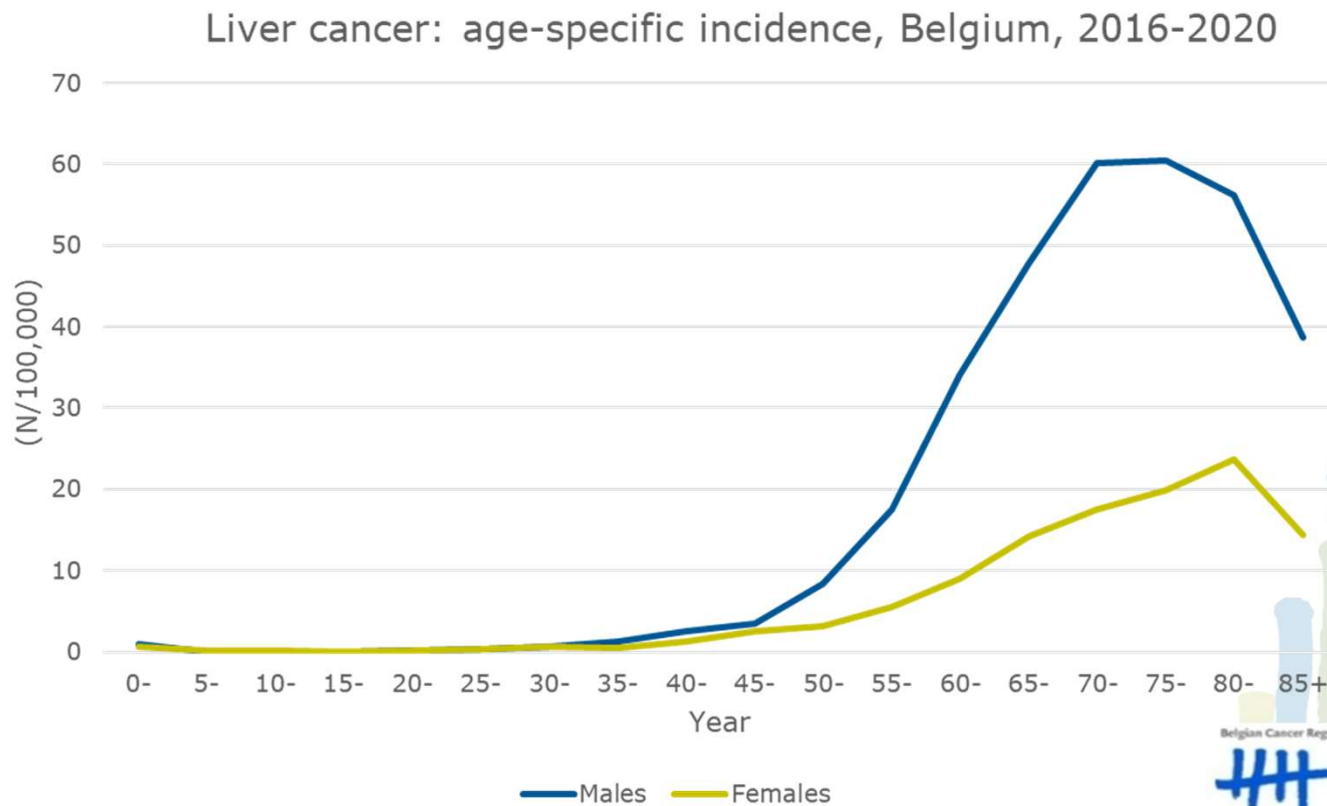
Cancer Burden in Belgium, 2004-2019

Liver cancer by sex and histology, Belgium 2011-2020

	Liver Cancer				HCC				iCCA			
	Men		Women		Men		Women		Men		Women	
	N	WSR	N	WSR	N	WSR	N	WSR	N	WSR	N	WSR
2011	537	5,66	211	1,92	437	4,57	129	1,18	69	0,78	64	0,54
2012	597	6,03	243	2,13	485	4,96	146	1,24	83	0,8	71	0,62
2013	619	6,21	252	2,17	473	4,71	153	1,33	100	1,02	70	0,61
2014	611	5,98	274	2,26	497	4,84	161	1,26	82	0,81	1	0,78
2015	672	6,56	276	2,25	545	5,33	157	1,27	103	1,01	93	0,76
2016	692	6,67	268	2,15	549	5,25	153	1,24	104	0,97	79	0,67
2017	738	6,82	274	2,18	607	5,53	156	1,20	104	1	97	0,78
2018	750	6,86	327	2,64	563	5,13	168	1,34	144	1,3	114	0,93
2019	814	7,14	303	2,37	632	5,53	162	1,21	127	1,12	108	0,88
2020	769	6,66	327	2,51	548	4,68	164	1,22	178	1,55	133	1,06

WSR: age-standardised rate, using the World Standard Population (n/100,000 person years)

Age-specific incidence – ICD10 C22

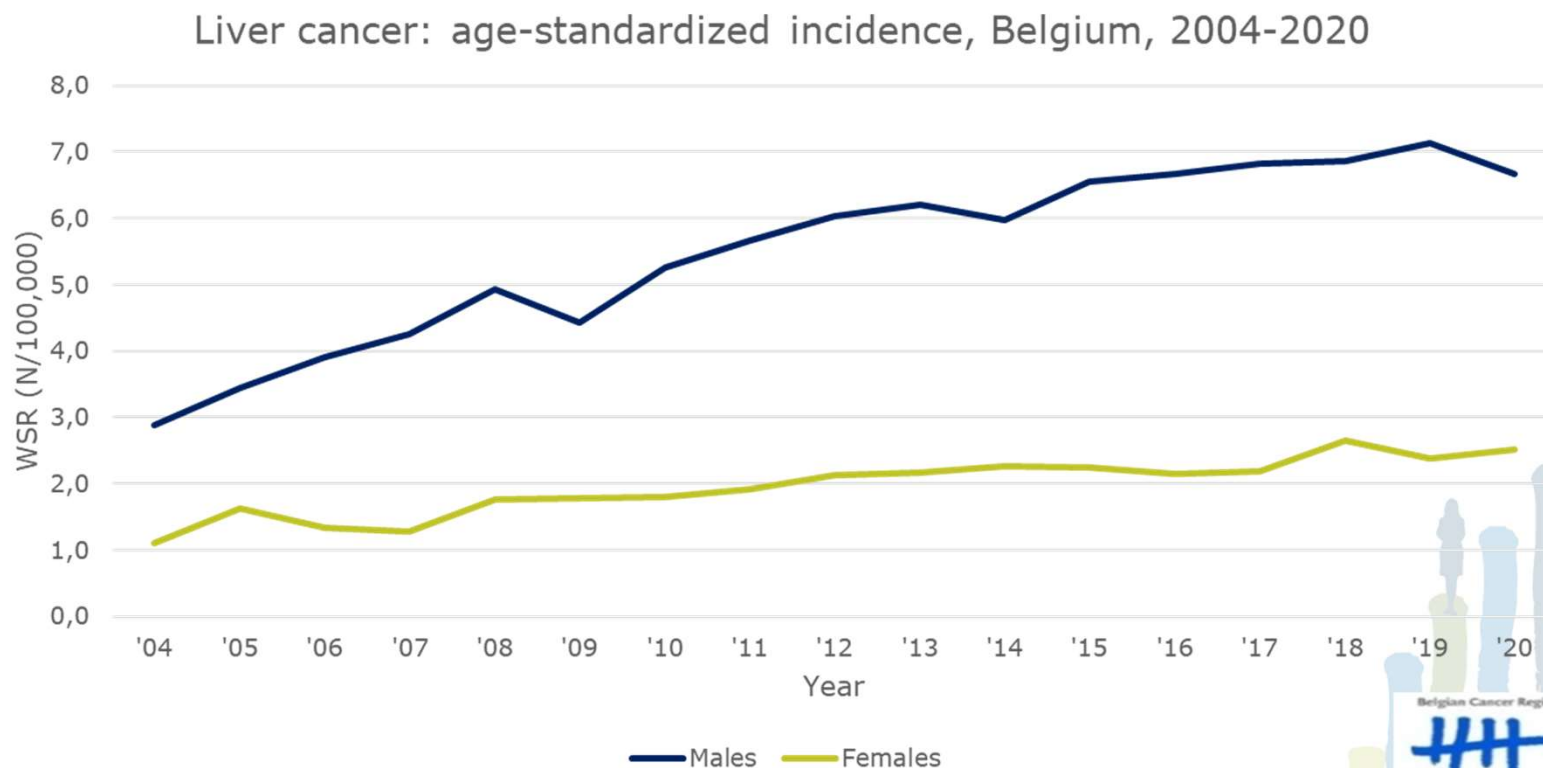


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Incidence trends in Belgium – ICD10 C22



