Malignant neoplasms of the gastrointestinal tract

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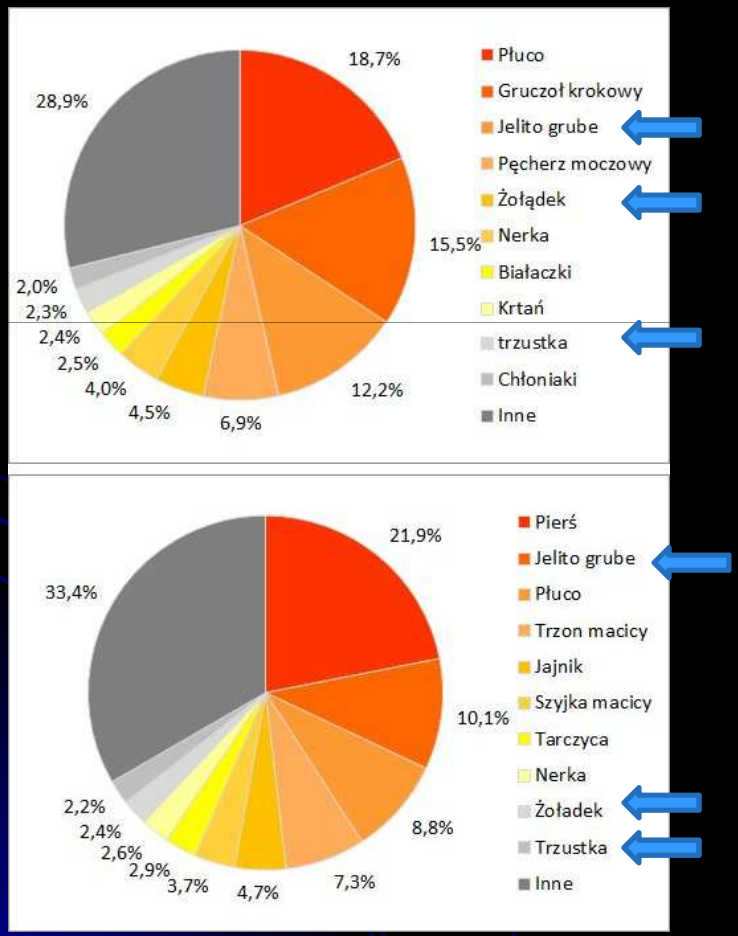
Cancer incidence in Poland 2013



Zachorowania na nowotwory złośliwe w Polsce w 2013 roku wg KRN (INCIDENCE)

MĘŻCZYŹNI

KOBIETY

Zachorowania i zgony 2013 (INCIDENCE AND MORTALITY – POLAND 2013)

Rok	Mężczyźni		
	Liczba	Wsp. surowy	Wsp. stand.
1980	34074	196,6	185,5
1985	40882	225,3	211,1
1990	44903	241,7	219,7
1995	54613	290,8	252,4
2000	58985	314,1	252,0
2005	63984	346,6	253,6
2010	70024	375,5	251,0
2013	78236	419,8	262,5
Rok	Kobiety		
	Liczba	Wsp. surowy	Wsp. stand.
1980	30746	168,5	128,7
1985	35879	188,3	141,4
1990	38474	196,9	143,9
1995	48730	246,0	171,8
2000	55885	281,3	184,2
2005	61688	313,1	191,8
2010	70540	355,0	205,0
2013	78251	393,9	217,2
Rok	Obie płcie		
	Liczba	Wsp. surowy	Wsp. stand.
1980	64820	182,2	151,7
1985	76761	206,3	169,5
1990	83377	218,7	174,6
1995	103343	267,8	204,0
2000	114870	297,2	210,0
2005	125672	329,3	214,5
2010	140564	364,9	220,8
2013	156487	406,4	232,4

Rok	Mężczyźni		
	Liczba	Wsp. surowy	Wsp. stand.
1965	19597	128,2	143,7
1970	23688	150,0	155,4
1975	28056	168,7	162,2
1980	33183	191,4	179,5
1985	38087	209,9	195,3
1990	42076	226,5	204,2
1995	44926	239,2	206,3
2000	48020	255,7	202,7
2005	51051	276,5	197,5
2010	51817	277,9	178,3
2013	52201	280,1	167,4
Rok	Kobiety		
	Liczba	Wsp. surowy	Wsp. stand.
1965	19359	119,4	105,8
1970	21186	126,6	102,8
1975	23712	135,1	101,2
1980	26519	145,4	105,2
1985	28894	151,6	106,4
1990	30837	157,81	107,37
1995	33168	167,44	108,02
2000	36538	183,90	108,17
2005	39345	199,71	105,44
2010	40793	205,31	99,44
2013	41924	211,01	96,98
Rok	Obie płcie		
	Liczba	Wsp. surowy	Wsp. stand.
1965	38956	123,7	121,4
1970	44874	138,0	124,4
1975	51768	151,4	126,5
1980	59702	167,8	136,1
1985	66981	180,0	143,5
1990	72913	191,3	148,2
1995	78094	202,4	149,0
2000	84558	218,8	147,3
2005	90396	236,9	143,0
2010	92610	240,4	131,6
2013	94125	244,5	125,8

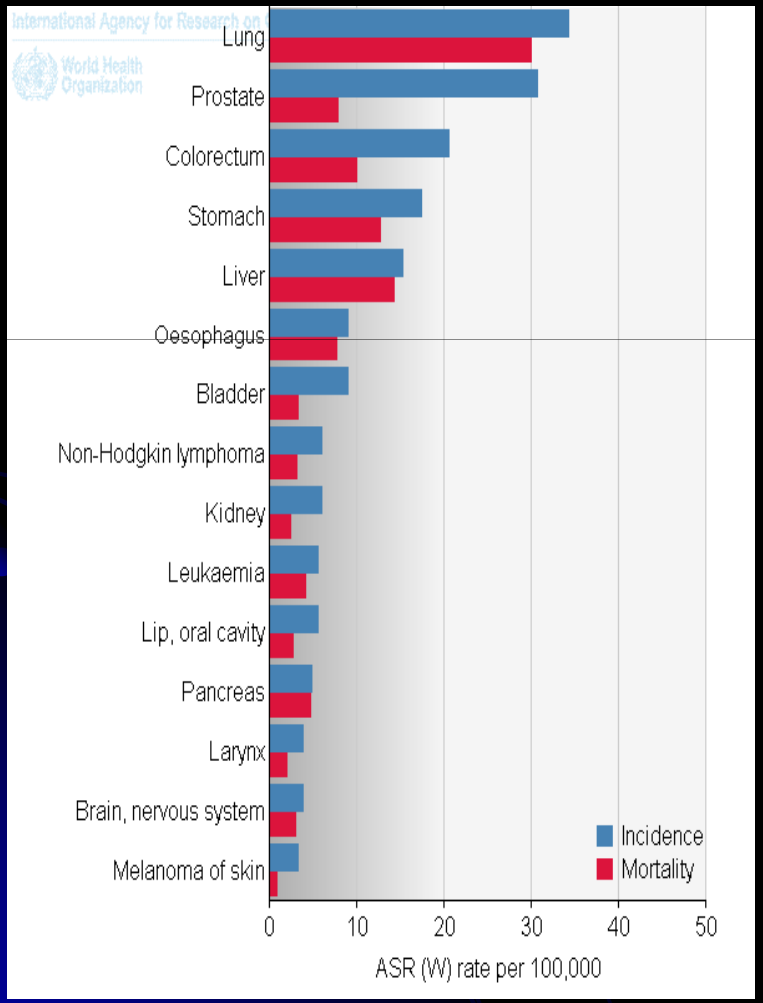
GLOBOCAN 2012

- Overall, there were 14.1 million new cases, 8.2 million deaths, and 32.6 million persons alive with cancer (within 5 years of diagnosis).

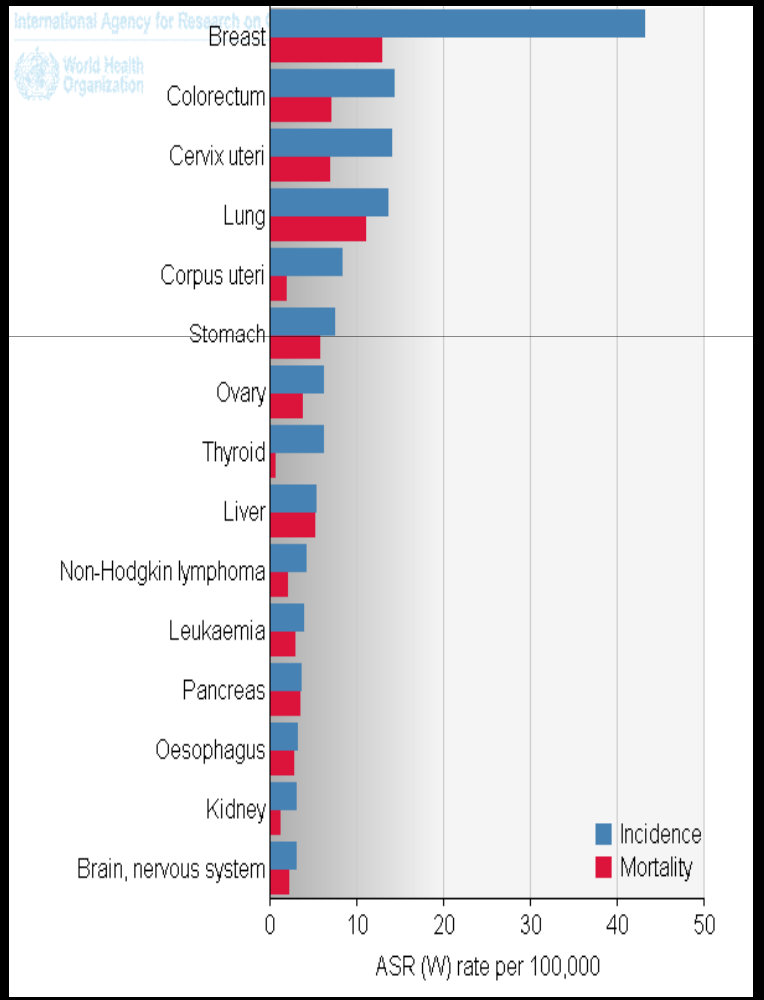
- The most commonly diagnosed cancers were:
  - lung (1.82 million)
  - breast (1.7 million)
  - colorectal (1.36 million)
  - prostate (1.1 milion)

Incidence and mortality worldwide 2012

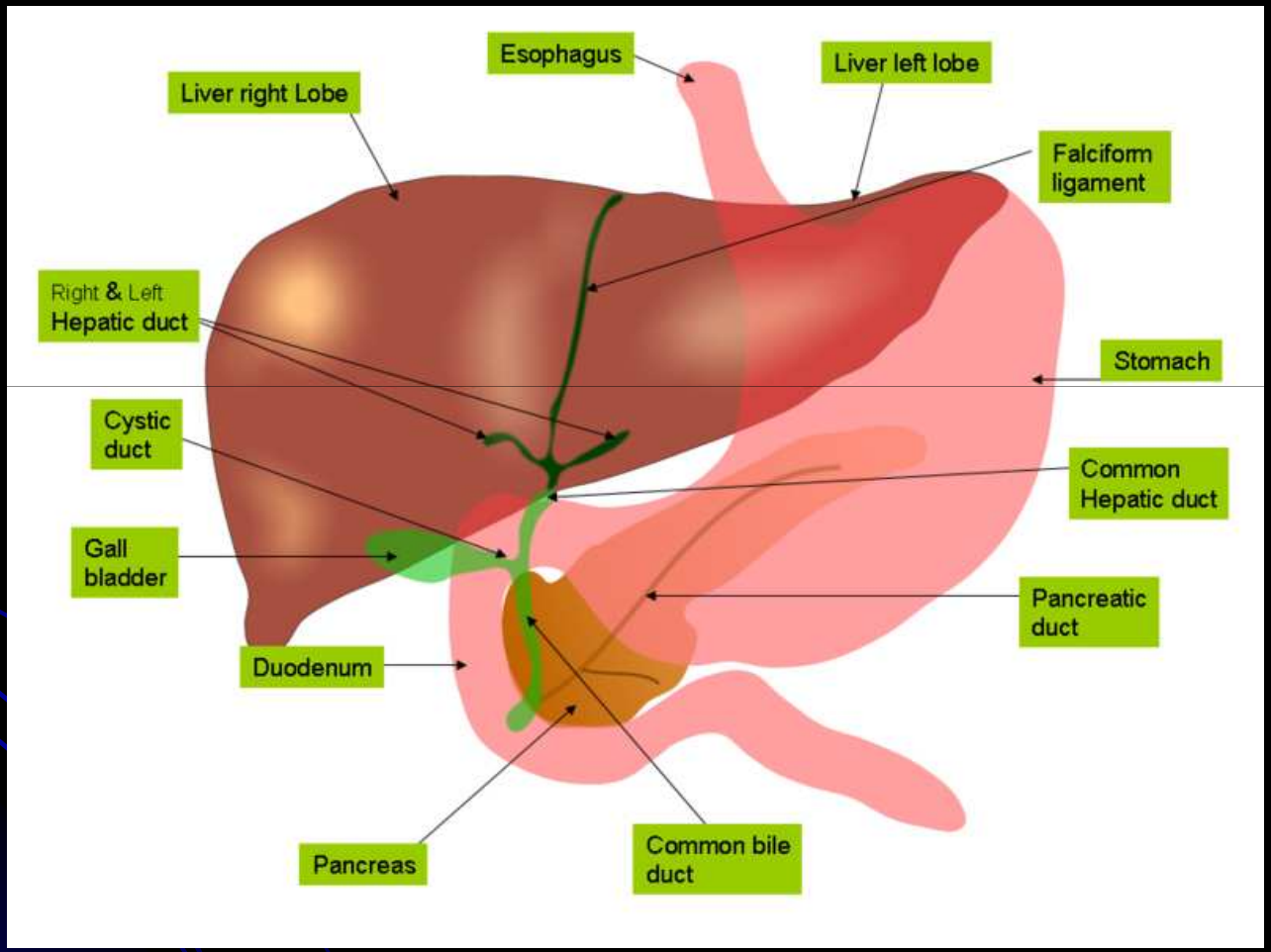
men



women



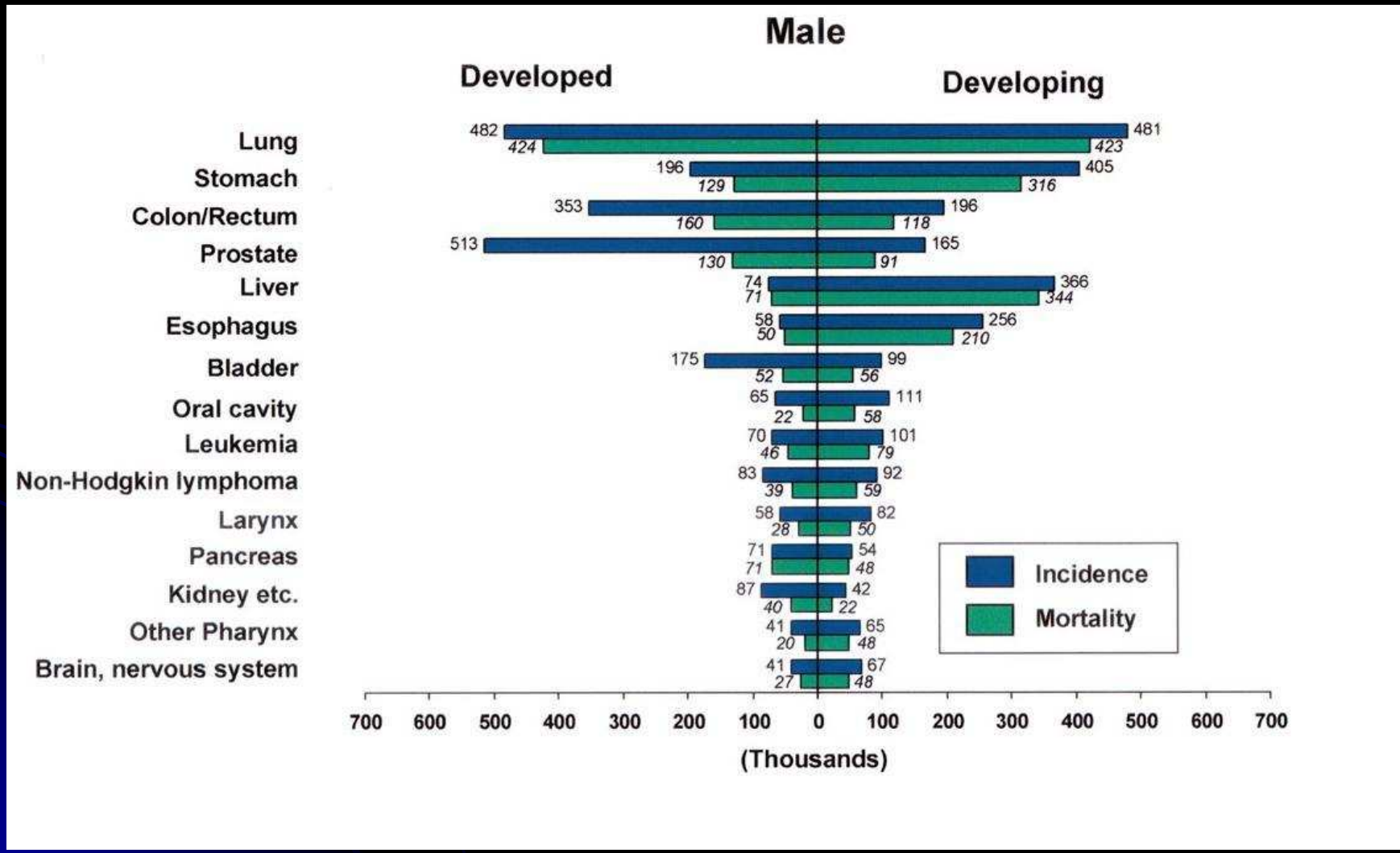
Upper GI tract



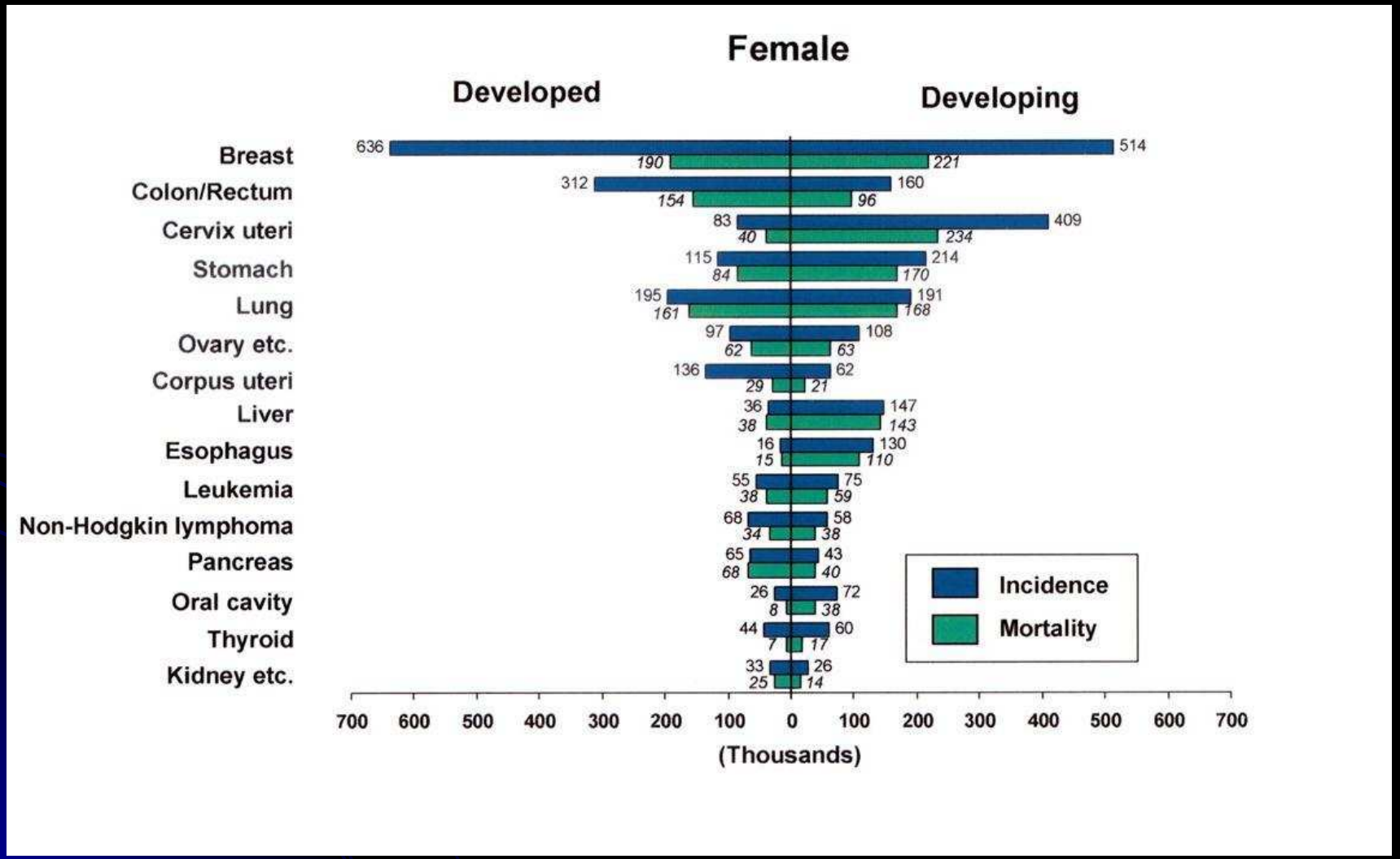
Cancer statistics

- **12 million new cancer cases worldwide and 7.6 million deaths as a result of the disease in 2007**
- **50 % of the new cases struck in developing countries**
- **health officials predict that by 2030, 17 million people will die worldwide of cancer, and 75 million people will be living with the disease and require treatment and follow-up care**