	2004-2020		2004-2019	
	EAPC	95% CI	EAPC	95% CI
Males	5,1%	[4,0% : 6,2%]	5,6%	[4,4% : 6,7%]
Females	4,5%	[3,3% : 5,7%]	4,7%	[3,4% : 6,0%]
Males + Females	4,9%	[3,9% : 6,0%]	5,3%	[4,3% : 6,4%]

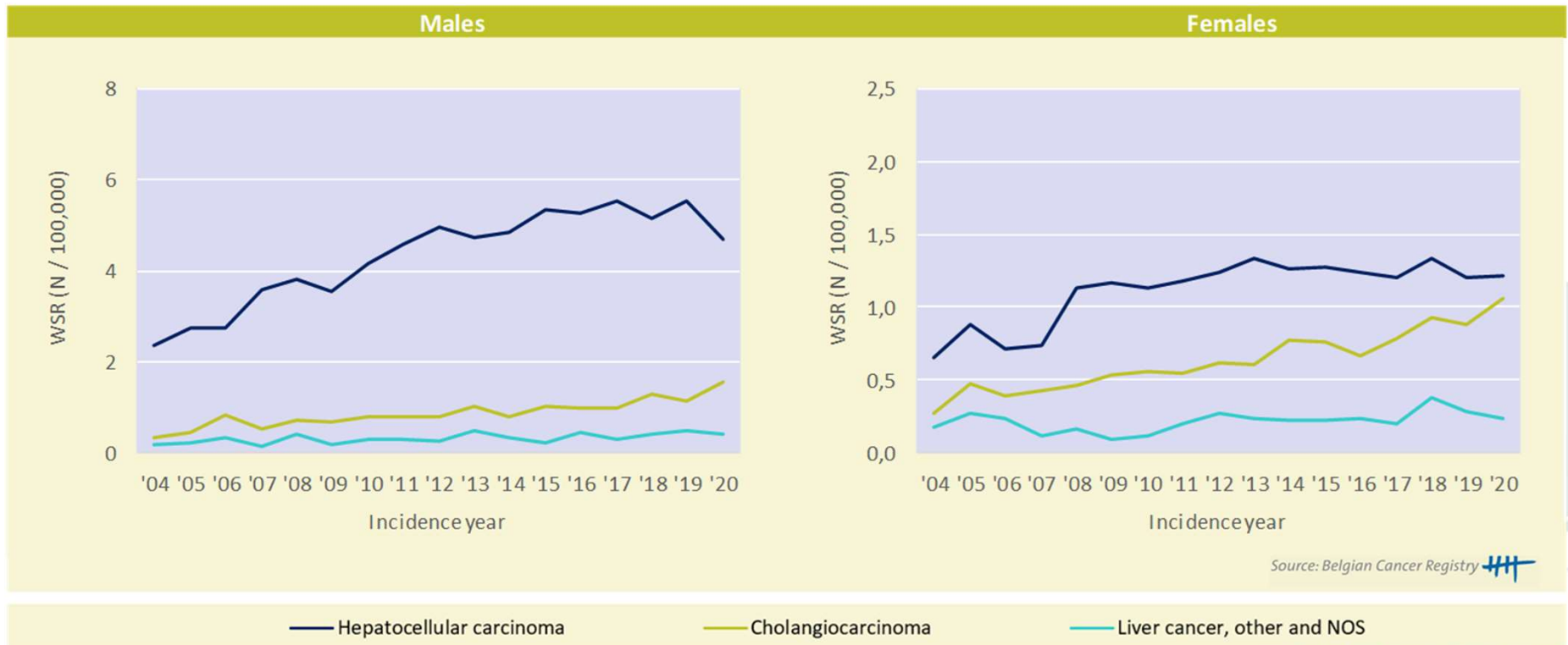
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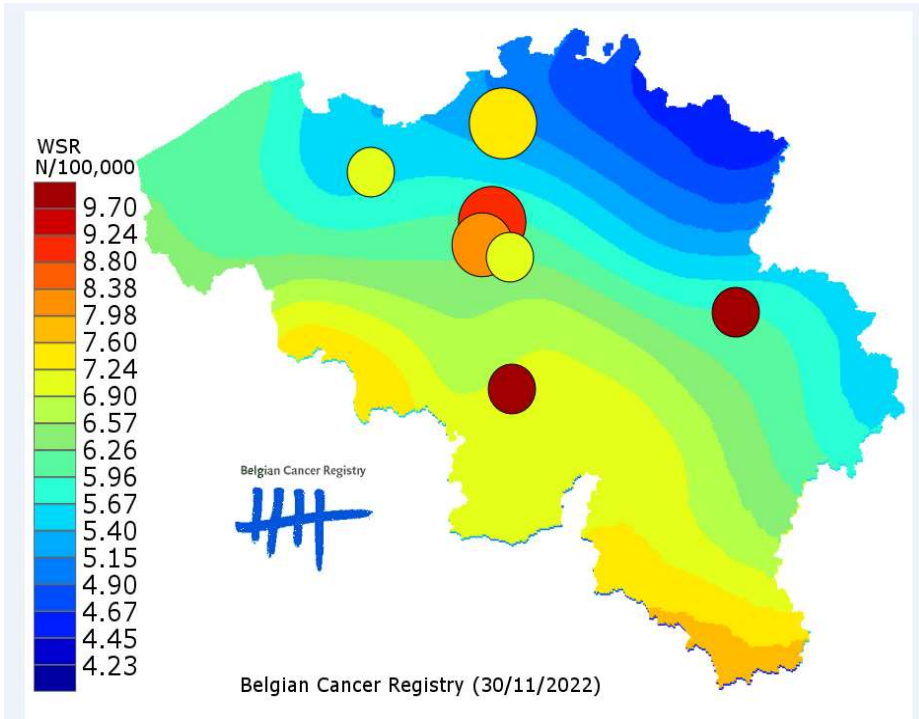
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EAPC: Estimated Annual Percentage Change

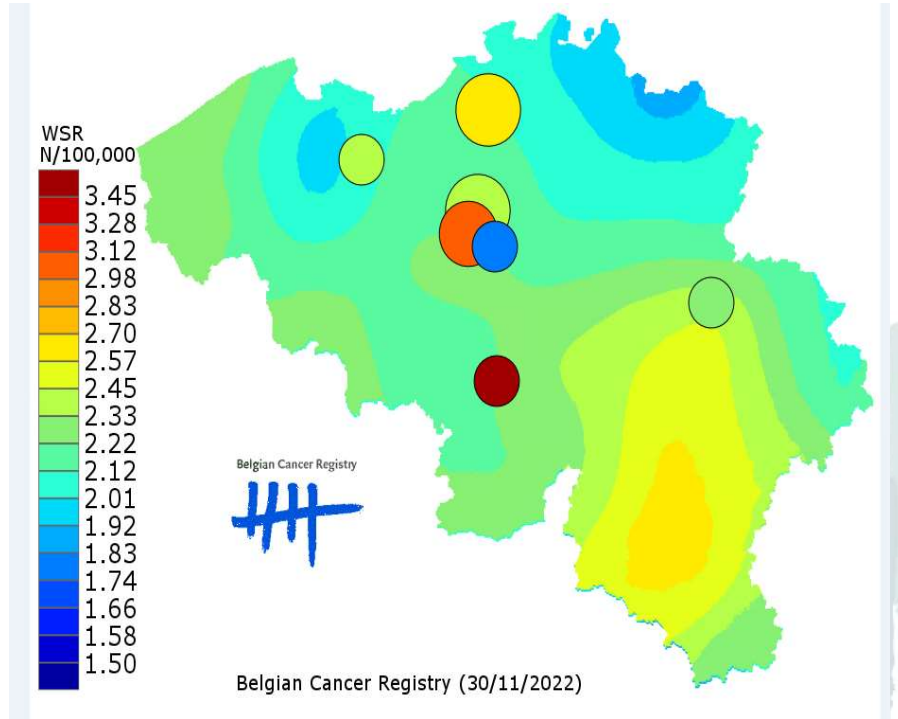
Liver cancer: trends by sex and histology