Cancer statistics



Cancer statistics

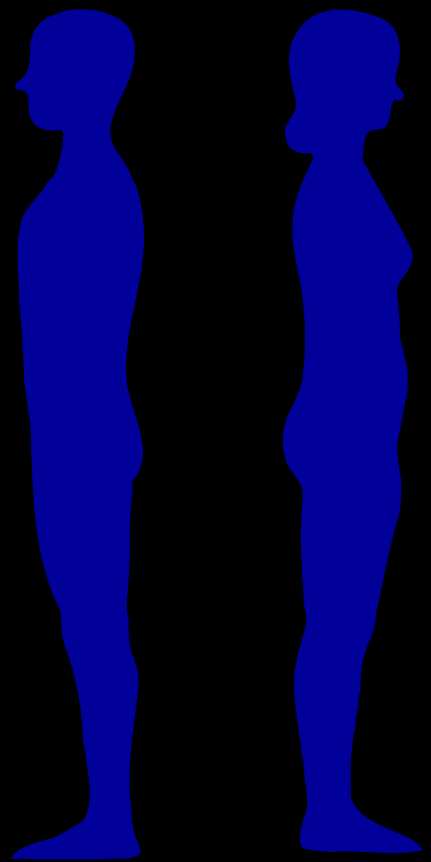


Cancer statistics - USA

2008 Estimated US Cancer Cases

MEN 745,180

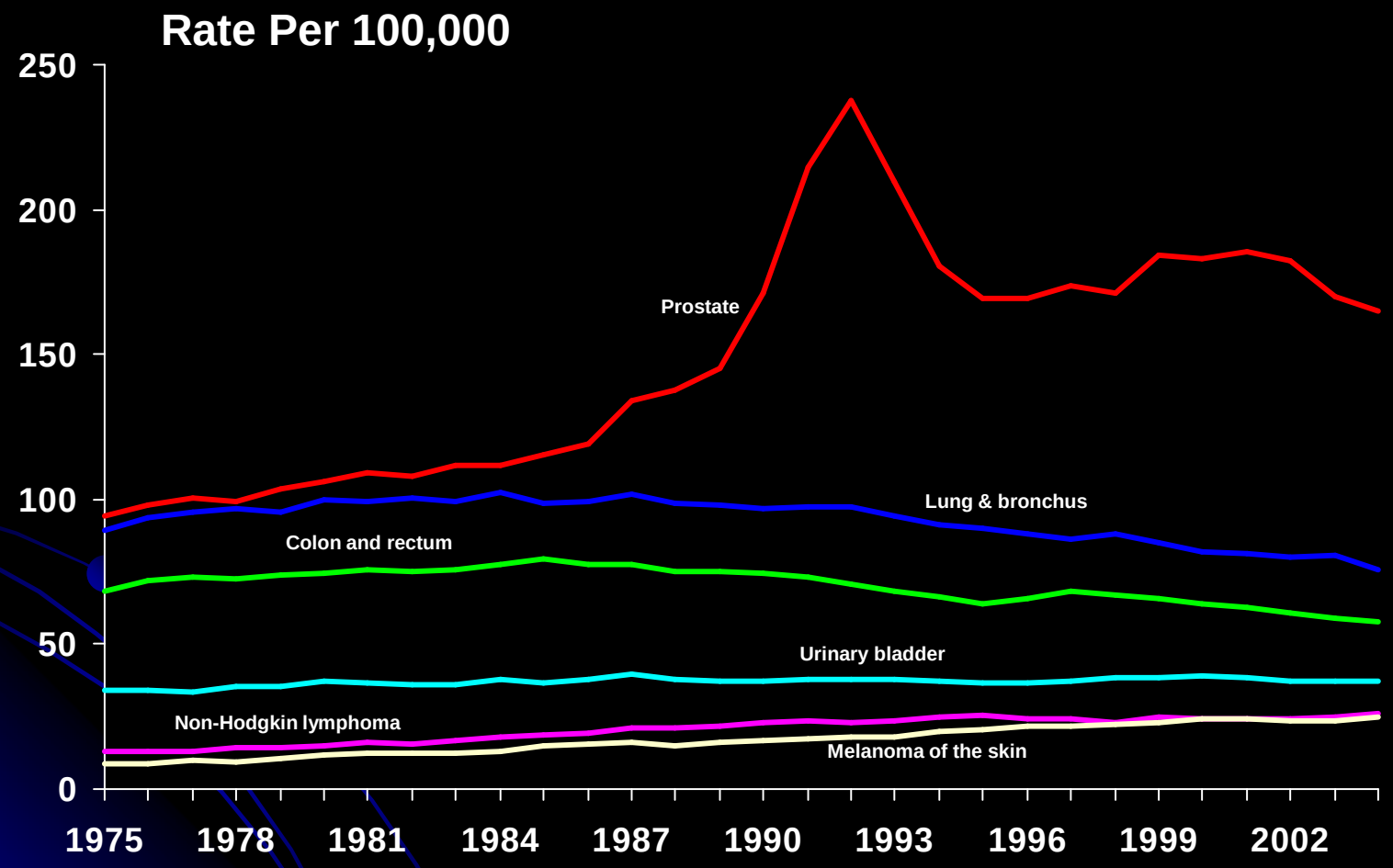
- Prostate 25%
- Lung & bronchus 15%
- Colon & rectum 10%
- Urinary bladder 7%
- Non-Hodgkin lymphoma 5%
- Melanoma of skin 5%
- Kidney & renal pelvis 4%
- Oral cavity 3%
- Leukemia 3%
- Pancreas 3%
- All Other Sites 20%



WOMAN 692,000

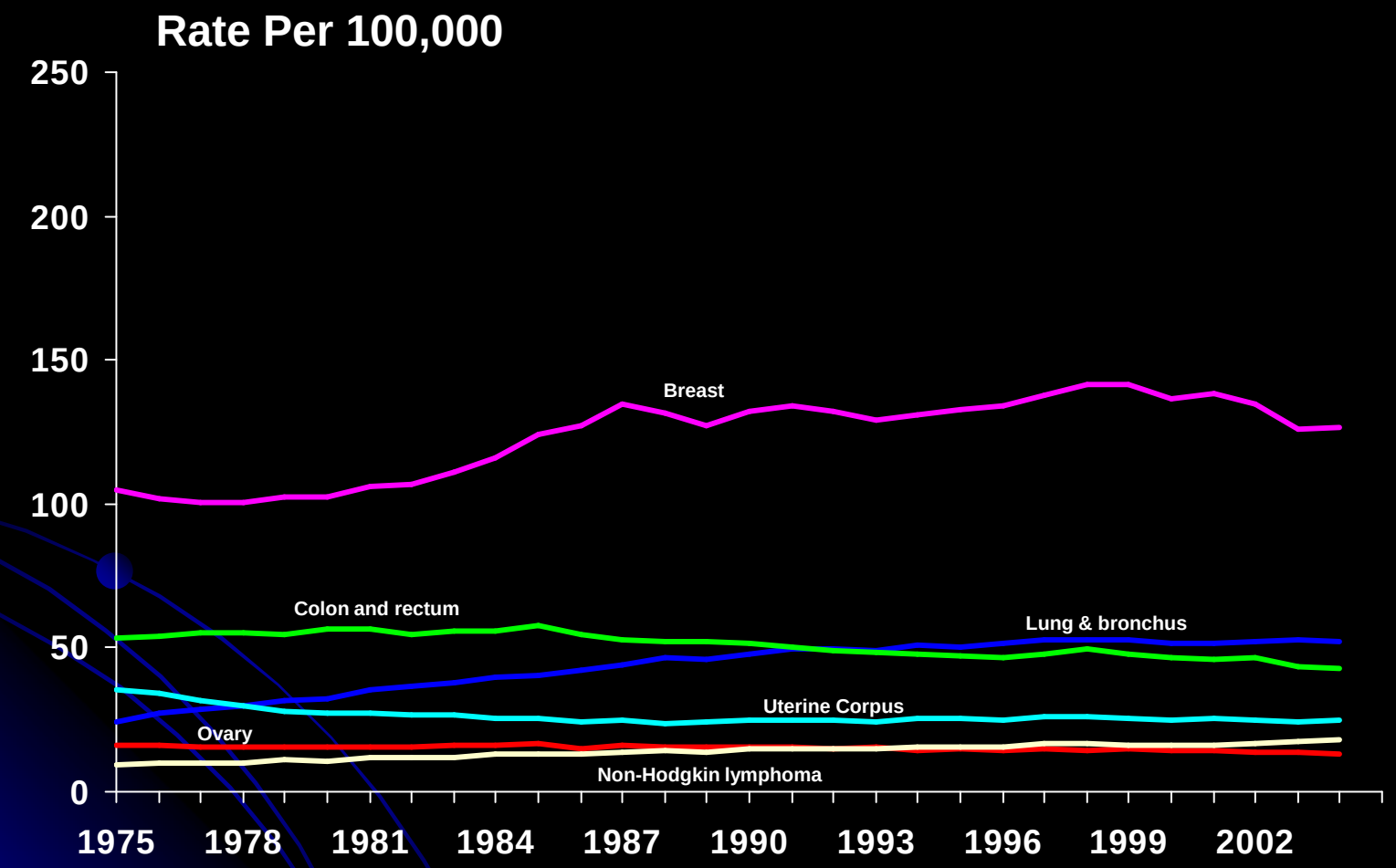
- 26% Breast
- 14% Lung & bronchus
- 10% Colon & rectum
- 6% Uterine corpus
- 4% Non-Hodgkin lymphoma
- 4% Thyroid
- 4% Melanoma of skin
- 3% Ovary
- 3% Kidney & renal pelvis
- 3% Leukemia
- 23% All Other Sites

Cancer Incidence Rates* Among Men, US, 1975-2004



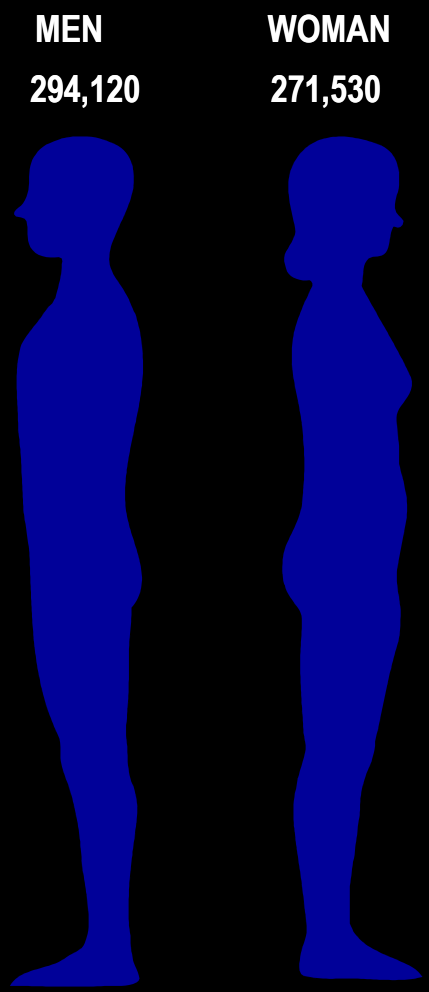
*Age-adjusted to the 2000 US standard population and adjusted for delays in reporting.
Source: Surveillance, Epidemiology, and End Results Program, Delay-adjusted Incidence database: SEER Incidence Delay-adjusted Rates, 9 Registries, 1975-2004, National Cancer Institute, 2007.

Cancer Incidence Rates* Among Women, US, 1975-2004



*Age-adjusted to the 2000 US standard population and adjusted for delays in reporting.
Source: Surveillance, Epidemiology, and End Results Program, Delay-adjusted Incidence database: SEER Incidence Delay-adjusted Rates, 9 Registries, 1975-2004, National Cancer Institute, 2007.

2008 Estimated US Cancer Deaths



- Lung & bronchus 31%
- Prostate 10%
- Colon & rectum 8%
- Pancreas 6%
- Liver & intrahepatic bile duct 4%
- Leukemia 4%
- Esophagus 4%
- Urinary bladder 3%
- Non-Hodgkin lymphoma 3%
- Kidney & renal pelvis 3%
- All other sites 24%

- 26% Lung & bronchus
- 15% Breast
- 9% Colon & rectum
- 6% Pancreas
- 6% Ovary
- 3% Non-Hodgkin lymphoma
- 3% Leukemia
- 3% Uterine corpus
- 2% Liver & intrahepatic bile duct
- 2% Brain/ONS
- 25% All other sites

Eurocare - 3

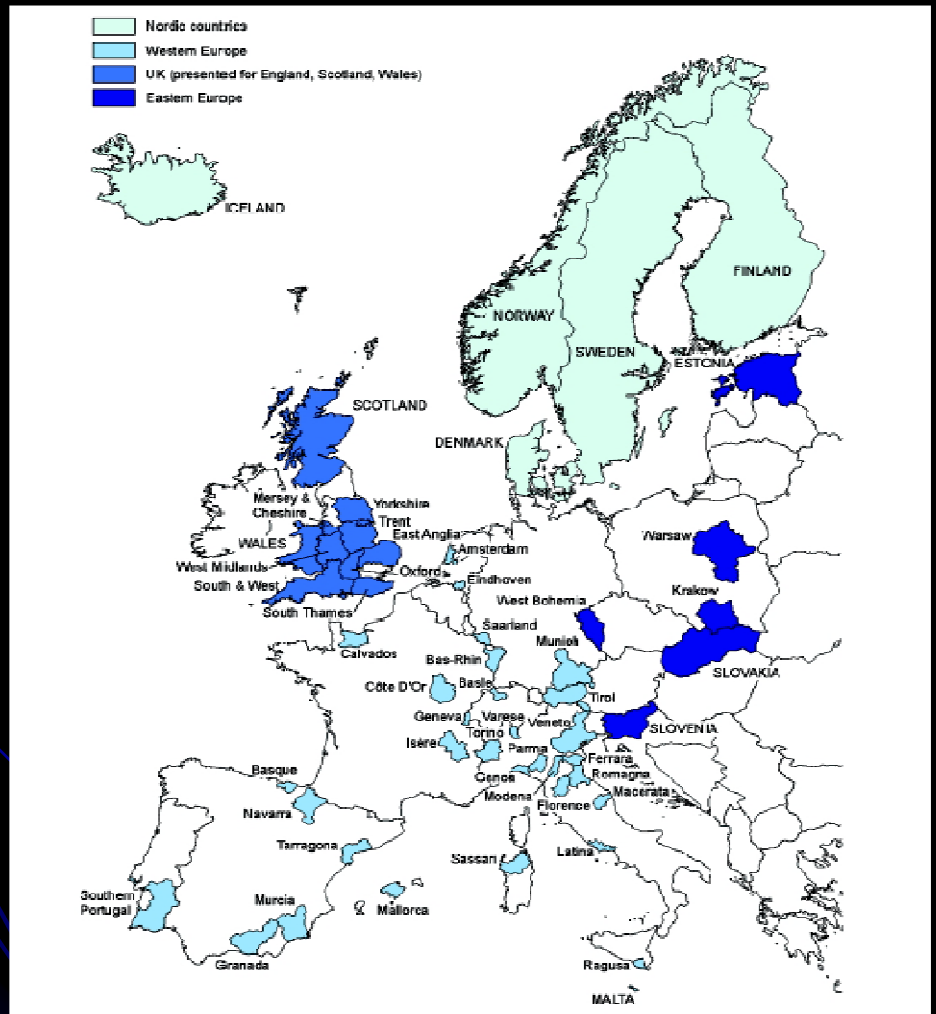


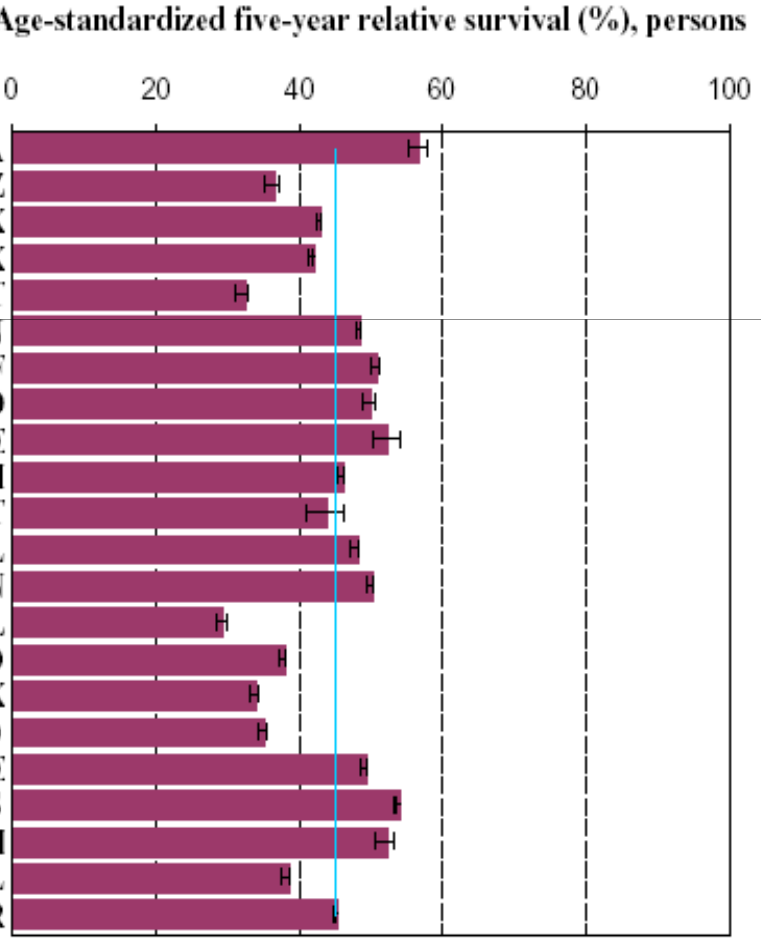
Figure 1. Countries and regions participating in EUROCARE-3 with data on adult cancer patients. The data on children with cancer from England, Germany and The Netherlands had national coverage.

EUROCARE- 3

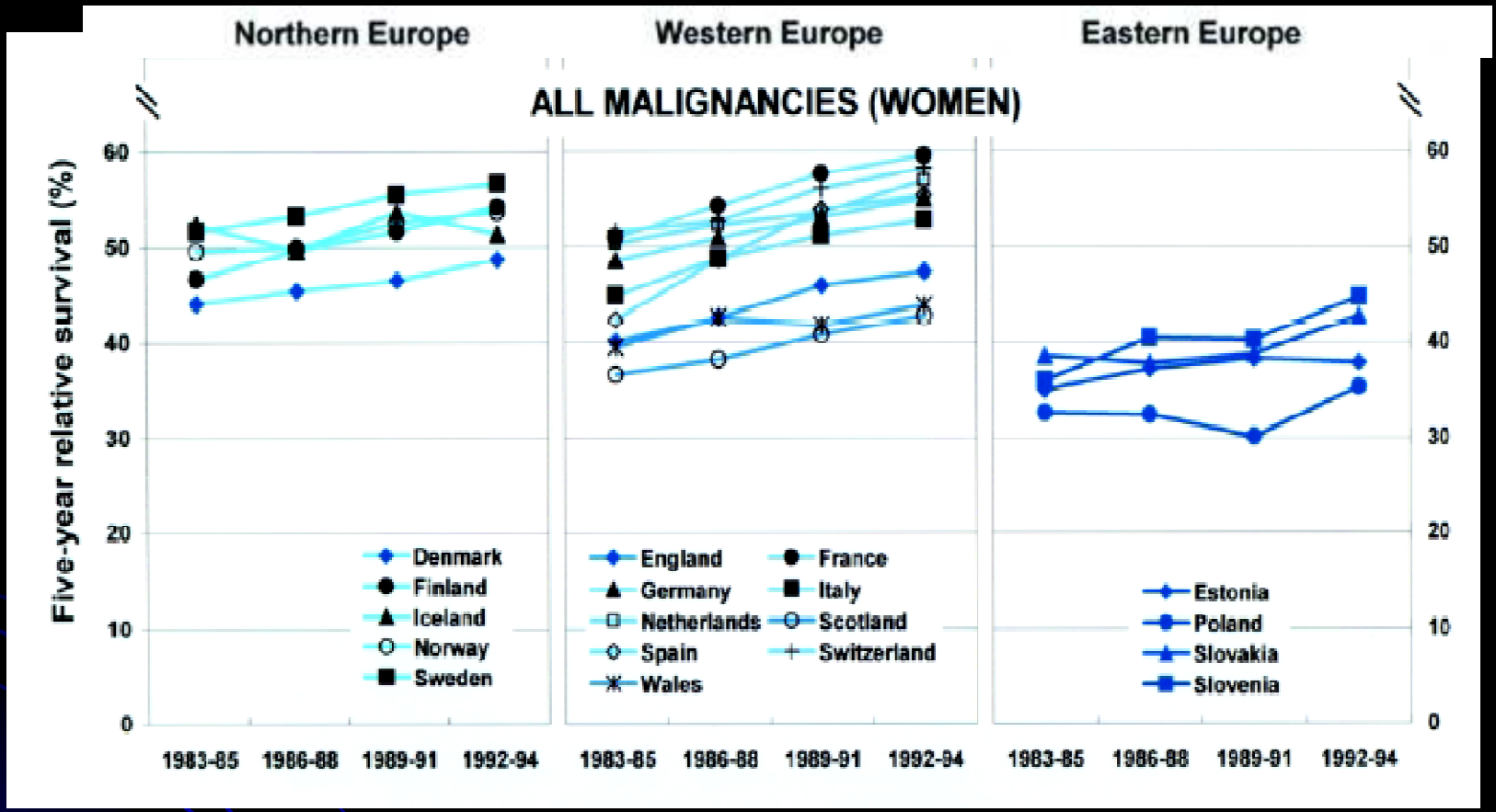
ALL MALIGNANT NEOPLASMS (ICD-9 140-172,174-208)

EUROPE, adults diagnosed 1990-94

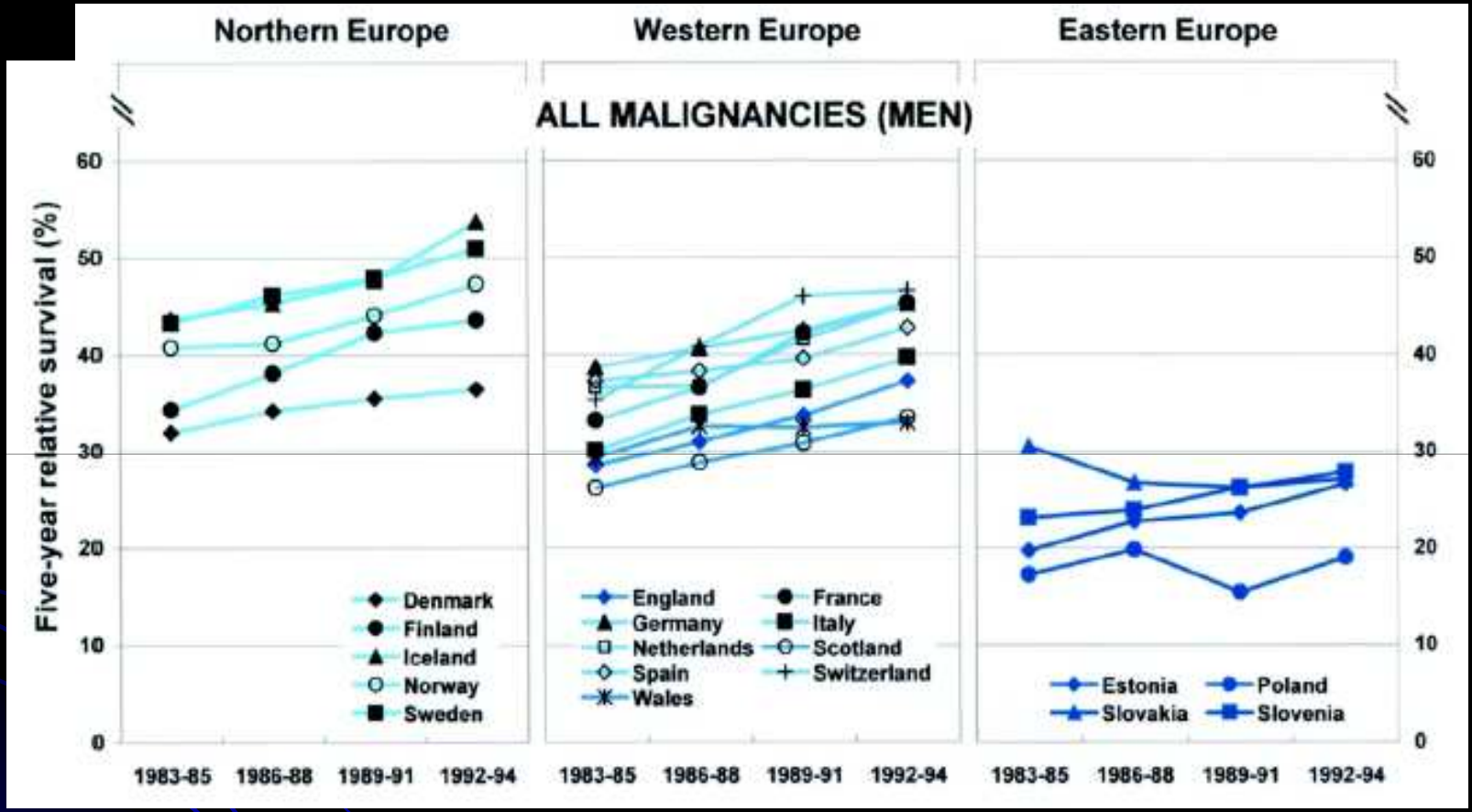
COUNTRY	Coverage (%)	Number of cases Men	Women	Weight	
Austria	8	5,852	5,807	21.5	A
Czech Republic	8	7,835	7,340	25.8	CZ
Denmark	100	49,081	53,803	14.6	DK
England	63	318,190	317,870	144.2	UK
Estonia	100	10,928	10,821	3.1	EST
Finland	100	36,381	39,896	10.8	FIN
France	4	17,093	12,819	114.4	F
Germany	2	11,364	10,985	186.8	D
Iceland	100	1,873	1,856	0.5	ICE
Italy	15	105,202	90,584	187.2	I
Malta	100	1,045	1,019	0.7	MLT
Netherlands	24	32,949	30,044	37.5	NL
Norway	100	41,009	37,809	11.2	N
Poland	6	17,235	19,505	83.3	PL
Scotland	100	53,282	55,596	15.4	SCO
Slovakia	100	34,272	28,129	8.8	SK
Slovenia	100	14,463	13,657	4.0	SLO
Spain	10	36,021	24,699	89.5	E
Sweden	100	82,001	80,247	23.0	S
Switzerland	12	3,671	3,764	8.8	CH
Wales	100	31,827	32,069	9.1	WAL
TOTAL		911,574	878,319	1000.0	EUR



EUROCARE- 3


Northern Europe
Western Europe
Eastern Europe
ALL MALIGNANCIES (WOMEN)
Five-year relative survival (%)
0
10
20
30
40
50
60
1983-85
1986-88
1989-91
1992-94
Denmark
Finland
Iceland
Norway
Sweden
England
France
Germany
Italy
Netherlands
Scotland
Spain
Switzerland
Wales
Estonia
Poland
Slovakia
Slovenia

EUROCARE- 3

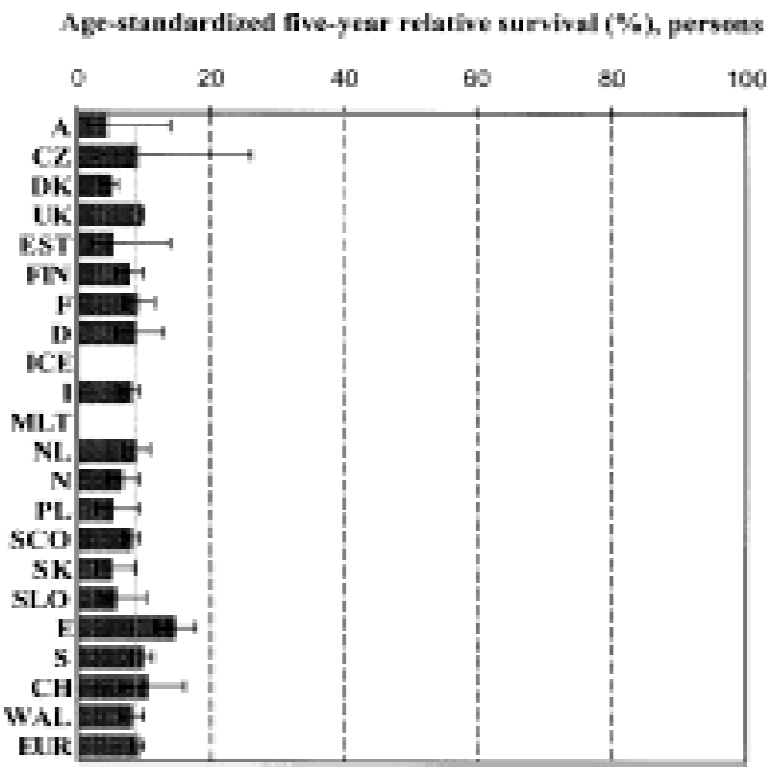

Northern Europe
Western Europe
Eastern Europe
ALL MALIGNANCIES (MEN)
Five-year relative survival (%)
0
10
20
30
40
50
60
1983-85
1986-88
1989-91
1992-94
Denmark
Finland
Iceland
Norway
Sweden
England
France
Germany
Italy
Netherlands
Scotland
Spain
Switzerland
Wales
Estonia
Poland
Slovakia
Slovenia

5 – year survival in esophageal cancer Eurocare – 3

OESOPHAGUS **(ICD-9 150)**

EUROPE, adults diagnosed 1990-94

COUNTRY	Coverage (%)	Number of cases Men	Women	Weight
Austria	8	74	13	9.5
Czech Republic	8	113	16	13.0
Denmark	100	908	369	10.7
England	63	9,812	6,565	220.0
Estonia	100	240	46	2.4
Finland	100	515	364	7.4
France	4	967	99	241.6
Germany	2	223	42	131.3
Iceland	100	35	21	0.5
Italy	15	1,470	409	105.7
Malta	100	20	9	0.6
Netherlands	24	562	316	31.0
Norway	100	453	169	5.2
Poland	6	333	122	61.1
Scotland	100	1,756	1,457	27.0
Slovakia	100	863	85	8.0
Slovenia	100	342	55	3.3
Spain	12	992	113	81.2
Sweden	100	1,018	467	12.5
Switzerland	12	124	40	14.7
Wales	100	882	716	13.4
TOTAL		21,702	11,491	1000.0

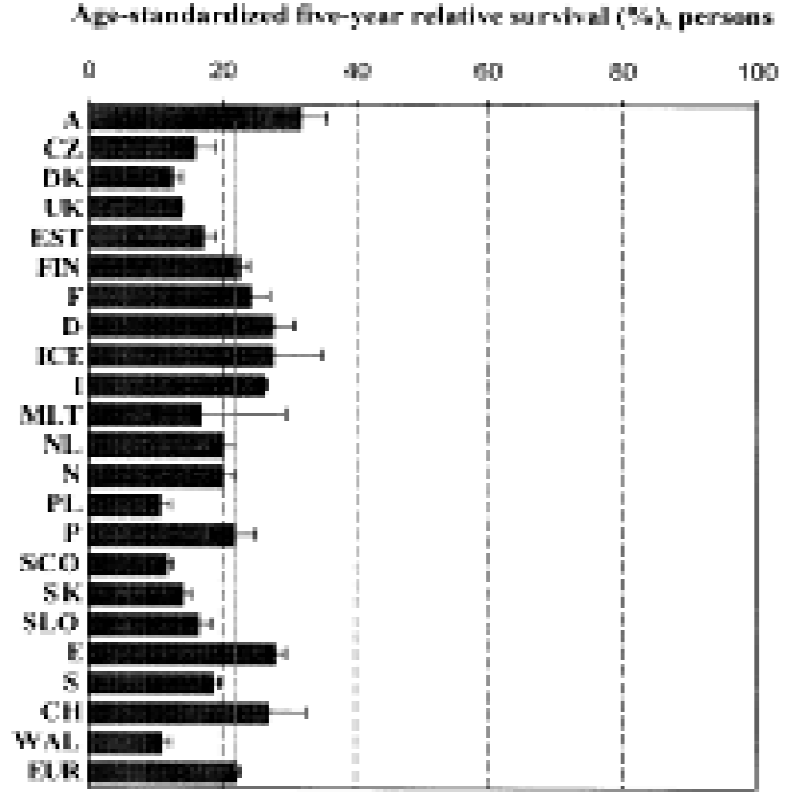


5 – year survival in stomach cancer Eurocare – 3

STOMACH **(ICD-9 151)**

EUROPE, adults diagnosed 1990-94

COUNTRY	Coverage (%)	Number of cases Men	Women	Weight
Austria	8	475	383	28.5
Czech Republic	8	455	350	24.6
Denmark	100	1,616	1,033	6.8
England	63	17,772	10,202	114.2
Estonia	100	1,326	1,122	6.2
Finland	100	2,210	1,851	10.4
France	4	779	472	86.2
Germany	2	596	518	167.6
Iceland	100	151	83	0.6
Italy	15	8,153	5,710	237.8
Malta	100	52	30	0.5
Netherlands	24	1,571	970	27.2
Norway	100	2,131	1,354	8.9
Poland	6	1,366	792	88.1
Portugal	11	662	367	29.5
Scotland	100	2,877	1,909	12.2
Slovakia	100	2,883	1,646	11.6
Slovenia	100	1,315	854	5.5
Spain	12	2,848	1,546	98.8
Sweden	100	3,614	2,194	14.8
Switzerland	12	227	176	11.1
Wales	100	2,175	1,309	8.9
TOTAL		55,254	34,871	1000.0

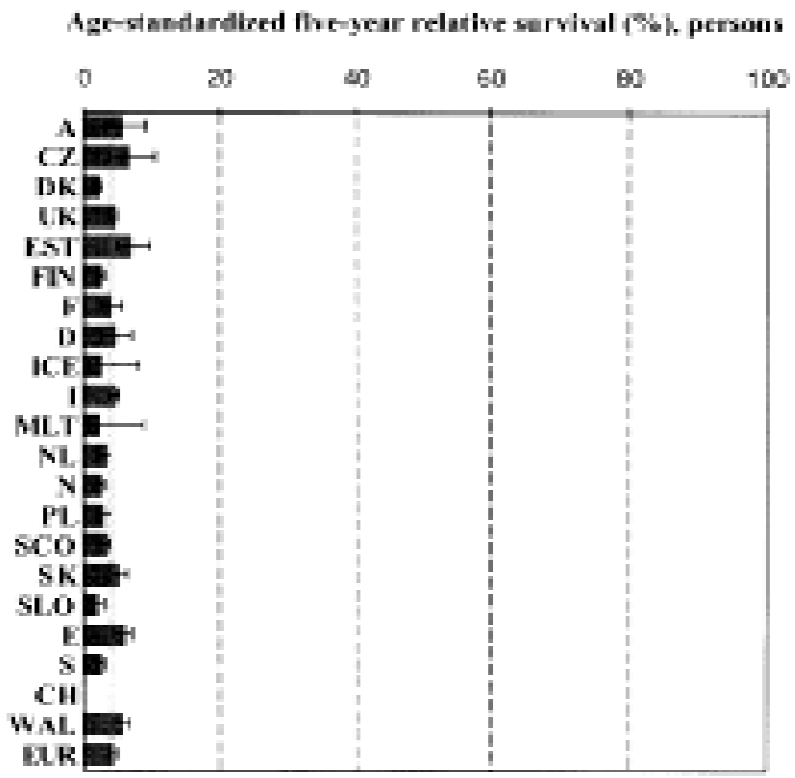


5 – year survival in pancreatic cancer Eurocare – 3

PANCREAS **(ICD-9 157)**

EUROPE, adults diagnosed 1990-94

COUNTRY	Coverage (%)	Number of cases Men	Women	Weight
Austria	8	121	155	19.6
Czech Republic	8	258	214	31.0
Denmark	100	1,305	1,481	15.2
England	63	8,162	8,596	146.6
Estonia	100	414	436	4.6
Finland	100	1,283	1,598	15.7
France	4	434	335	113.5
Germany	2	212	223	140.3
Iceland	100	55	57	0.6
Italy	15	2,366	2,720	204.1
Malta	100	43	19	0.8
Netherlands	24	727	772	34.4
Norway	100	1,148	1,221	13.0
Poland	6	545	603	100.4
Scotland	100	1,286	1,378	14.6
Slovakia	100	1,043	780	10.0
Slovenia	100	395	400	4.3
Spain	10	762	646	80.0
Sweden	100	2,102	2,305	24.1
Switzerland	12	153	162	17.5
Wales	100	856	903	9.6
TOTAL		24,070	25,004	1000.0