Age-standardized incidence in Belgium, 2016-2020



Males

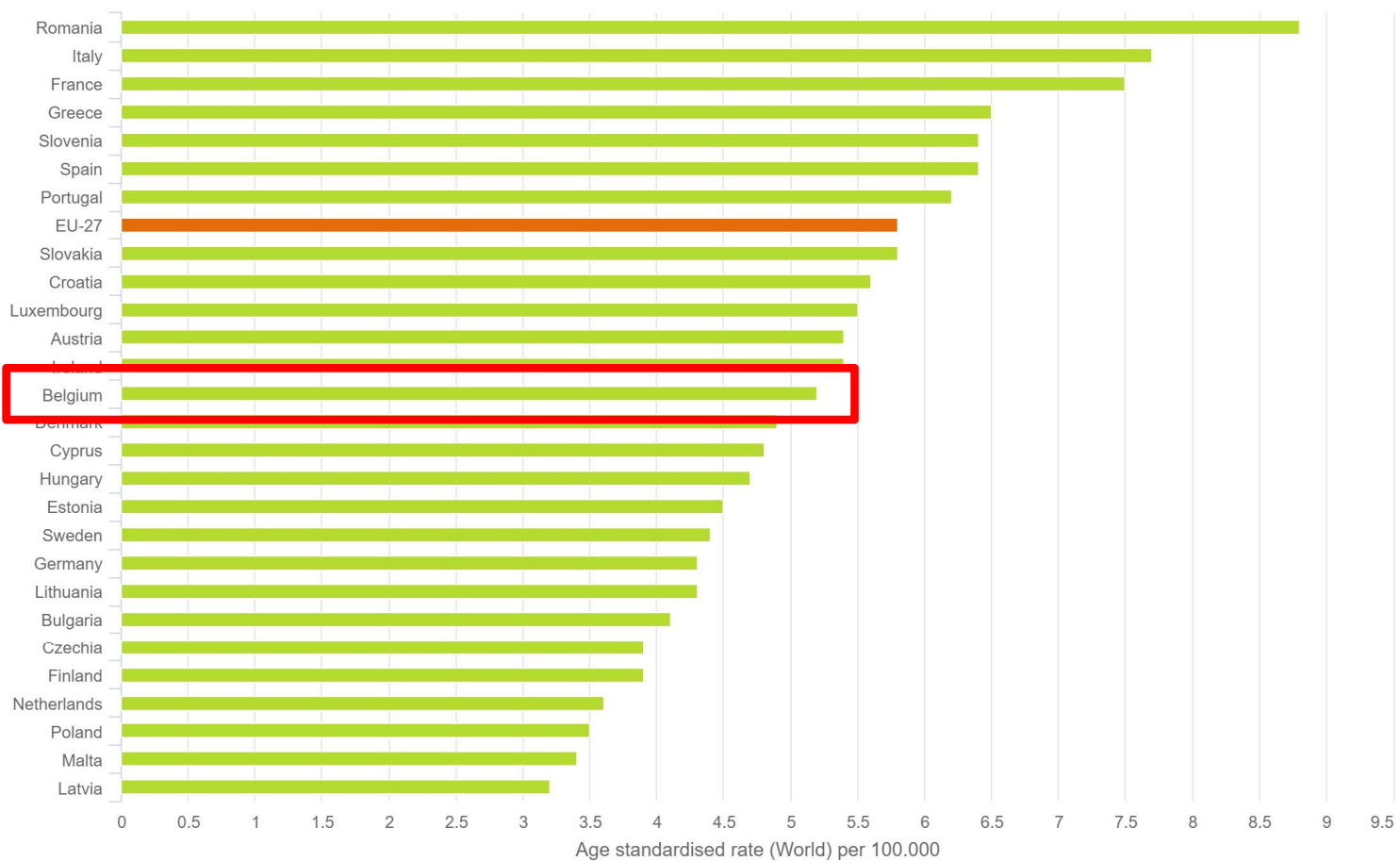


Females

Incidence in Europe

Estimated incidence by country

EU27, Both sexes, Liver, All ages, 2020



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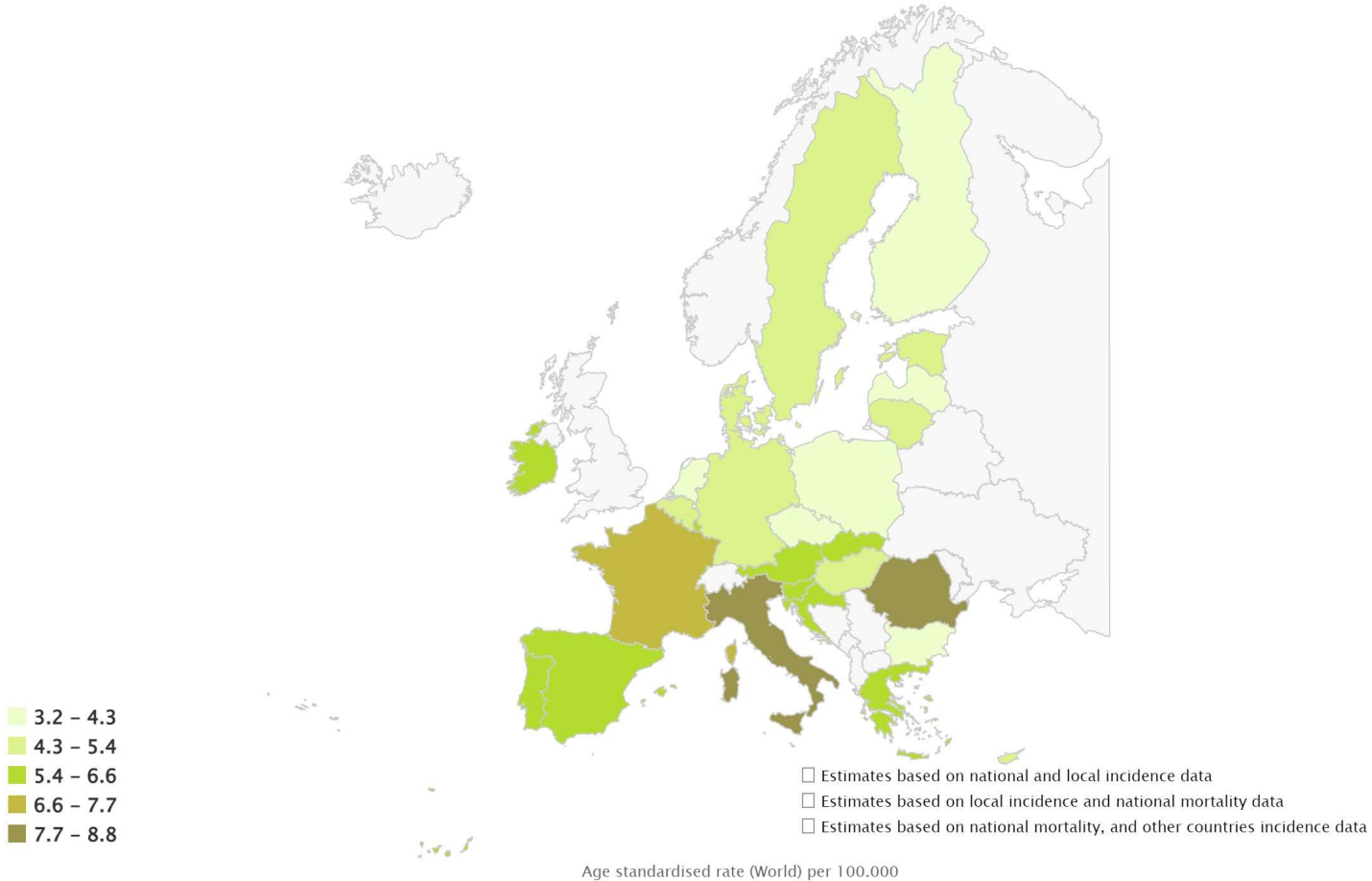
Source: European Cancer Information System (ECIS), European Commission, <https://ecis.jrc.ec.europa.eu/>