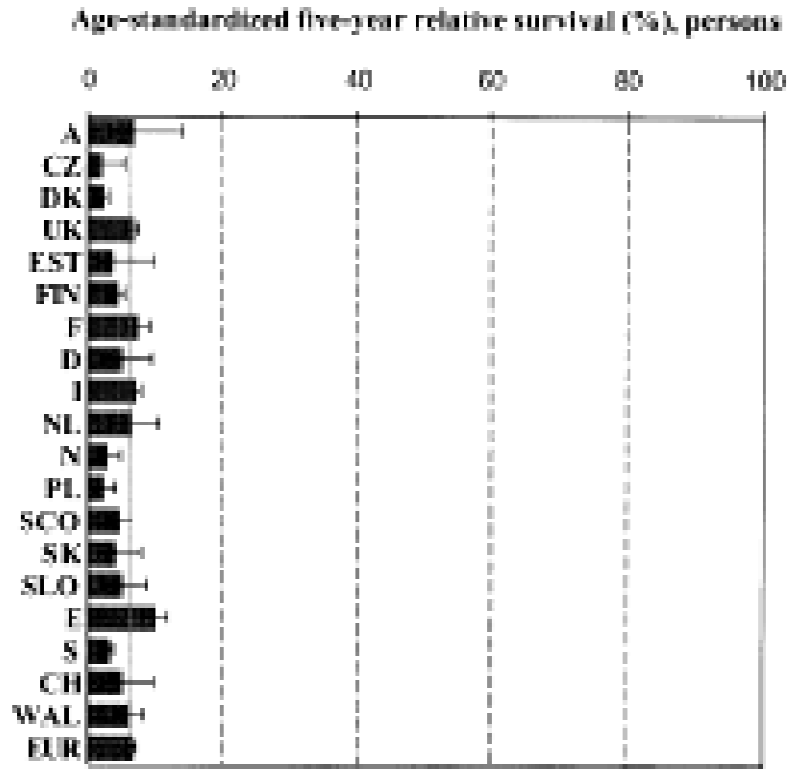


5 – year survival in hepatic cancer Eurocare-3

LIVER **(ICD-9 155)**

EUROPE, adults diagnosed 1990-94

COUNTRY	Coverage (%)	Number of cases Men	Women	Weight
Austria	8	76	50	14.1
Czech Republic	8	100	55	16.0
Denmark	100	551	427	8.4
England	63	2,222	1,570	49.4
Estonia	100	158	107	2.1
Finland	100	613	597	10.4
France	4	710	163	202.6
Germany	2	153	77	106.5
Italy	15	4,004	1,825	340.5
Netherlands	24	182	84	9.6
Norway	100	247	190	3.7
Poland	6	288	261	75.5
Scotland	100	515	321	7.2
Slovakia	100	198	138	2.9
Slovenia	100	162	78	2.1
Spain	10	881	349	109.9
Sweden	100	1,215	967	18.7
Switzerland	12	157	43	15.0
Wales	100	375	266	5.5
TOTAL		12,747	7,368	1000.0

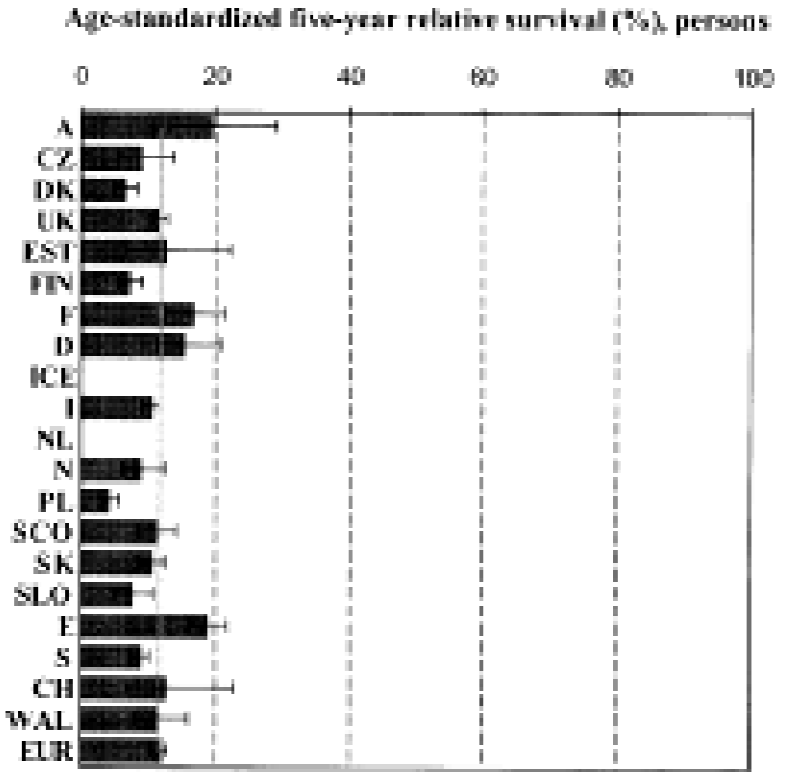


5 – year survival in biliary tract cancer Eurocare-3

BILIARY TRACT **(ICD-9 156)**

EUROPE, adults diagnosed 1990-94

COUNTRY	Coverage (%)	Number of cases Men	Women	Weight
Austria	8	50	77	15.9
Czech Republic	8	102	232	38.8
Denmark	100	306	513	7.9
England	63	1,586	2,125	57.4
Estonia	100	49	121	1.6
Finland	100	318	821	11.0
France	4	127	261	101.3
Germany	2	125	243	209.9
Iceland	100	8	19	0.2
Italy	15	1,073	1,810	188.4
Netherlands	24	250	425	27.4
Norway	100	200	273	4.6
Poland	6	307	840	177.4
Scotland	100	259	407	6.4
Slovakia	100	386	1,099	14.4
Slovenia	100	147	328	4.6
Spain	12	394	711	96.1
Sweden	100	751	1,565	22.4
Switzerland	12	31	80	11.0
Wales	100	122	214	3.2
TOTAL		6,591	12,164	1000.0

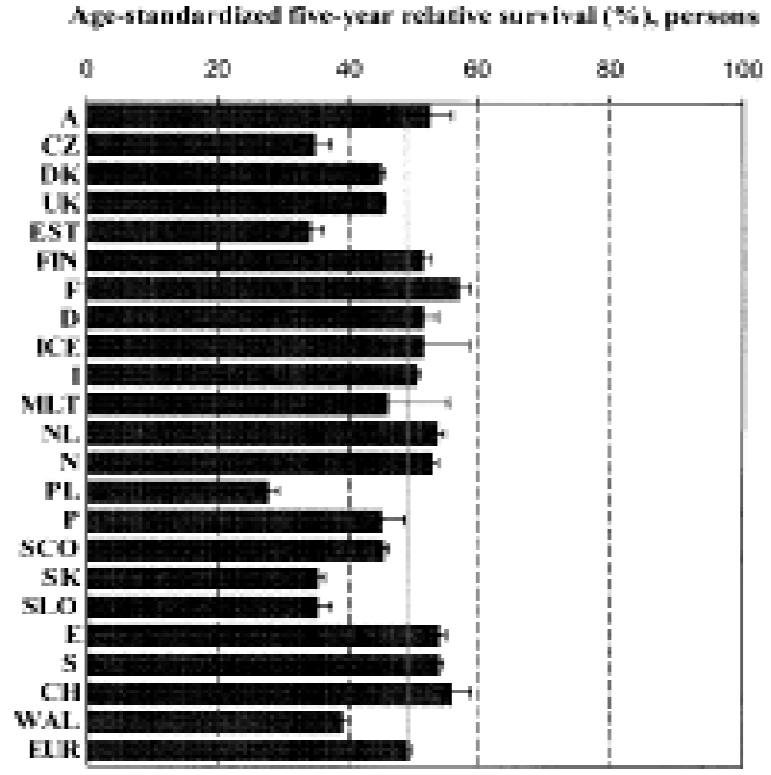


5 – year survival in colon cancer Eurocare-3

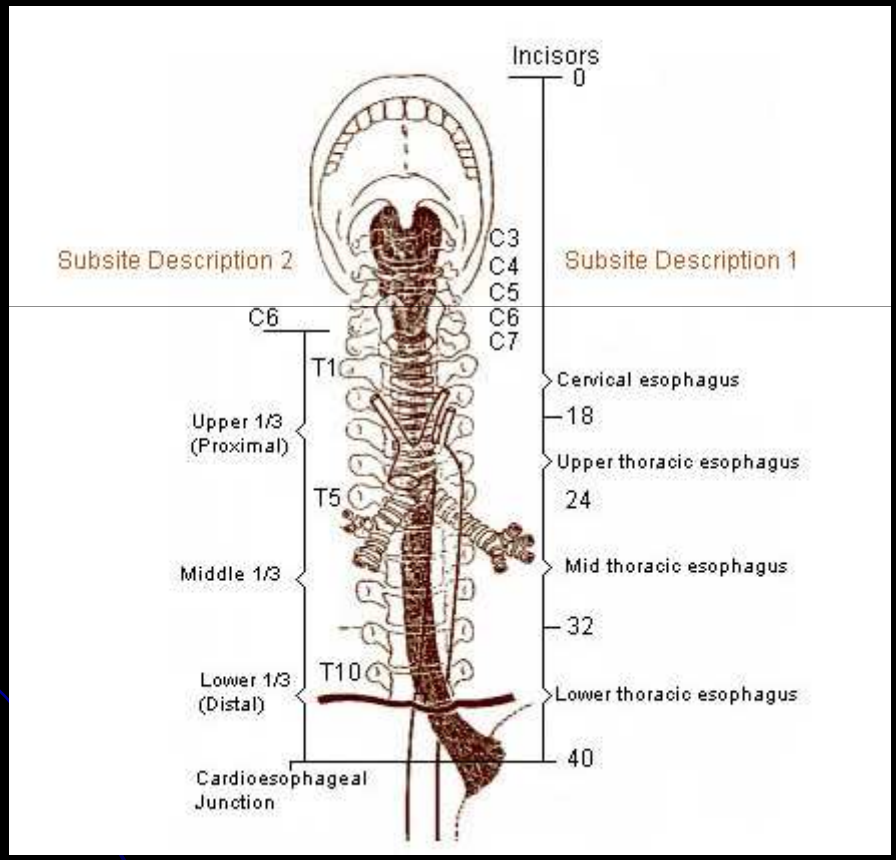
COLON & RECTUM **(ICD-9 153-154)**

EUROPE, adults diagnosed 1990-94

COUNTRY	Coverage (%)	Number of cases Men	Women	Weight
Austria	8	678	720	17.7
Czech Republic	8	1,356	1,022	27.9
Denmark	100	7,266	7,322	14.2
England	63	44,587	42,188	135.6
Estonia	100	1,077	1,398	2.4
Finland	100	3,594	4,200	7.6
France	4	2,879	2,447	140.4
Germany	2	1,347	1,893	209.7
Iceland	100	162	175	0.3
Italy	15	13,491	12,597	171.5
Malta	100	129	104	0.6
Netherlands	24	3,891	4,073	32.7
Norway	100	6,127	6,186	12.0
Poland	6	1,937	1,959	60.9
Portugal	11	693	597	18.9
Scotland	100	7,116	7,214	14.0
Slovakia	100	5,218	3,941	8.9
Slovenia	100	1,940	1,749	3.6
Spain	12	5,044	3,709	75.5
Sweden	100	10,514	10,267	20.3
Switzerland	12	796	801	16.8
Wales	100	4,496	4,159	8.5
TOTAL		124,738	118,721	1080.0



Esophageal cancer



Esophageal cancer

- 2% of all malignant neoplasms in Poland
- men's' incidence is 4 times greater
- there are geographical differences in incidence
- it's a tobacco-dependent cancer
- inproper diet is one of the risk factors
- 5 – year survival for all stages is 10%

Esophageal malignant neoplasms in Poland 2005 - men

Wojciechowska U, Didkowska J, Tarkowski W i wsp.: Nowotwory złośliwe w Polsce w 2005 roku. Centrum Onkologii- Instytut im. Marii Skłodowskiej- Curie, Warszawa 2007

	number	crude rate	standardized rate	%
incidence	1 013	5,5	4,0	1,58
deaths	1 132	6,1	4,6	2,22

Esophageal malignant neoplasms in Poland 2005 - women

Wojciechowska U, Didkowska J, Tarkowski W i wsp.: Nowotwory złośliwe w Polsce w 2005 roku. Centrum Onkologii- Instytut im. Marii Skłodowskiej- Curie, Warszawa 2007

	number	crude rate	standardized rate	%
incidence	248	1,3	0,7	0,40
deaths	303	1,5	0,8	0,77

Esophageal cancer

Risk factors:

- Tobacco
- Alcohol
- Hot and spicy, low protein and fatty diet
- Burn scars
- Irradiation of the madiastinum
- Barrett’s esophagus

Esophageal cancer

Benign neoplasms:

- Non-epithelial:
  - leiomyoma
- Epithelial:
  - adenoma
  - epithelial papilloma

Esophageal cancer

Precancerous condition:

- Dysplasia
- Plummer-Vinson syndrome
- Barrett's esophagus

Esophageal cancer

Symptoms:

- dysphagia
- hypersalivation
- cough
- pain
- cachexia
- pneumonia
- hemorrhage

Esophageal cancer

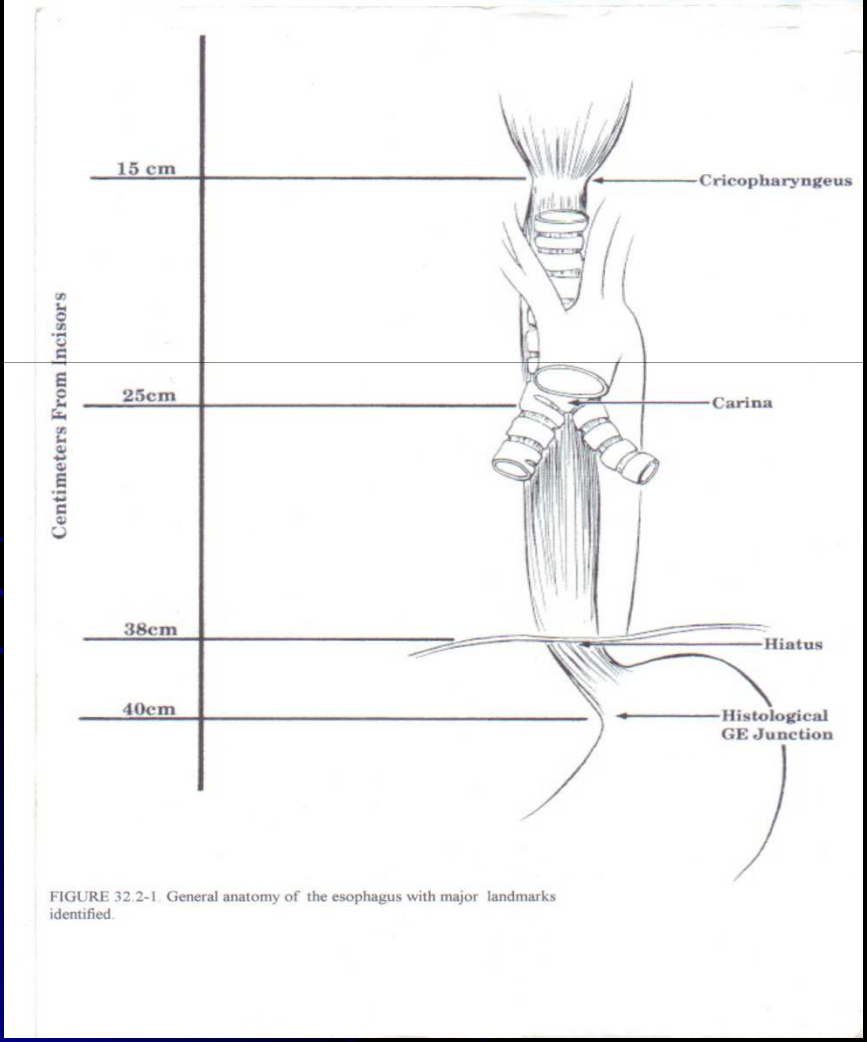
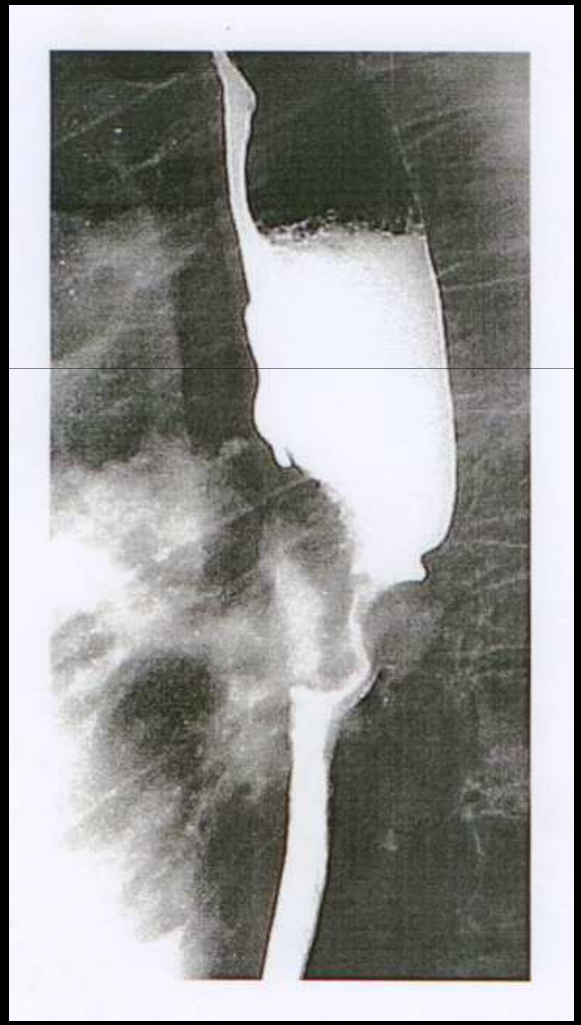


FIGURE 32.2-1. General anatomy of the esophagus with major landmarks identified.