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Incidence in Europe

Estimated incidence by country ▼

EU27, Both sexes, Liver, All ages, 2020

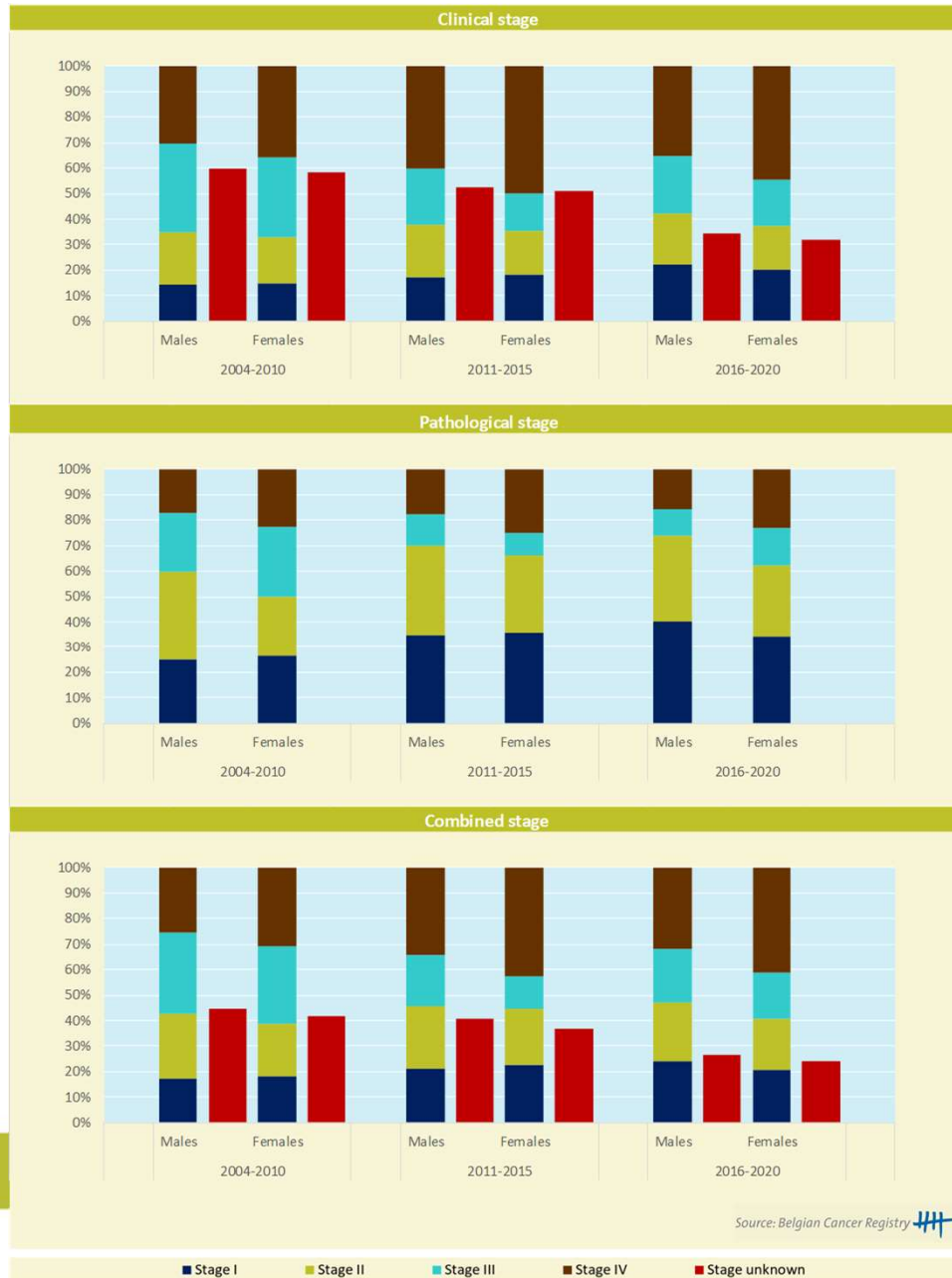


Belgian Cancer Registry



Source: European Cancer Information System (ECIS), European Commission, <https://ecis.jrc.ec.europa.eu/>

Liver cancer: stage distribution



Belgian Cancer Registry

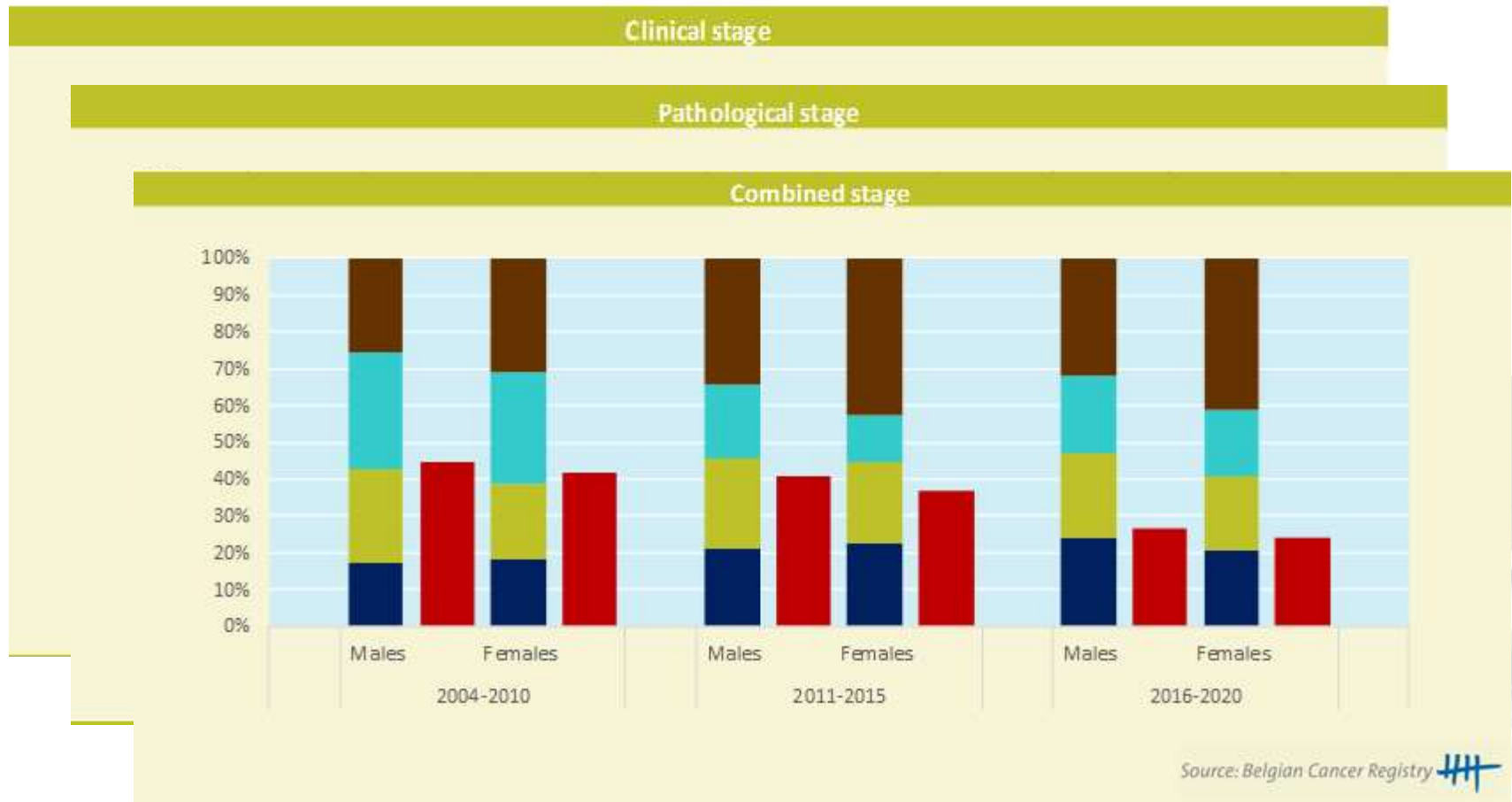


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Source: Belgian Cancer Registry