Esophagus topography

Esophageal cancer

X-ray of esophageal cancer with contrast



Esophageal cancer

Clinical and pathological staging of esophageal cancer is based upon TNM classification

Unfortunately most cases are diagnosed too late, due to the lack of early symptoms

Esophageal cancer treatment

- Cervical part:

  - radiotherapy is the most prefered method

- Chest part:

  - T1, N0 – surgery; more advanced disease – combined therapy

- Abdominal part;

  - surgery

Esophageal cancer treatment

Surgery in chest and abdominal part of the esophagus:

- subtotal resection which leaves short cervical segment of the esophagus
- together with regional lymph nodes and the upper part of the stomach
- lower part of the stomach is preferably used to reconstruct continuity of digestive system

Esophageal cancer treatment

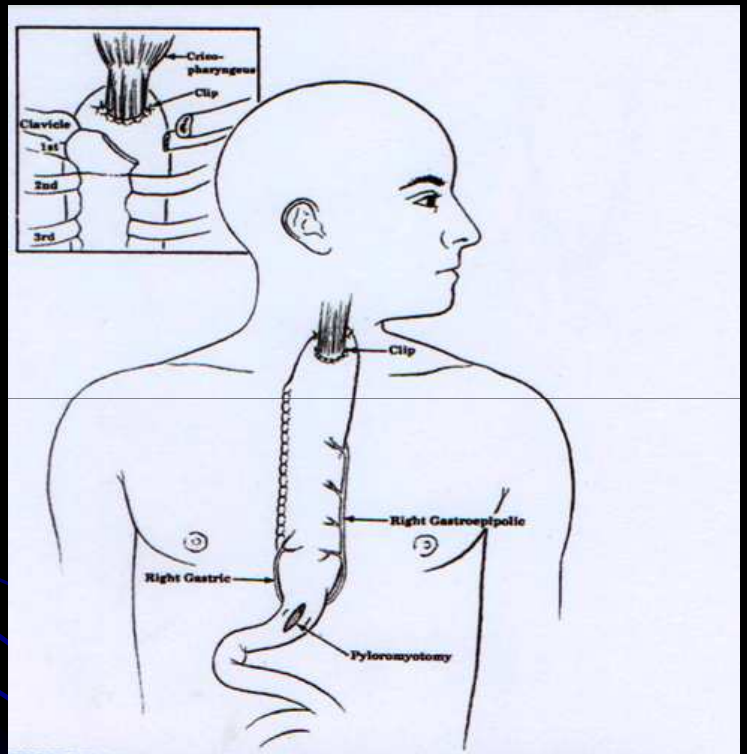


FIGURE 32.2-10. Position of the stomach after esophagectomy. The stomach may be placed in a posterior mediastinal or a retrosternal route (inset). A posterior mediastinal position provides a shorter distance and may provide for better emptying after eating. The stomach is tacked to the prevertebral facia. A pyloromyotomy or pyloroplasty is created to prevent gastric stasis and enhance gastric emptying. The pyloromyotomy and the cervical anastomosis are marked with metal clips to enhance localization on postoperative radiographic studies (inset). The proximal third of the clavicle and the lateral position of the manubrium and first rib may be resected to increase the diameter of the thoracic inlet for a retrosternal conduit.

Reconstruction of the esophagus - stomach

Esophageal cancer treatment

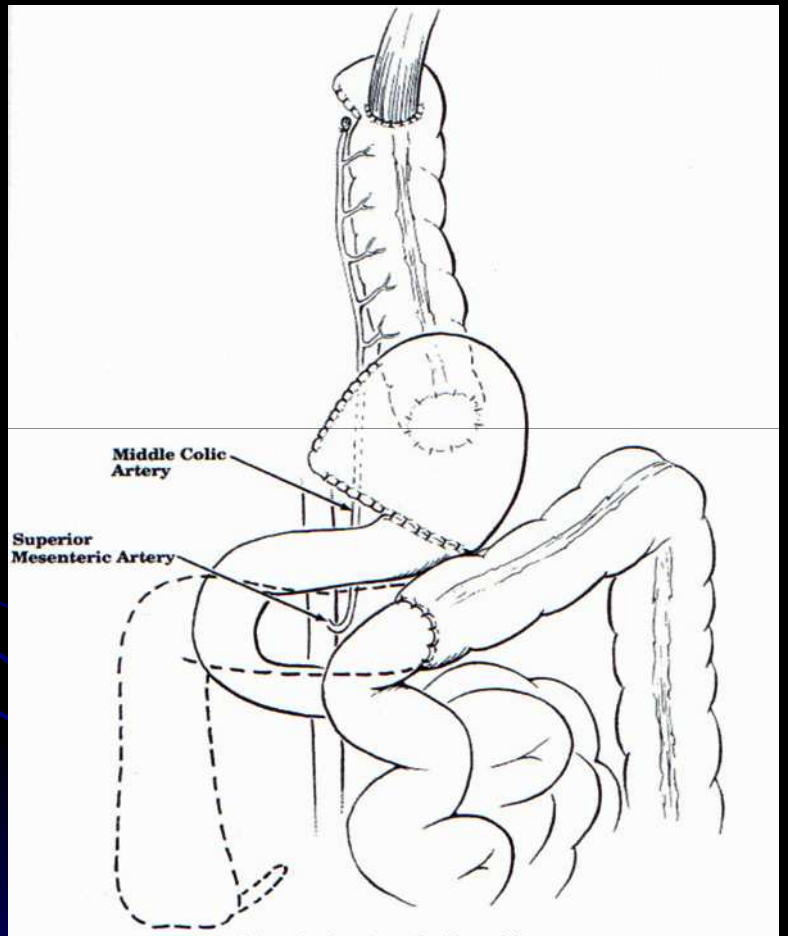


FIGURE 32.2-5. Use of the right colon in an isoperistaltic position. The patient had a prior vagotomy and antrectomy for peptic ulcer disease. The vascular supply to the colon is behind the transverse musocolon and the stomach, and the cologastrostomy is placed posteriorly on the stomach.

Reconstruction of the esophagus – large bowel

Esophageal cancer treatment

Combined modality treatment is reserved for advanced disease (T1-2, N1 – stage II, T3, N2 – stage III) – preoperative chemotherapy, surgery, adjuvant chemo- and radiotherapy

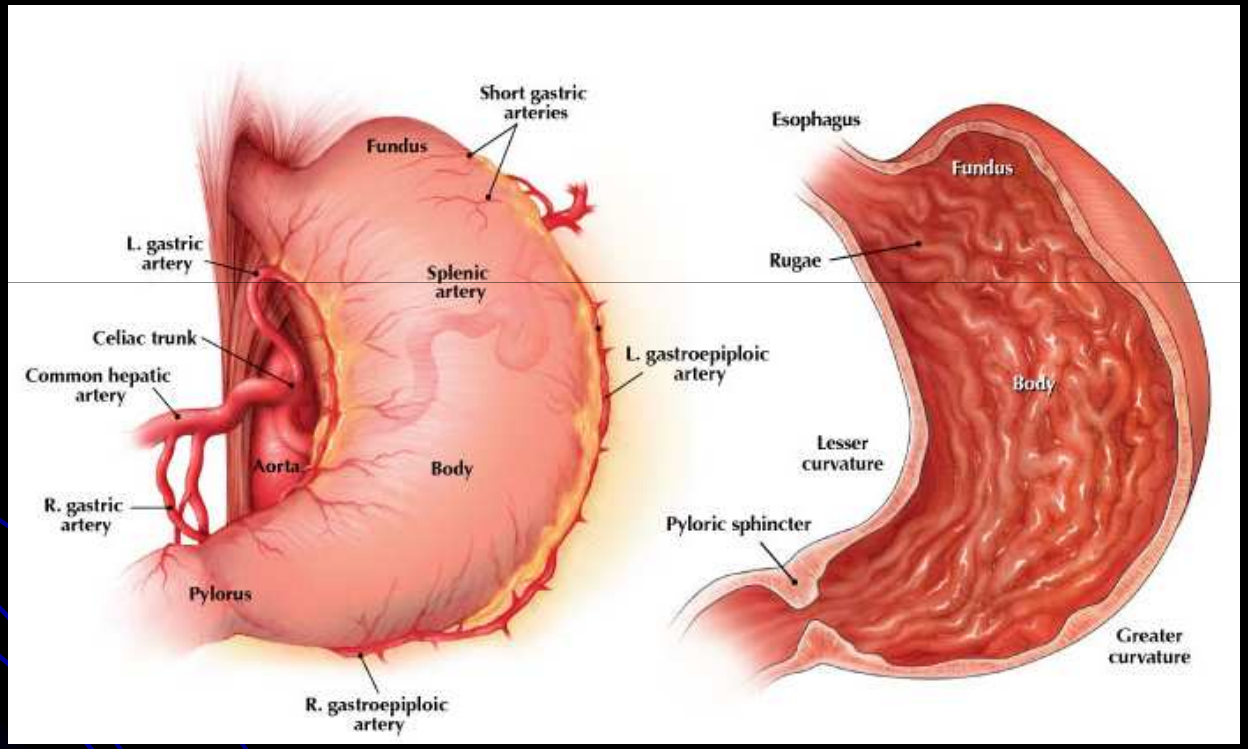
Esophageal cancer treatment

Palliative treatment

- aim: maintain natural digestive passage:
  - endoscopic prosthesis application
  - laser tumor vaporization
  - intraesophageal brachytherapy

- If above fail…:
  - nutritive gastrostomy or ileostomy
  - palliative RTH and/or CHTH

Stomach cancer



Stomach cancer

Epidemiology

- since decades gastric cancer is one of the most common malignancies in Poland
- it is the 5th most common cancer in men, and the 7th in women
- global 5 – year survival varies, its thought to be between 10 – 25%
- only 5 – 8% cases in Poland are diagnosed in early stage

Gastric malignant neoplasms in Poland 2005 - men

Wojciechowska U, Didkowska J, Tarkowski W i wsp.: Nowotwory złośliwe w Polsce w 2005 roku. Centrum Onkologii- Instytut im. Marii Skłodowskiej- Curie, Warszawa 2007

	number	crude rate	standardized rate	%
incidence	3 309	17,9	12,8	5,17
deaths	3 562	19,3	13,6	6,98

Gastric malignant neoplasms in Poland 2005 - women

Wojciechowska U, Didkowska J, Tarkowski W i wsp.: Nowotwory złośliwe w Polsce w 2005 roku. Centrum Onkologii- Instytut im. Marii Skłodowskiej- Curie, Warszawa 2007

	number	crude rate	standardized rate	%
incidence	1 872	9,5	4,9	3,03
deaths	1 955	9,9	4,9	4,97

Stomach cancer

Risk factors:

- food preservation, salty diet, smoked food
- lack of fruits and vegetables
- poverty
- tobacco
- Helicobacter pylori infection
- aphlatoxins

Stomach cancer

Precancerous condition

- adenoma of the ventricle
- chronic gastritis with Addison-Biermer anemia
- achlorchydia
- enteric metaplasia with dysplastic cells
- status post hemi gastrectomy
- chronic ulcer

Stomach cancer

Benign gastric neoplasms:

- Leiomyoma
- Hemangioma
- Lipoma
- Intraparietal cyst

Stomach cancer

Malignant gastric neoplasms:

- Adenocarcinoma - 90%
- Sarcomas
- Lymphomas → 5-10%
- Carcinoid
- GIST

Stomach cancer

Histopathological classification (WHO):

- adenocarcinoma (papillare, tubulare, mucinosum, mucocellulare)- 95%
- carcinoma planoepitheliale
- carcinoma nondifferentiatum
- carcinoma adenosquamosum

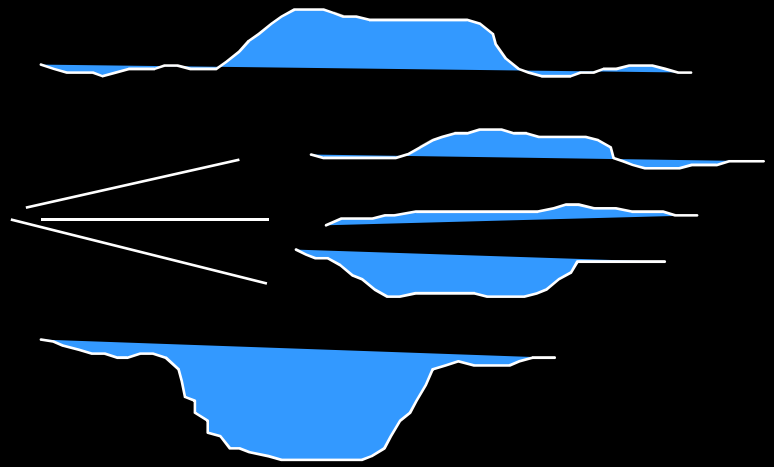
Early stomach cancer classification

Early stomach cancer – infiltrating mucosa and submucosa only.
Despite eventual nodal metastases the curability is >90%

type I convex

type II superficial

type III penetrating



Lauren’s clinical classification

Gastric cancers are categorized as either diffuse or intestinal-type gastric cancer.

- Diffuse gastric cancer is often associated with hereditary risk factors, strikes at a younger age with a "slight predominance among women" and is often located in the uppermost areas of the stomach. Diffuse-type cancers are often solitary or small clusters of cells that arise in the mucosal layer. Has worse prognosis.

- Intestinal-type gastric cancer often appears lower in the stomach, strikes older populations and has been associated with Helicobacter pylori infection. Intestinal-type cancers are often well-differentiated cylindrical growths arising in areas of mucosal inflammation. Has better prognosis.

Gross Anatomy classification

- superficial (superficial spreading),
- focal (polypoid, fungate or ulcerative),
- infiltrative (thickening of the stomach wall) types.

Stomach cancer symptoms

Unspecific, resemble other more common stomach diseases (gastritis, peptic ulcer)therefore diagnosis is often delayed

- pain and discomfort in epigastric area
- loss of appetite
- periodic nausea and vomiting
- symptoms of intra-GI tract bleeding (hematemesis, malaena – tarry stool)
- dysphagia
- loss of weight
- progressive cachexia
- hypohromic anemia

Stomach cancer symptoms

- in the absence of specific symptoms we must verify all the patients over 45 yrs complaining about dyspepsia with gastroscopy
- application of analgesics and anti peptic ulcer drugs is a malpractice
- every 50th patient over 40 yrs complaining about dyspeptic symptoms verified with gastroscopy is diagnosed with stomach cancer

Stomach cancer symptoms in phisical examination

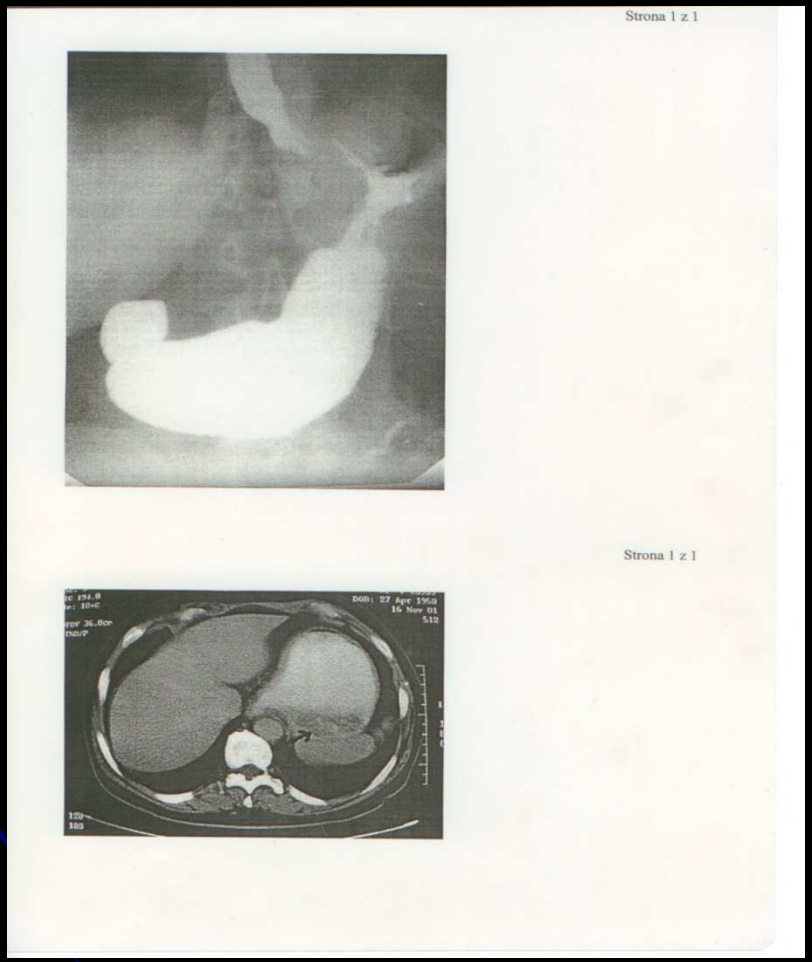
They are specific for an advanced disease!

- palpable tumor in epigastric region
- Virchof's tumor – metastatic left supraclavicular lympnodes
- Krukenberg's tumor – metastatic ovaries
- liver metastases
- intraperitoneal dissemination – umbilical implants, carcinomatous peritonitis, ascites
- hydrotorax

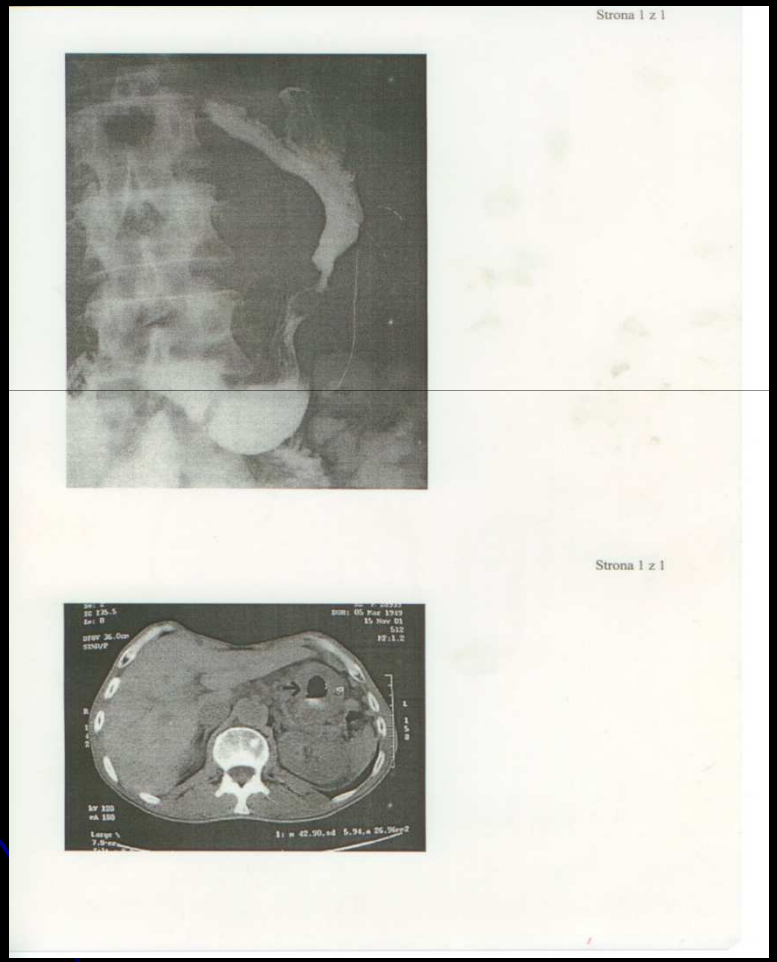
Stomach cancer diagnosis

- Gastrofiberoscopy (sensitivity for stomach cancer is > 90%)
- Double contrast X-ray (only for advanced stages)
- USG, EUS
- CT, MRI
- Laparoscopy
- Cytological /histopathological examination of species obtained during gastroscopy- sensitivity = 99%