■ Stage I ■ Stage II ■ Stage III ■ Stage IV ■ Stage unknown

Liver cancer: stage distribution



Belgian Cancer Registry



■ Stage I

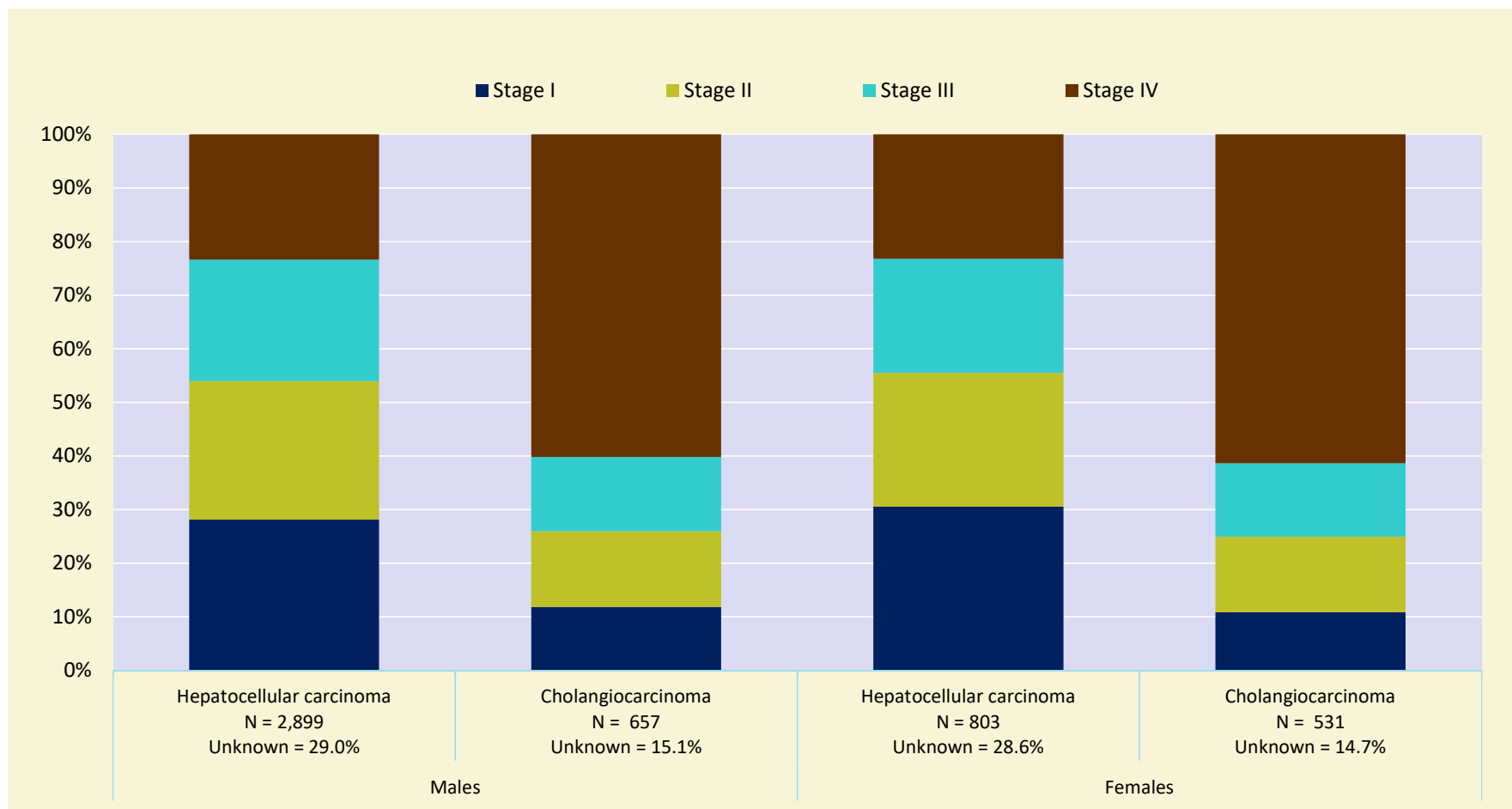
■ Stage II

■ Stage III

■ Stage IV

■ Stage unknown

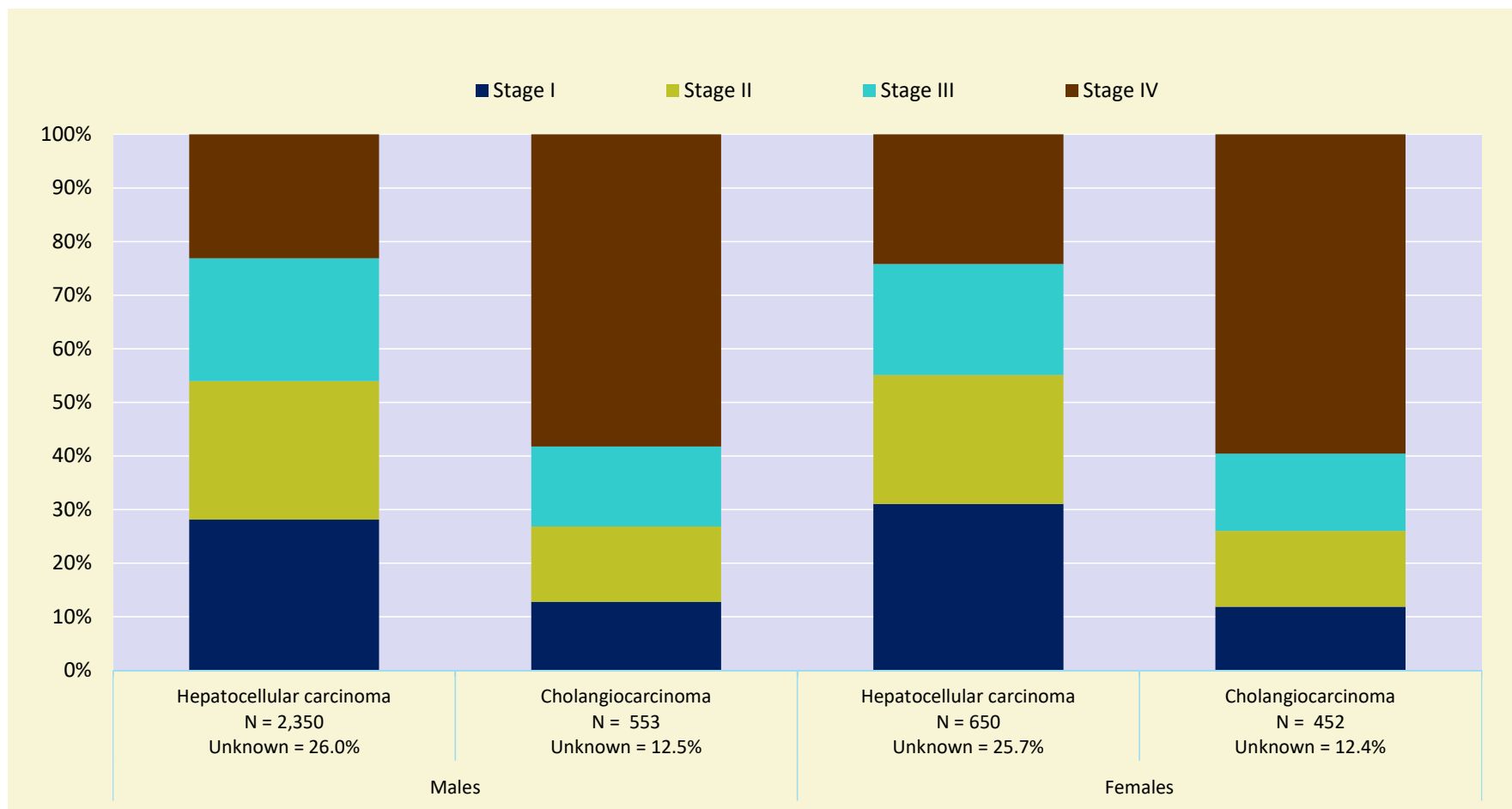
Liver cancer: stage distribution, Belgium 2016-2020