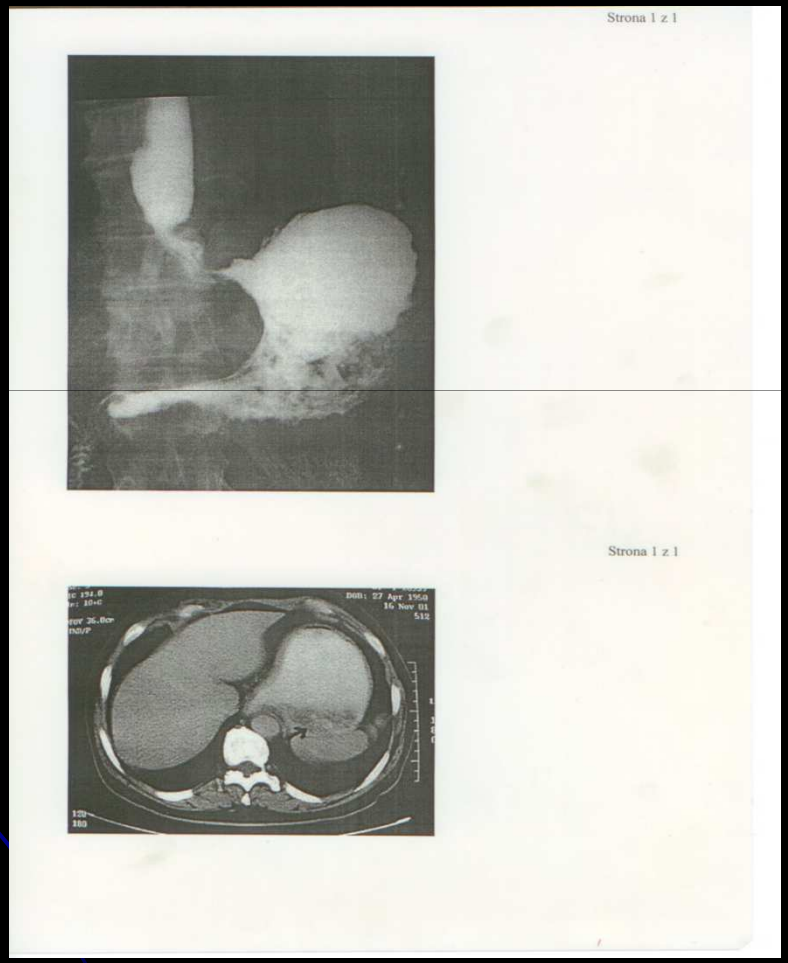
Stomach cancer – subcardial area



Stomach cancer – body area



Stomach cancer – prepyloric area



TNM classification

1997 The International Union Against Cancer TNM system for gastric cancer :

T – tumor

TX Primary tumor cannot be assessed
T0 No evidence of primary tumor
Tis Carcinoma in situ
T1 Tumor invades lamina propria or submucosa
T2 Tumor invades muscularis propria
T3 Tumor invades adventitia
T4 Tumor invades adjacent structures

TNM classification

N - nodes

NX Regional lymph node involvement cannot be assessed.
N0 No regional lymph node involvement
N1 Metastases in 1 to 6 regional lymph nodes
N2 Metastases to 7 to 15 regional lymph nodes
N3 Metastases in more than 15 regional lymph nodes

M – metastases

MX Presence of distant metastasis cannot be assessed
M0 No distant metastasis
M1 Distant metastasis

Stomach cancer treatment

The base treatment of stomach cancer is surgery. In all resective cases radical surgery (R0) should be performed.

Total gastrectomy with radical lymphadenectomy is the most preferred method. GI tract continuity is reconstructed by esophagojejunostomy *modo Roux-en Y*

Subtotal resection in early cases (4/5 of the stomach)

Partial gastrectomy is allowed as a palliative treatment.

GI tract reconstruction methods after gastrectomy

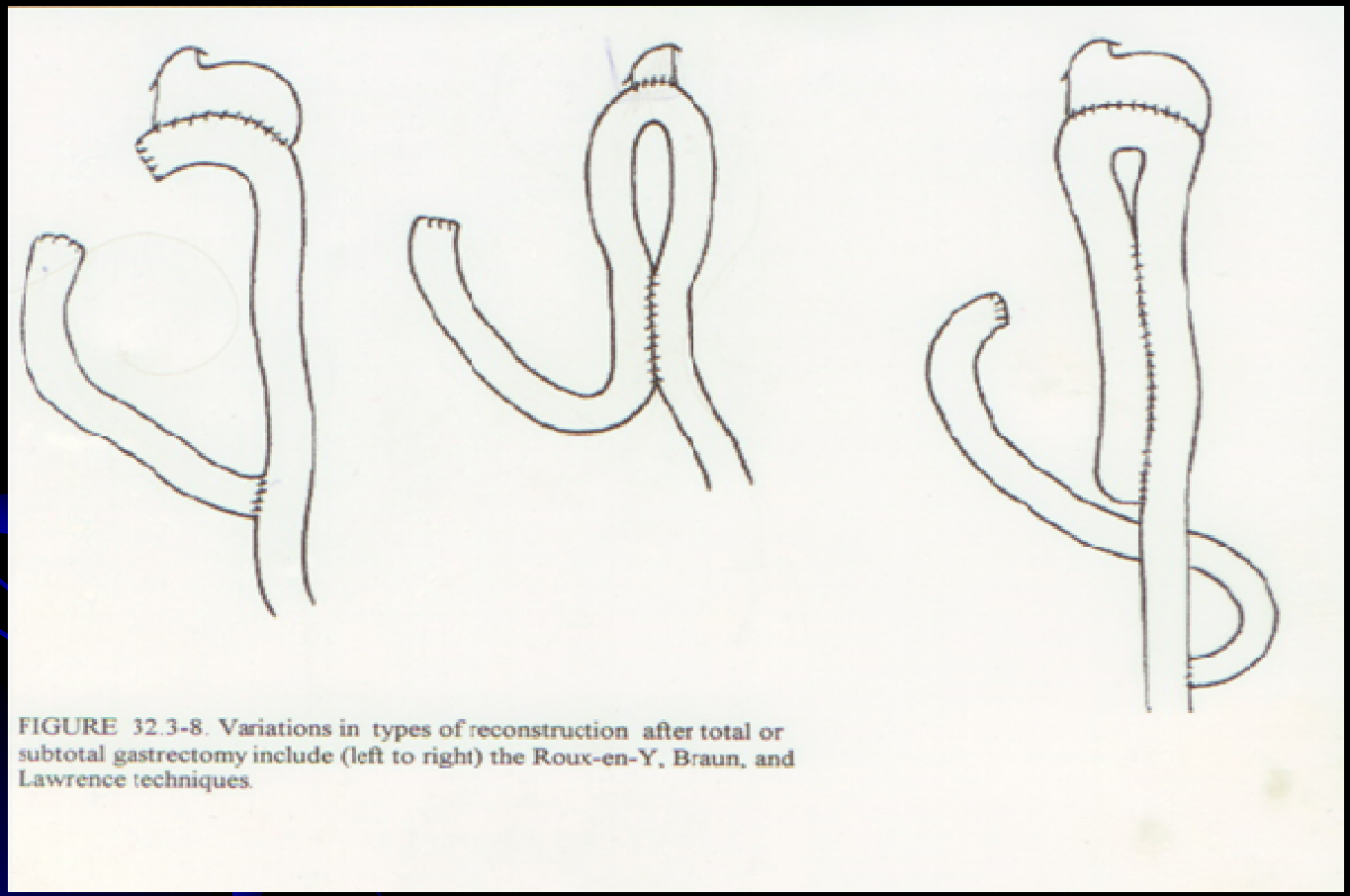


FIGURE 32.3-8. Variations in types of reconstruction after total or subtotal gastrectomy include (left to right) the Roux-en-Y, Braun, and Lawrence techniques.

Stomach cancer – complementary treatment

- Adjuvant chemotherapy, sometimes combined with immune therapy (BCG)
- Neoadjuvant (preoperative) chemotherapy – its aim is to „melt” the tumor to make the R0 resection possible
- Palliative chemotherapy
- RTH, RTH+CHTH – clinical trials

Stomach cancer palliative treatment

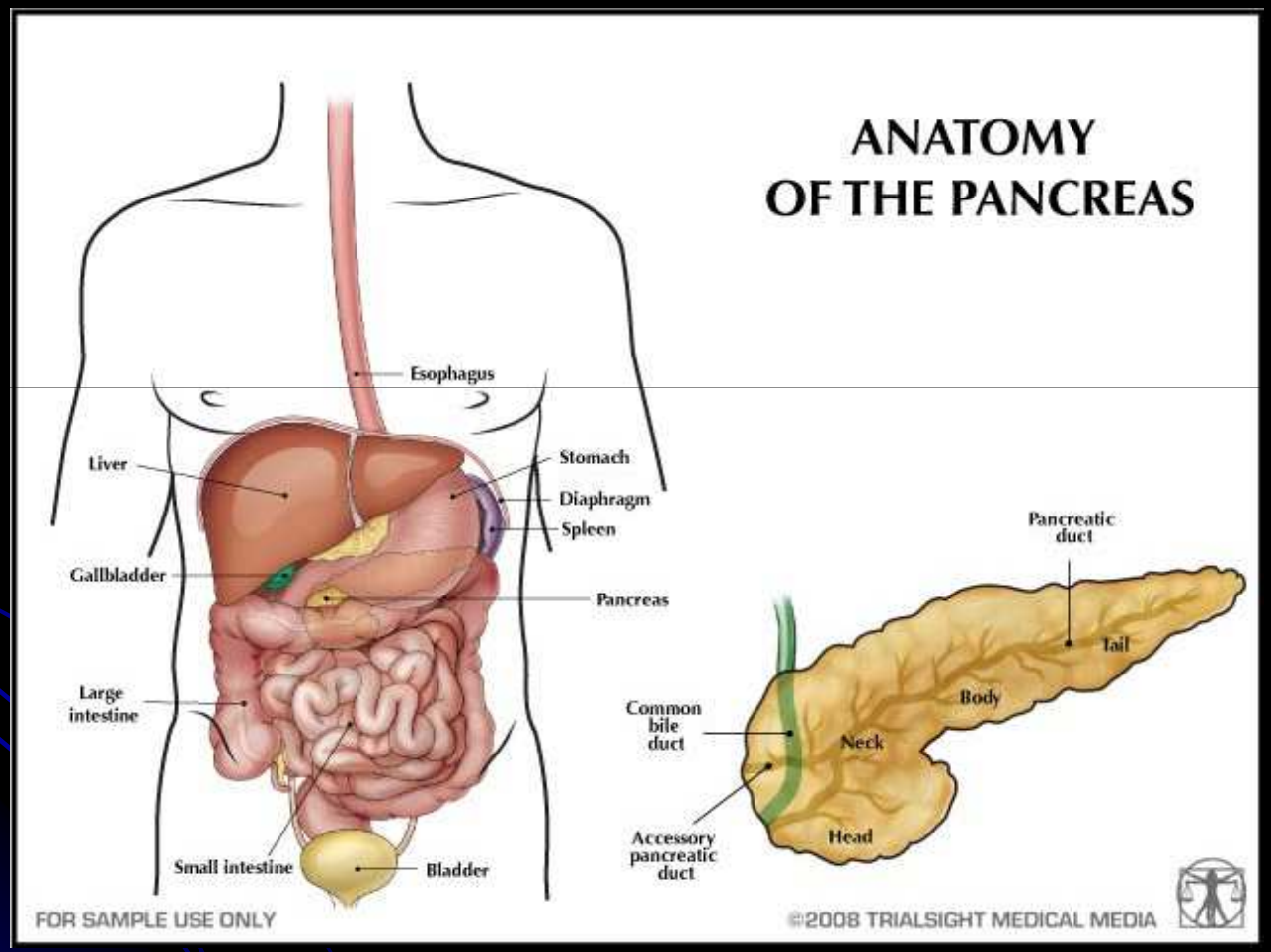
- **Surgery:**
- **ednoscopic prosthesis application**
- **gastroenterostomy shunt**

- **Palliative chemotherapy**

- **RTH+CHTH in gastric lymphomas**

- **Selective therapy in GIST (imatinib – GLIVEC)**

Pancreatic cancer

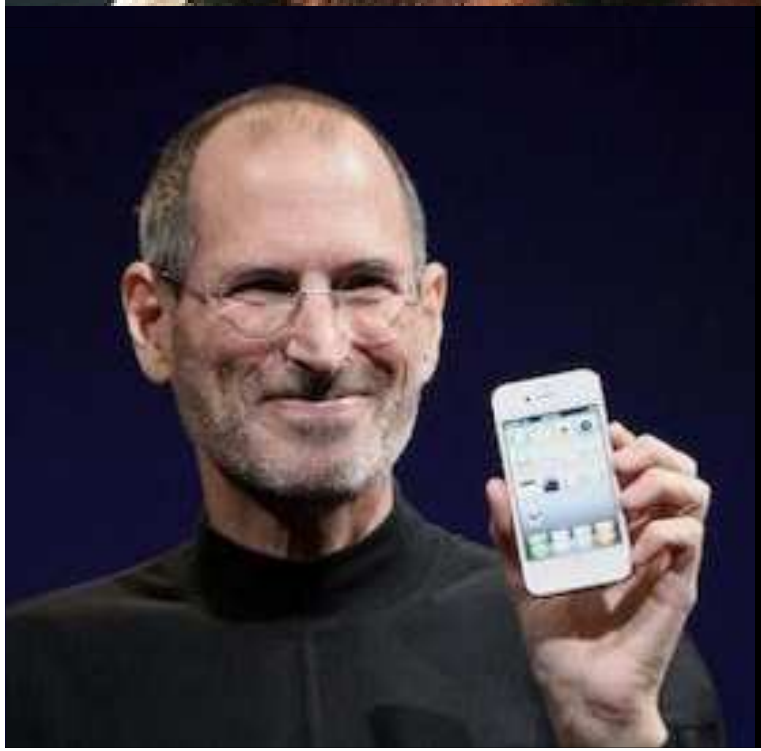


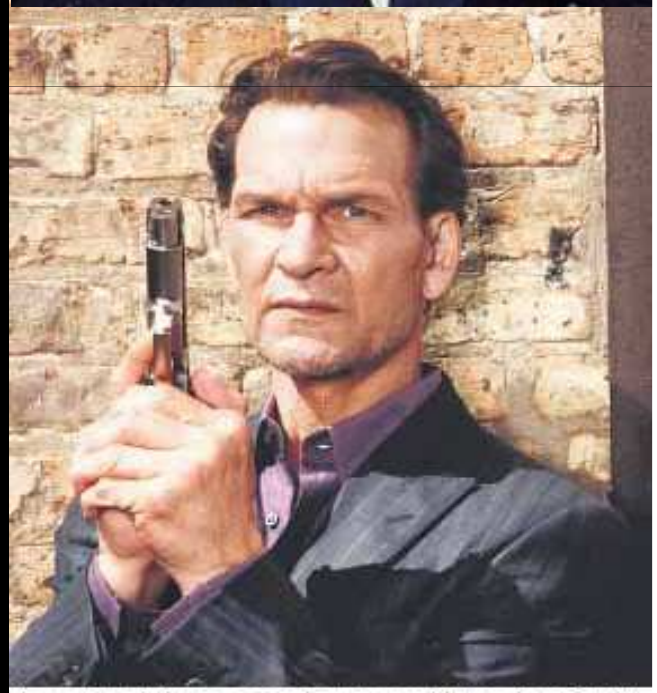
Pancreatic cancer

Epidemiology

- Incidence rates rise with age
- Pancreatic head – the most frequent localization
- Tobacco dependent cancer
- Has concealed growth, therefore late symptoms
- Bad prognosis (3 – 18% 5 year survival)

It has been observed that incidence rates grow in developed countries lately





Actor Patrick Swayze, seen here in a publicity photo for TV show The Beast, died of pancreatic cancer in 2009. The disease does not manifest symptoms at first and may not be detected until the later stage. PHOTO: AXN

Pancreatic cancer

Risk factors

- Diet rich in polysaturated fats
- Diabetes
- Exposition to certain chemical substances: naphtylamine, benzidine

There was no connection observed between chronic pancreatitis and pancreatic cancer

Pancreatic cancer

Histopathology

- adenocarcinoma
- insulinoma
- glukagonoma
- somastatinoma
- gastrinoma
- VIP-oma

Pancreatic cancer

Symptoms

- jaundice (head region)
- fever
- unspecific pain
- gall bladder enlargement (Courvoisier symptom)
- migrating phlebitis of the cruris

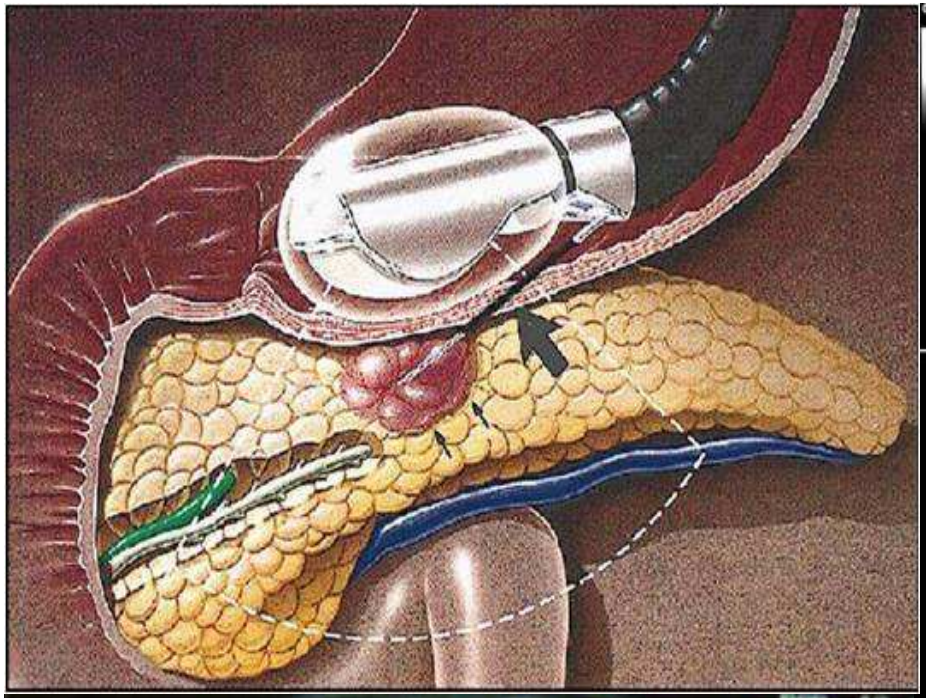
Pancreatic cancer

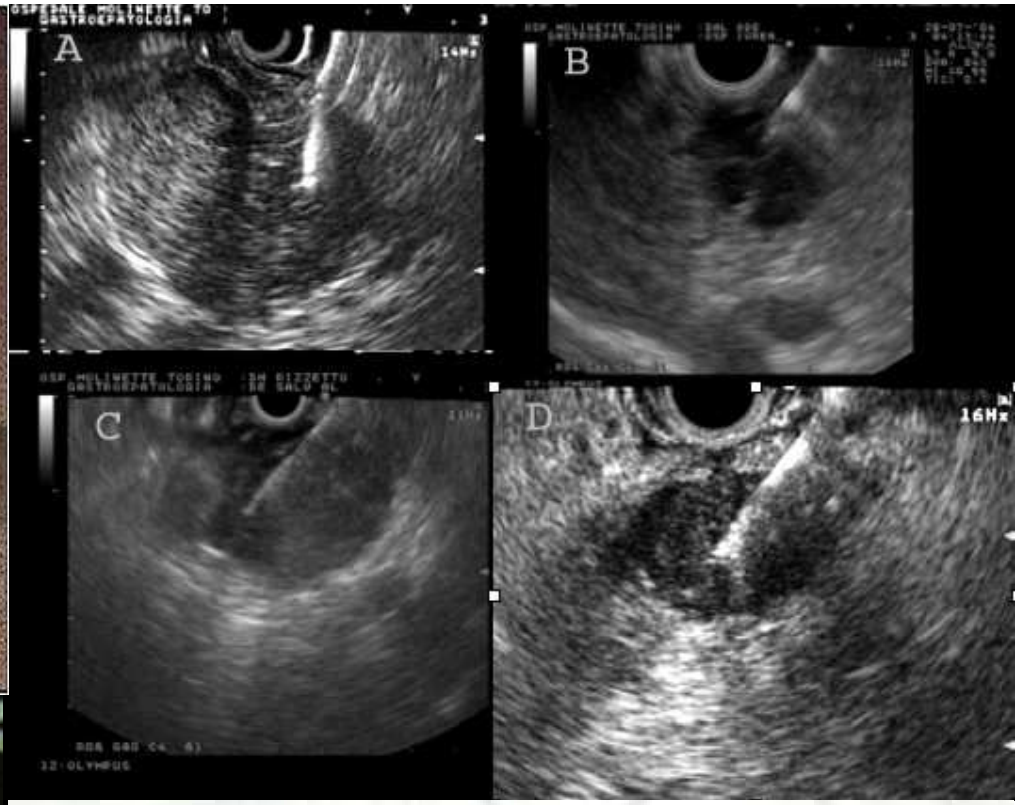
Diagnosis

- USG/EUS
- CT
- ERCP
- ultrasound guided FNB, intraoperative biopsy – histopathological verification
- gastroscopy
- chest X-ray

Differantial diagnosis:

- Pancreatic pseudocyst
- Chronic pancreatitis




A
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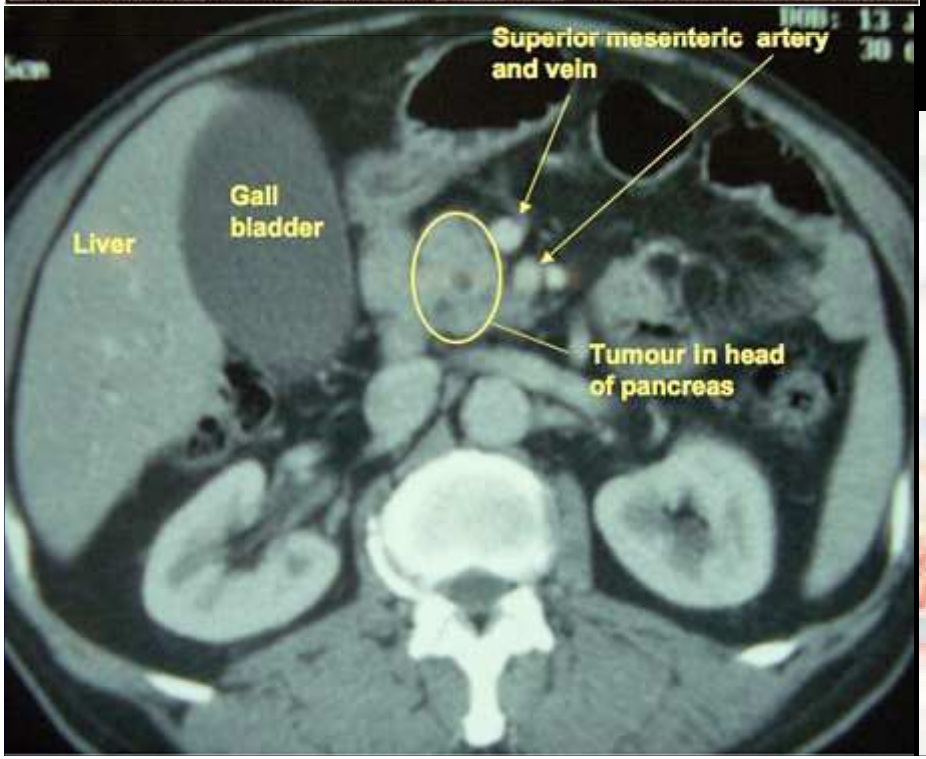
Superior mesenteric artery and vein
Liver
Gall bladder
Tumour in head of pancreas


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Pancreatic cancer

Treatment

Surgery – the extensiveness depend on the tumor localization and disease progression :

- Head – cholecysto-pancreaticoduodenectomy modo Whipple
- Head and body – total pancreatectomy
- Tail – spleno-pancreatectomy
- +neo/adjuvant chemotherapy (GLIVEC)

Pancreatic cancer - panceraticoduodenectomy

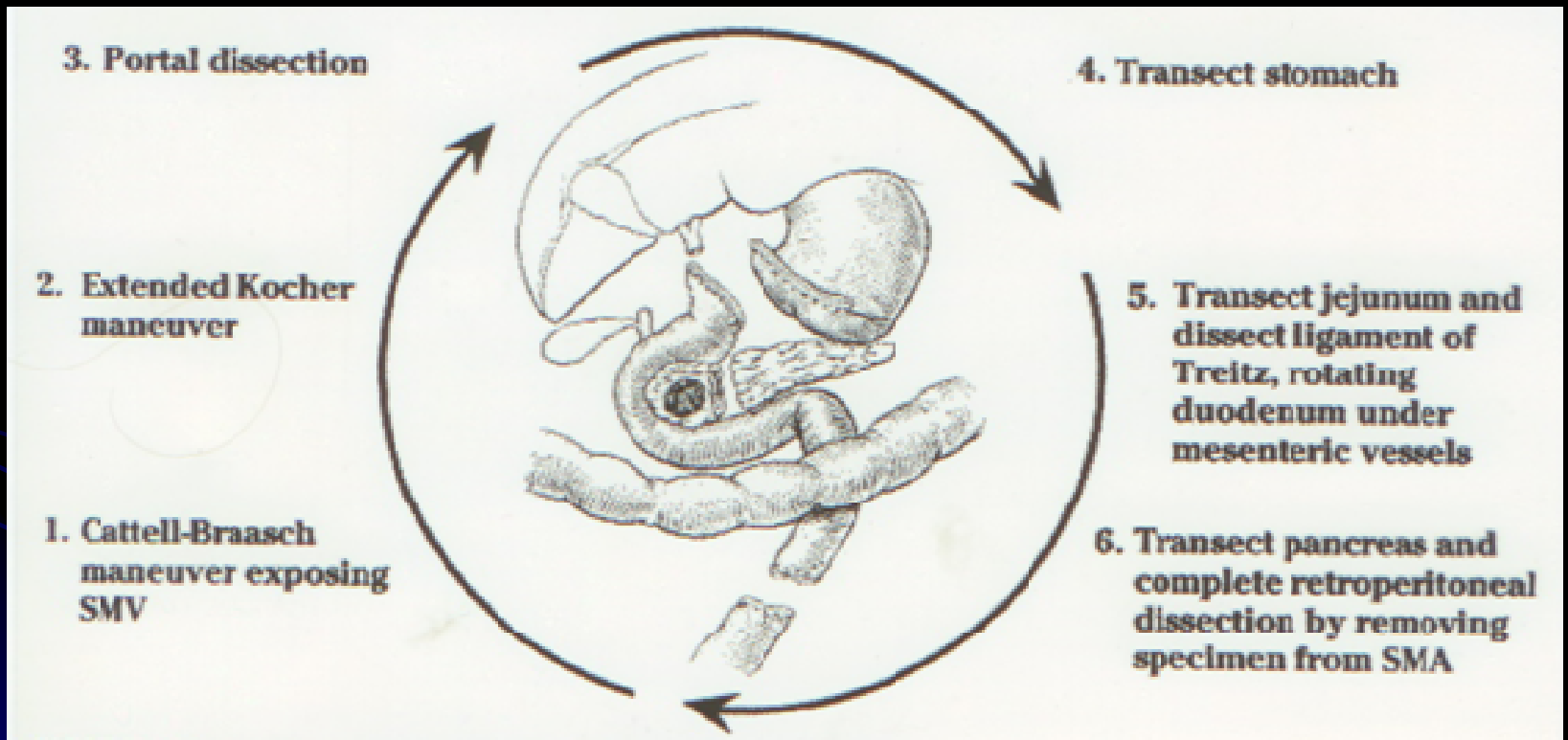


FIGURE 32.4-7. Six surgical steps of pancreaticoduodenectomy (clockwise resection). (Tyler DS, Evans DB. Reoperative pancreaticoduodenectomy. Ann Surg 1994;219:214)

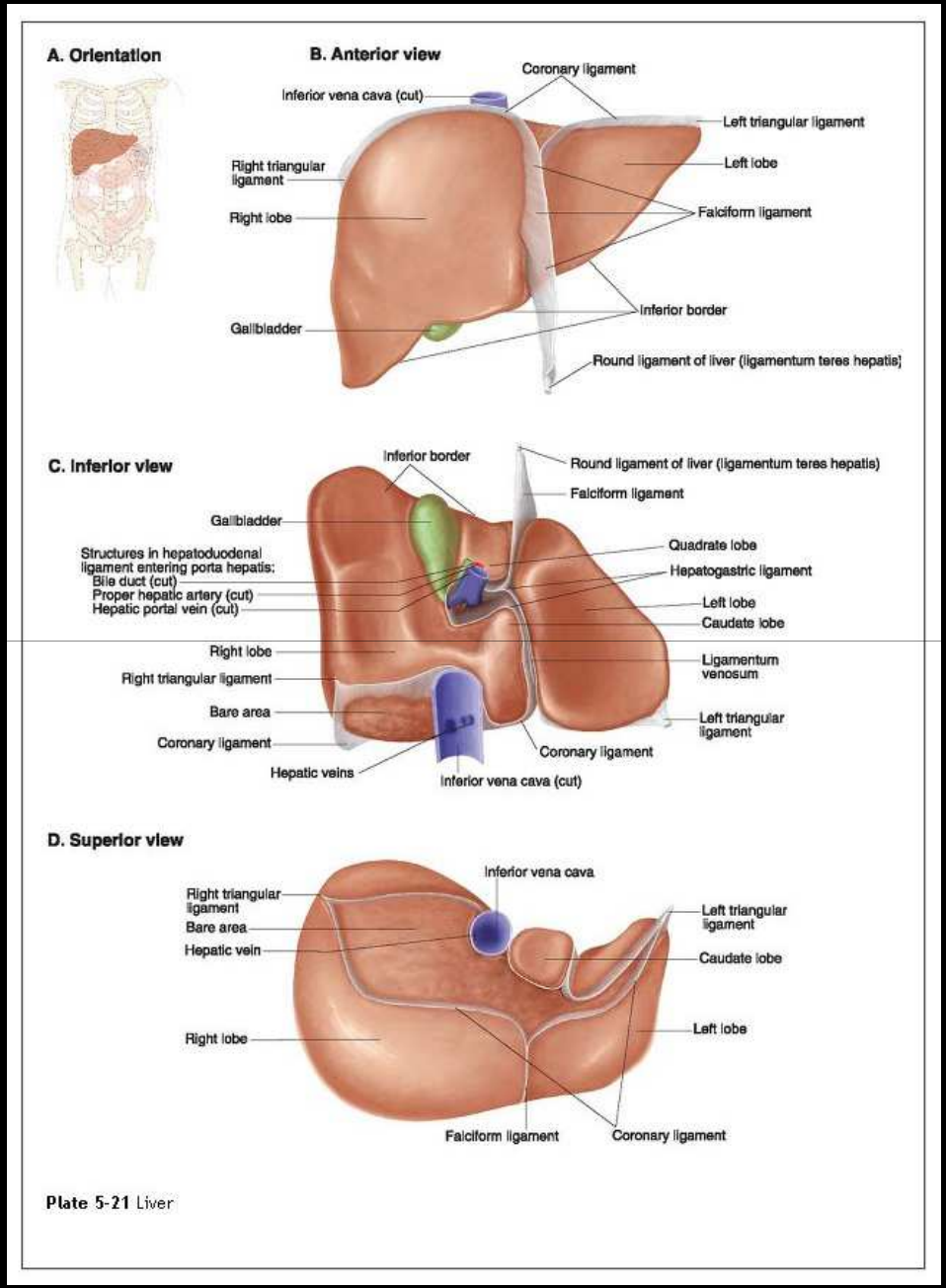
Pancreatic cancer

Palliative treatment

Only 20% of all pancreatic cancer patients is treated radically

- Gastrojejunostomy, choledochojejunostomy
- Bile tract prosthesis
- Celiac plexus naurolysis
- Analgesic treatment
- Palliative CHTH

Liver cancer



Liver cancer

Epidemiology

- The highest incidence rates: southeastern Asia and Africa
- Rare in Poland
- Common: liver metastases

Etiology/risk factors

- Chronic hepatitis C and/or B
- Aflatoxins
- Alcohol, tobacco
- Long term hormone therapy

Liver cancer

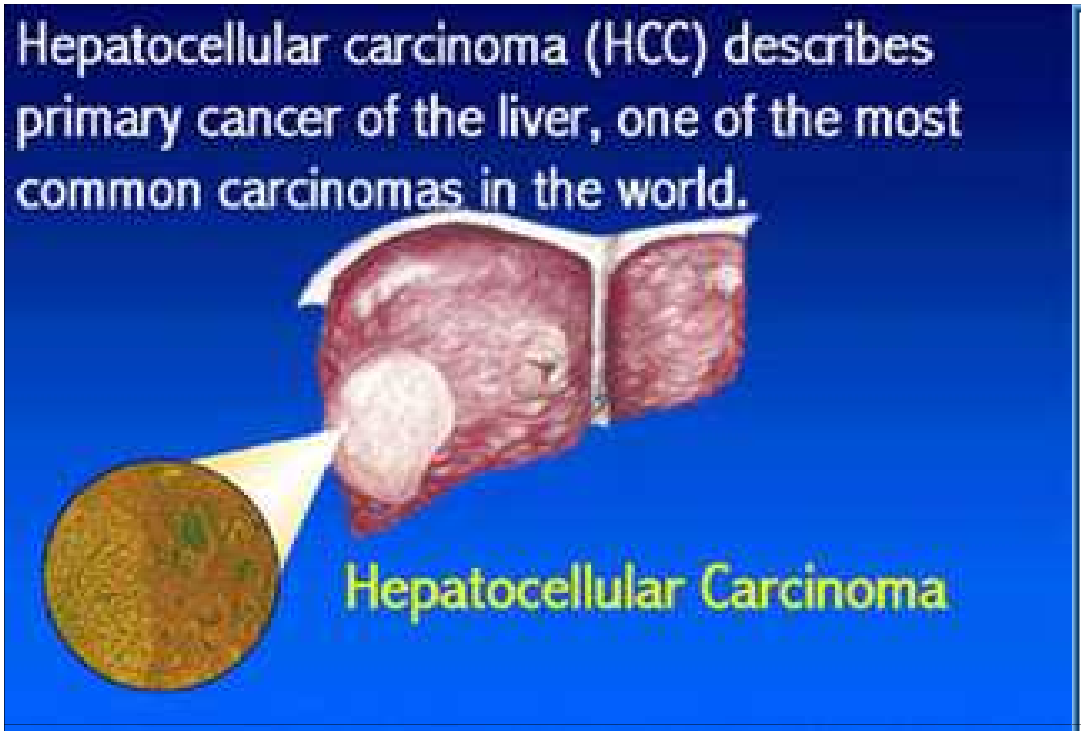
Histopathology

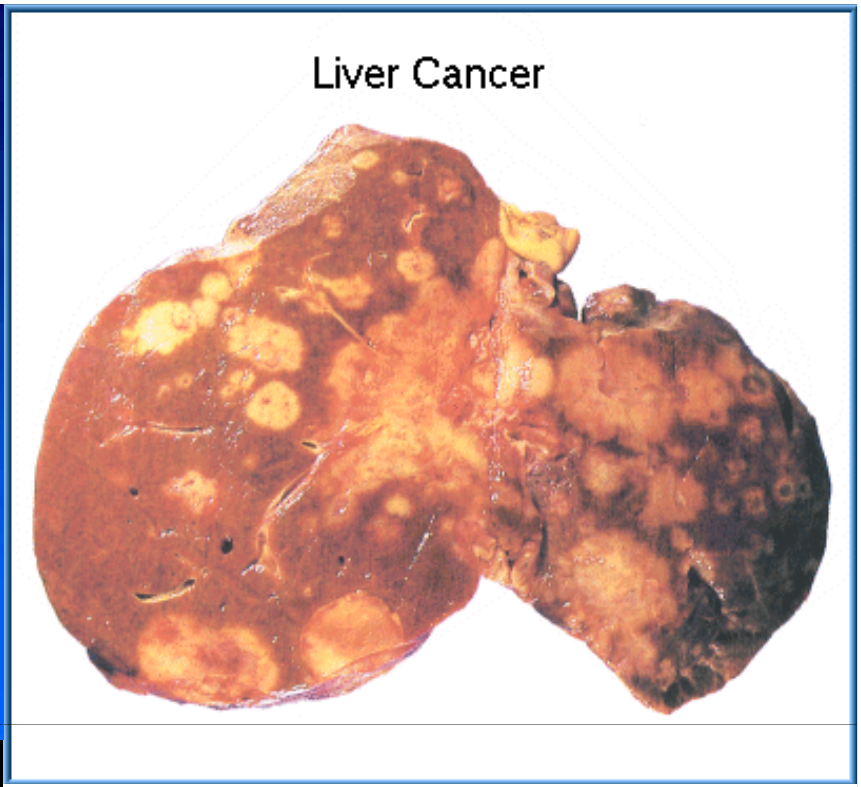
- hepatocellular carcinoma (HCC)
- cholangiocarcinoma
- hepatoblastoma
- metastatic tumors

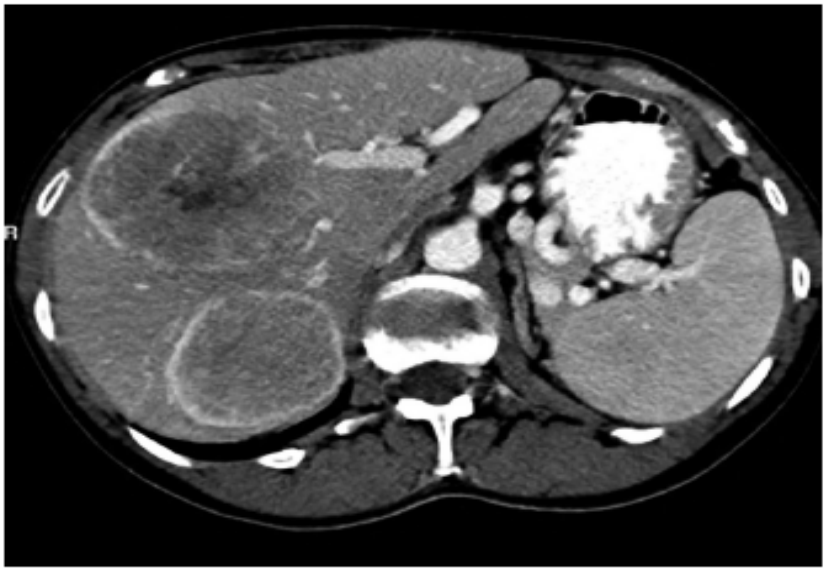
Liver cancer

Symptoms

- mechanical jaundice
- palpable tumor in right epigastric region
- hepatomegaly
- weight loss
- cachexia







Axial CT image in venous phase shows two large metastatic tumors in liver.