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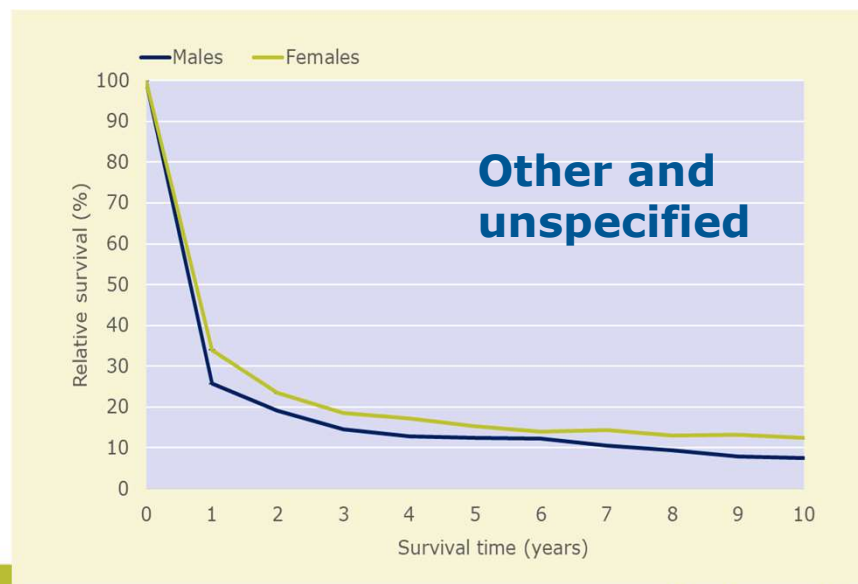
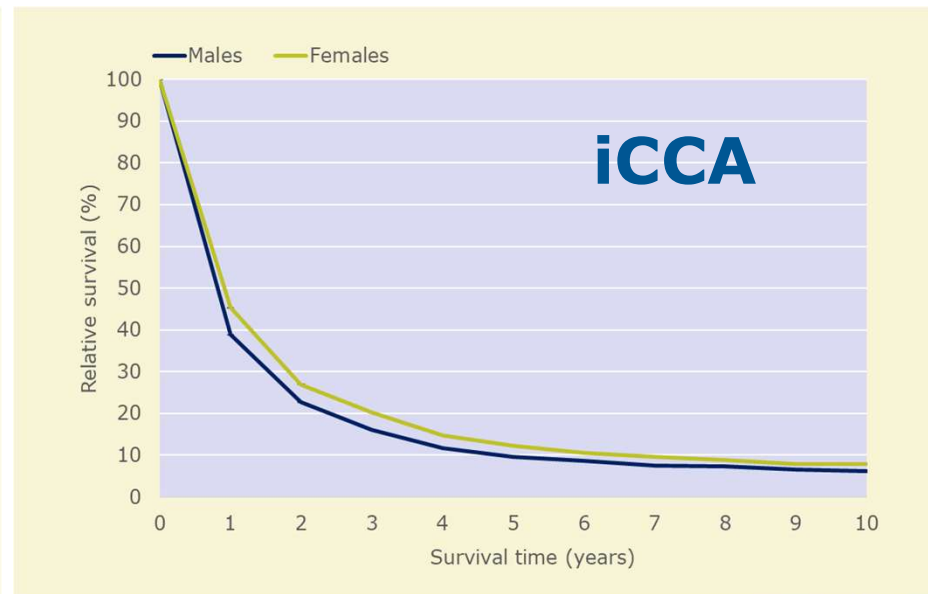
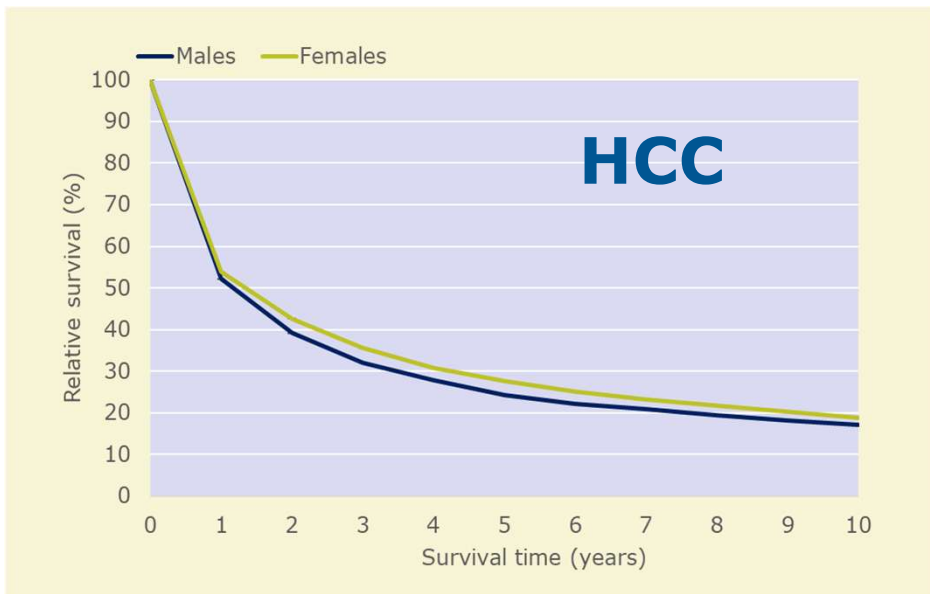
Liver cancer: stage distribution, Belgium 2017-2020



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Relative survival by sex, Belgium, 2004-2020



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HCC: hepatocellular carcinoma
iCCA: intrahepatic cholangiocarcinoma

5-years relative survival by sex and histology

	Men			Women		
	2006-2010	2011-2015	2016-2020	2006-2010	2011-2015	2016-2020
Liver cancer	20.8% [18.9%:22.7%]	20.8% [19.3%:22.4%]	22.5% [20.7%:24.4%]	19.5% [16.8%:22.3%]	21.3% [18.9%:23.7%]	23.9% [21.1%:26.9%]
HCC	23.2% [21.0%:25.5%]	23.7% [21.8%:25.5%]	26.0% [23.8%:28.3%]	24.1% [20.4%:28.0%]	28.0% [24.6%:31.6%]	30.5% [26.2%:34.8%]
iCCA	9.9% [6.8%:13.7%]	10.0% [7.3%:13.2%]	9.0% [6.2%:12.6%]	12.6% [8.8%:17.1%]	10.2% [7.4%:13.6%]	15.8% [11.9%:20.2%]
Other and unspecified	15.4% [9.2%:23.4%]	9.4% [5.4%:14.8%]	15.7% [9.5%:23.6%]	10.2% [4.6%:18.4%]	15.9% [9.7%:23.7%]	19.3% [12.2%:27.9%]



Liver cancer: 1-, 3-, 5- and 10-year relative survival by sex and region

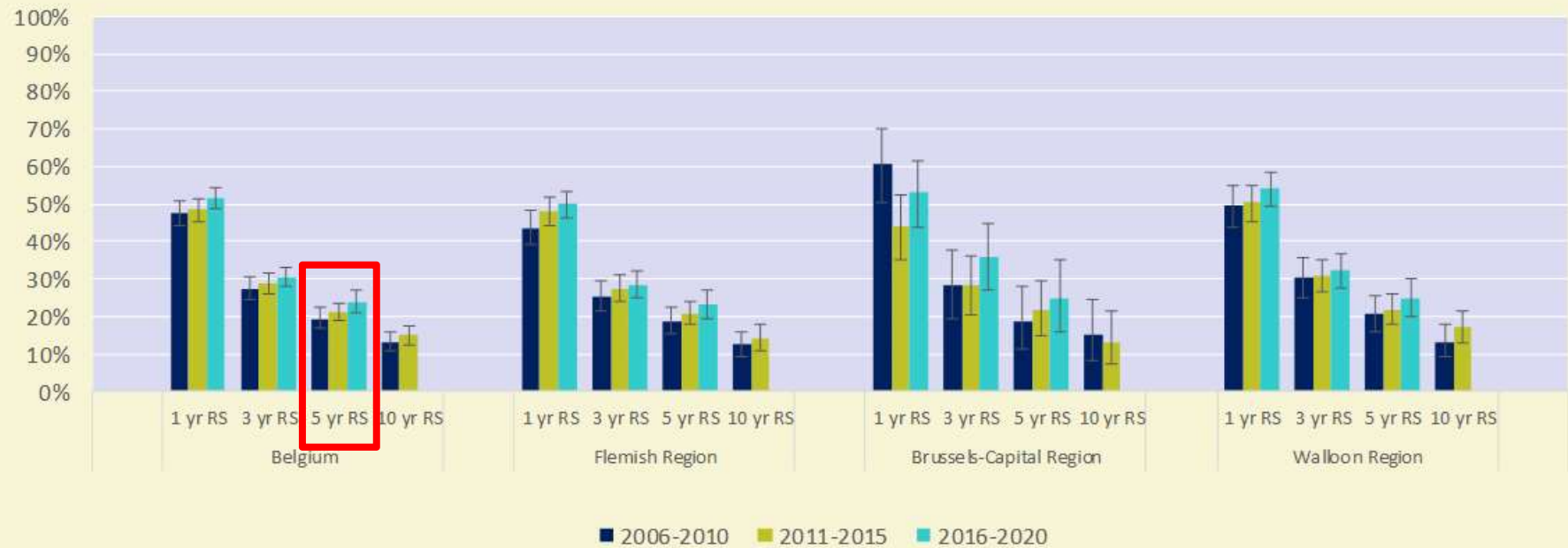


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Liver cancer: 1-, 3-, 5- and 10-year relative survival by sex and region

Females



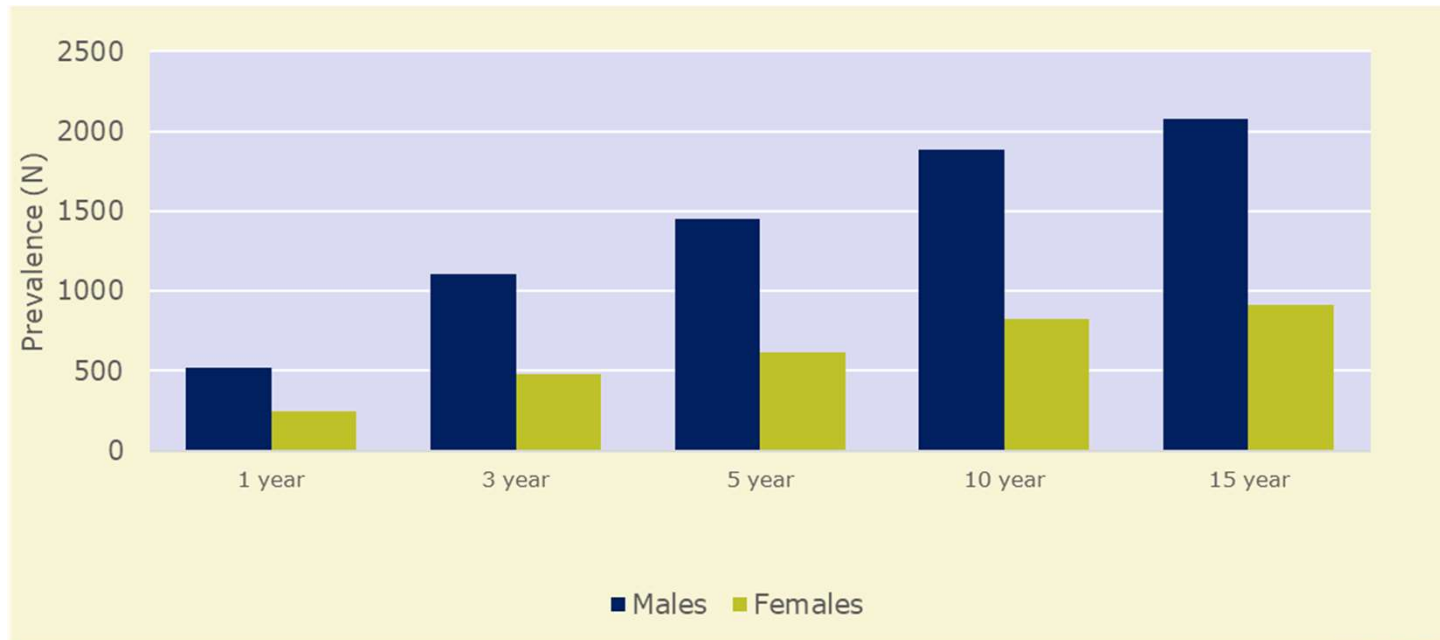
Source: Belgian Cancer Registry 

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Liver cancer: 1-, 3-, 5-, 10 and 15-year prevalence on December 31st 2020



	Prevalence (N)					Prevalence (CR)					Prevalence (WSR)				
	1 year	3 year	5 year	10 year	15 year	1 year	3 year	5 year	10 year	15 year	1 year	3 year	5 year	10 year	15 year
Males	518	1102	1453	1885	2074	9.1	19.4	25.6	33.2	36.5	4.4	9.6	12.7	16.5	18.1
Females	244	479	616	824	910	4.2	8.2	10.5	14.1	15.6	2.0	3.9	5.1	7.0	7.7

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Childhood hepatic tumours, Belgium 2016-2020

ICCC-3 Classification	0-14 years			15-19 years			0-19 years			
	Total	Paediatric notification		Total	Paediatric notification		Total	Paediatric notification		
		N	N		%	N		N	%	N
I-XII	All tumour	1,714	1,582	92.3	886	439	49.5	2,600	2,021	77.7
I	Leukaemia, myeloproliferative and myelodysplastic disease	454	446	98.2	100	69	69.0	554	515	93.0
II	Lymphoma and reticuloendothelial neoplasm	187	177	94.7	232	122	52.6	419	299	71.4
III	CNS and miscellaneous intracranial and intraspinal neoplasm	457	418	91.5	173	90	52.0	630	508	80.6
IV	Neuroblastoma and other peripheral nervous cell tumour	108	105	97.2	7	2	28.6	115	107	93.0
V	Retinoblastoma	49	49	100.0	0	0	-	49	49	100.0
VI	Renal Tumour	90	90	100.0	4	1	25.0	94	91	96.8
VII	Hepatic tumour	28	28	100.0	1	1	100.0	29	29	100.0
VIII	Malignant bone tumour	60	59	98.3	52	40	76.9	112	99	88.4
IX	Soft tissue and other extraosseous sarcoma	99	96	97.0	44	33	75.0	143	129	90.2
X	Germ cell tumour, trophoblastic tumour and neoplasm of gonads	57	51	89.5	74	27	36.5	131	78	59.5
XI	Other malignant epithelial neoplasm and melanoma	125	63	50.4	196	52	26.5	321	115	35.8
XII	Other and unspecified malignant neoplasm	0	0	-	3	2	66.7	3	2	66.7

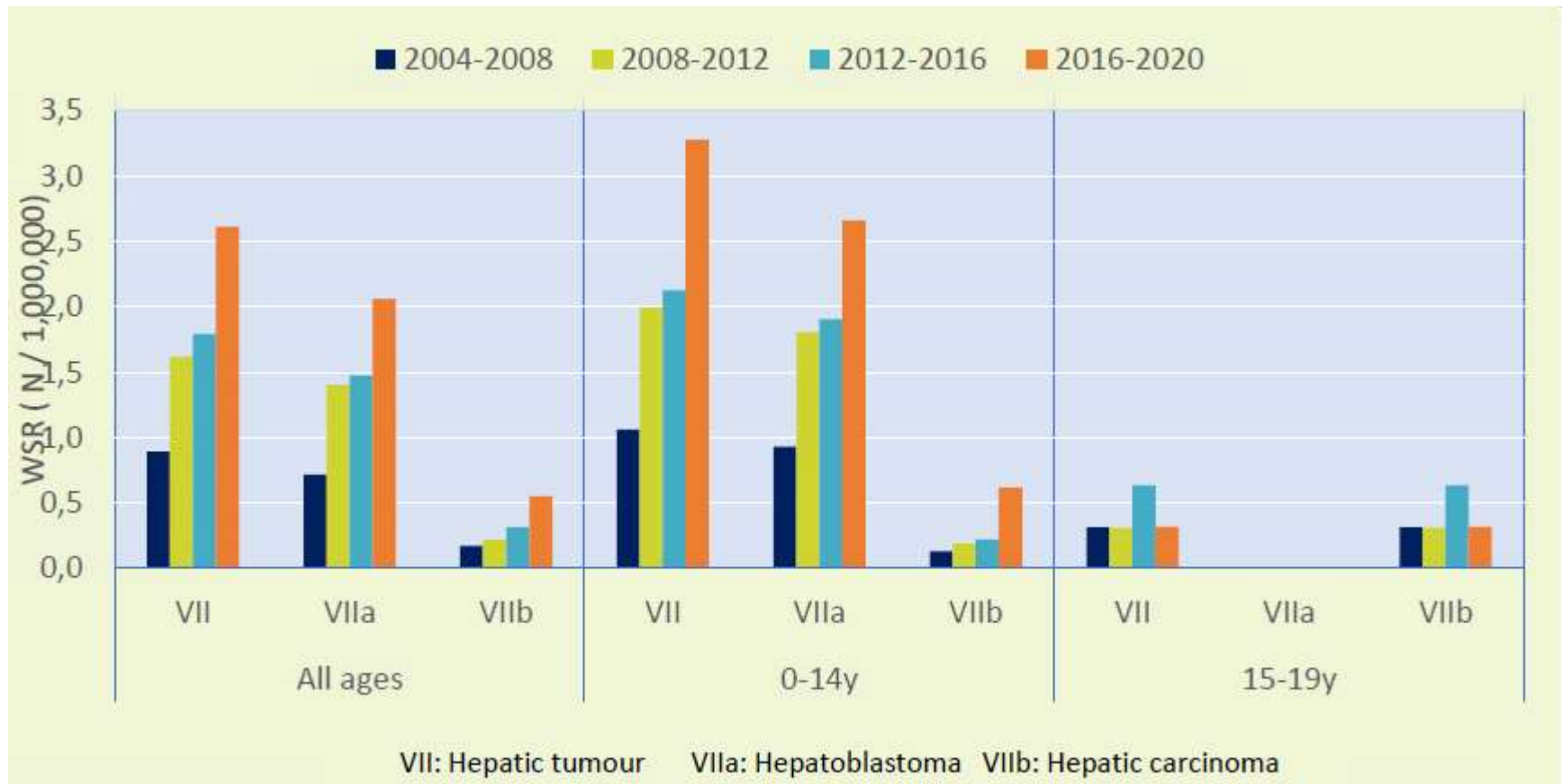
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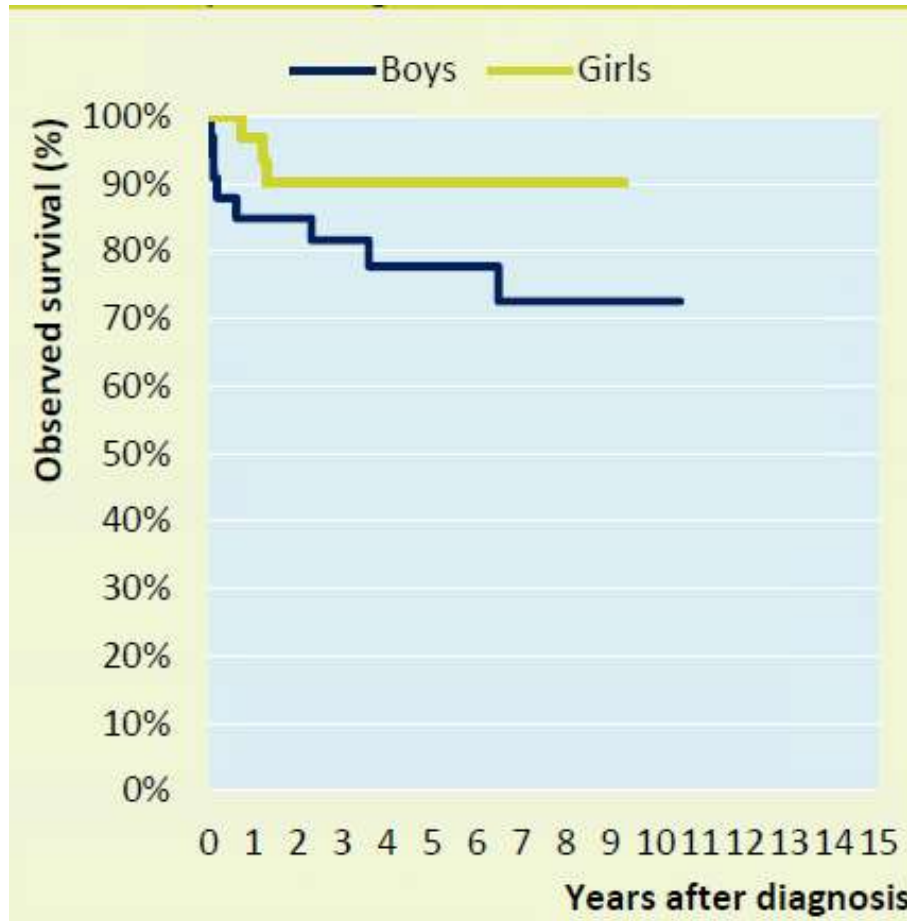
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ICCC-3: International Classification of Childhood Cancer

Age-standardised incidence, Belgium



Hepatic tumour, observed survival by sex, Belgium 2004-2020



5-yr observed survival
Boys 78%
Girls 90%



Conclusion

- Liver cancer (ICD10 C22):
 - On average 680 cases per year for men
 - On average 275 cases per year for women
- Increase in incidence of liver tumours in Belgium
- Small increase in 5-year relative survival, most for women than men
- Childhood hepatic tumour very rare



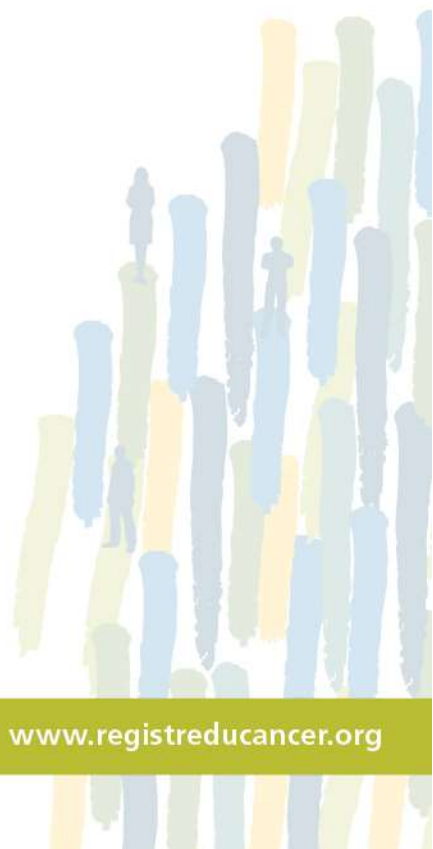


**Sending the pathology data to the
Belgian Cancer Registry**
and the Belgian Cancer Registry team

Belgian Cancer Registry



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