Liver cancer

Diagnosis

- USG
- CT
- MRI
- Laboratory tests (AspAT, AlAT, FA, GGTP)
- AFP
- FNI (laparoscopy, laparotomy)

Liver cancer

Treatment

- radical surgery – possible in a very low number of cases
- segmentectomy, lobectomy, hemihepatectomy
- Total hepatectomy with simultaneous liver transplant
- Palliative surgery, radiofrequency thermal ablation, alcoholization
- Palliative CHTH

Liver cancer

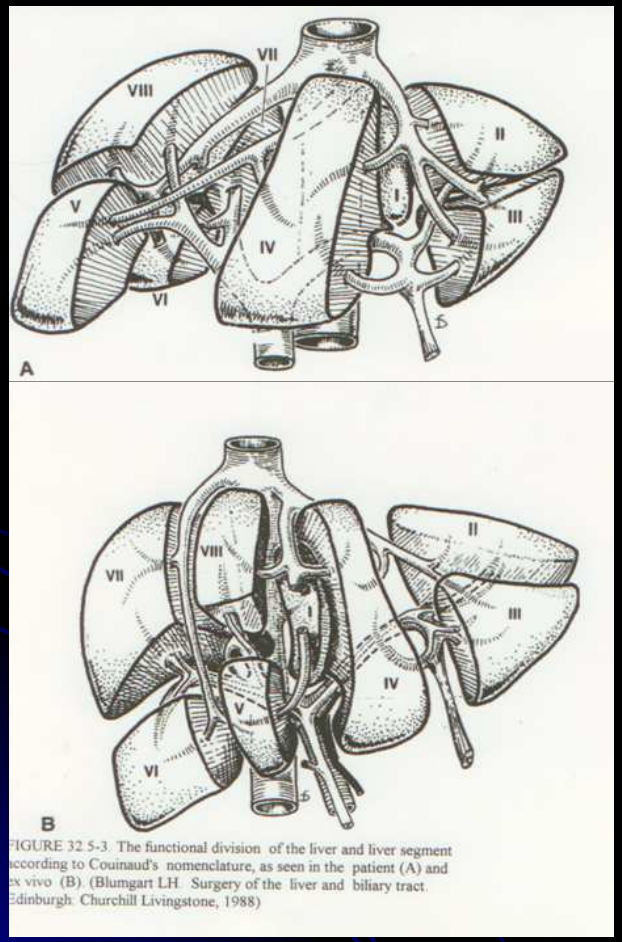


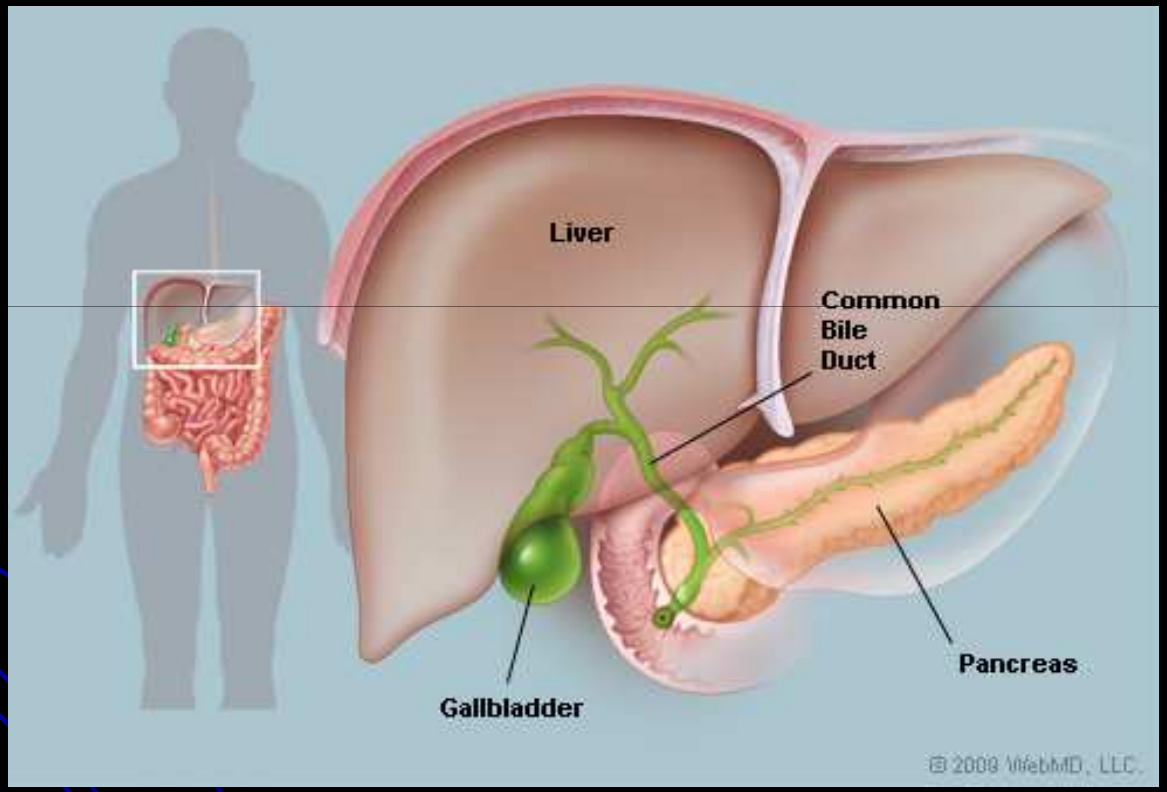
FIGURE 32.5-3. The functional division of the liver and liver segment according to Couinaud's nomenclature, as seen in the patient (A) and ex vivo (B). (Blumgart LH. Surgery of the liver and biliary tract. Edinburgh: Churchill Livingstone, 1988)

Liver segmental anatomy

A – in vivo

B – ex vivo

Gallbladder and bile ducts cancer



Gallbladder and bile ducts cancer

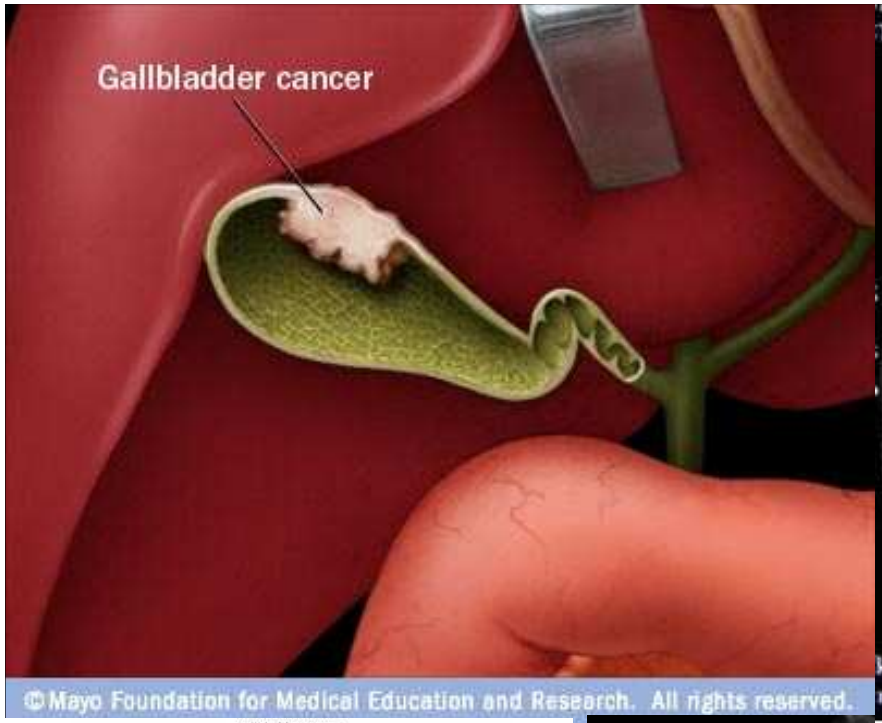
Epidemiology

- Incidence in Poland ~2500/100000
- Women diagnosed 10 x more often (after 60 yrs)
- The highest incidence rates: South and Middle America, Japan, Israel

Gallbladder and bile ducts cancer

Etiology

- Gall stones
- Bile ducts cysts
- Gallbladder polyposis (Peutz-Jeghers syndrome)
- Anomalies in anatomy of common bile duct and pancreatic duct
- Porcelain gallbladder
- Metaplasia
- Obesity, hiperestrogenism
- Nitrosamine, rubber industry


Gallbladder cancer
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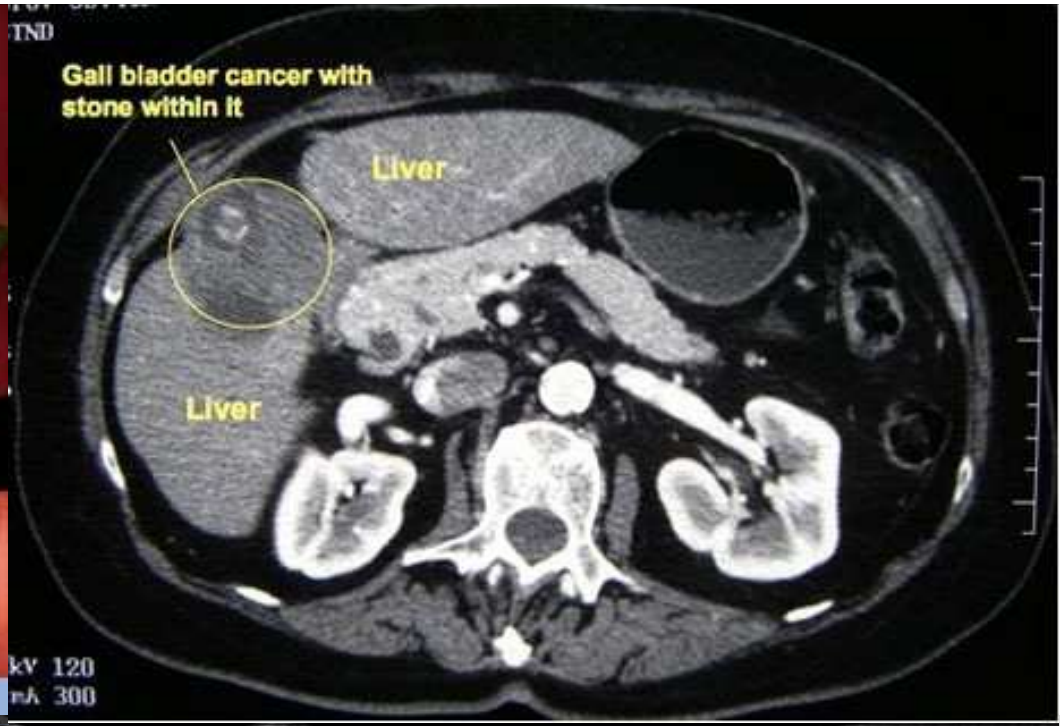
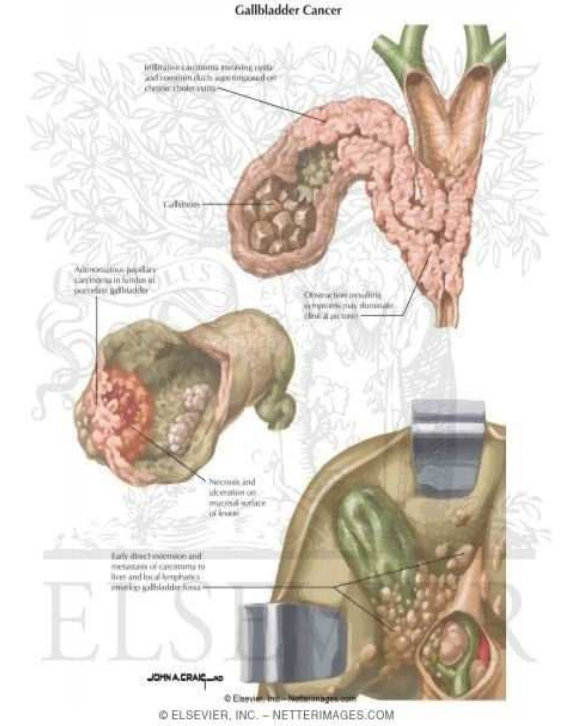

Gall bladder cancer with stone within it
Liver
Liver
kV 120
mA 300


Gallbladder Cancer
Gallstones
Necrosis and ulceration on mucosal surface of lesion
JOHN A CRAIG, MD
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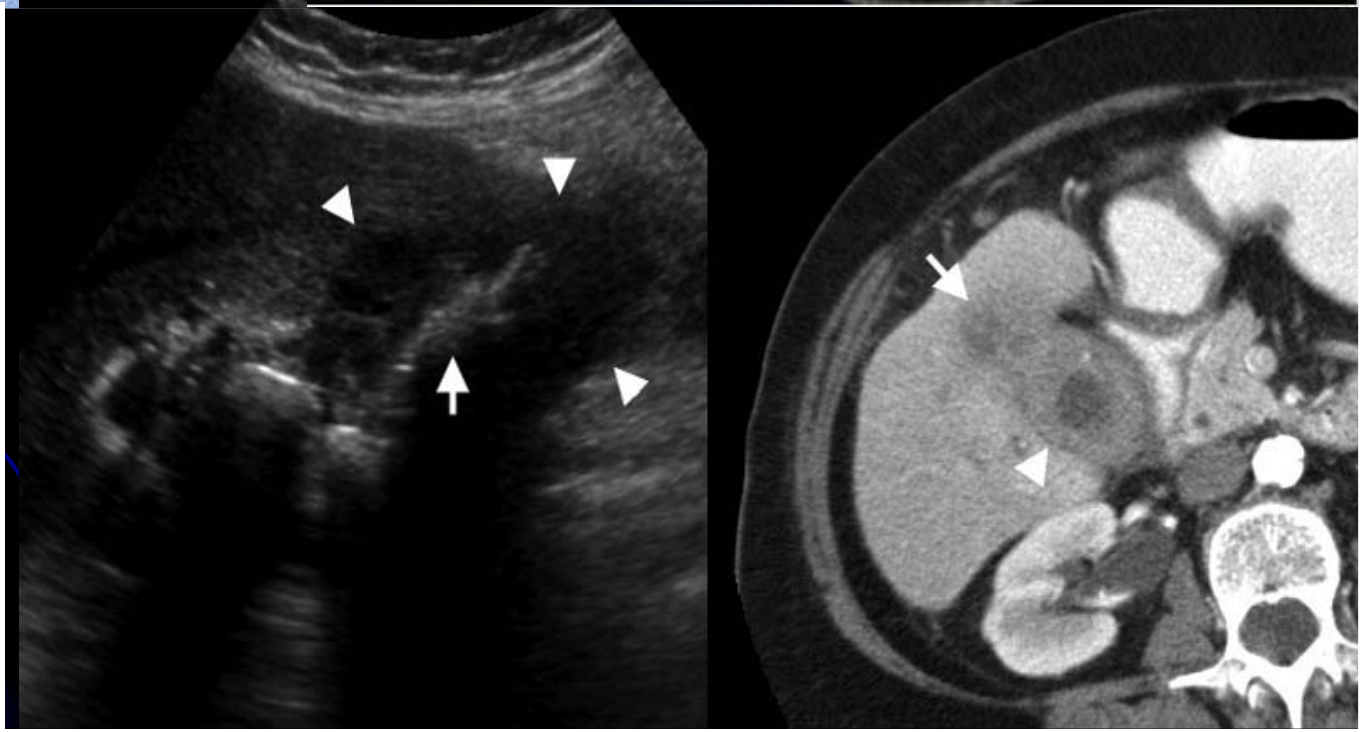


Gallbladder and bile ducts cancer

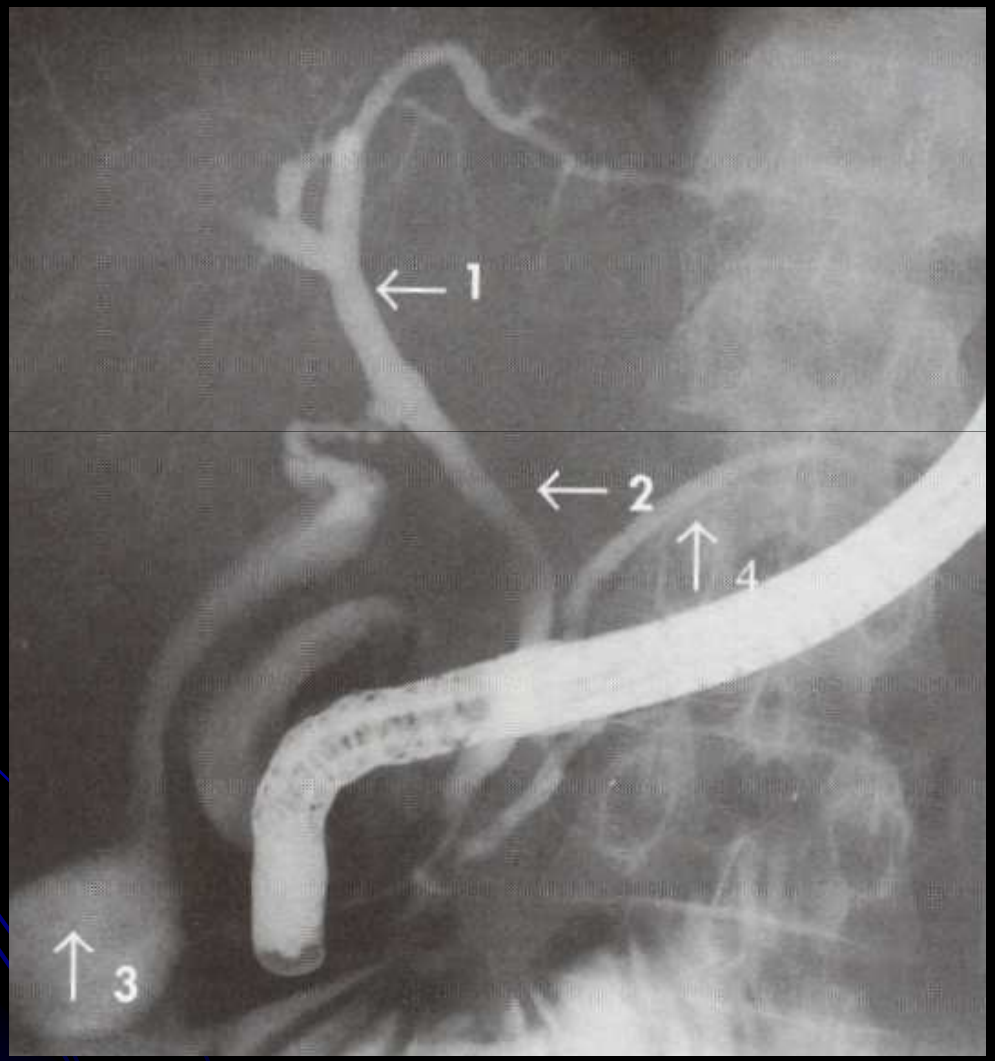
Symptoms

- Gall stones symptoms:
  - mechanic jaundice
  - right epigastric pain

Diagnosis

- USG
- CT
- ERCP
- Laparoscopy – histopathology

Gallbladder and bile ducts cancer



Gallbladder and bile ducts cancer

Treatment

- Surgery – fundamental method of treatment
- Radical operation possible in about 20% of all diagnosed cases, 90% of these patients needs adjuvant CHTH

- Majority is given a palliative treatment:
  - palliative resection
  - bile ducts prosthesis implantation
  - palliative CHTH

Gallbladder and bile ducts cancer

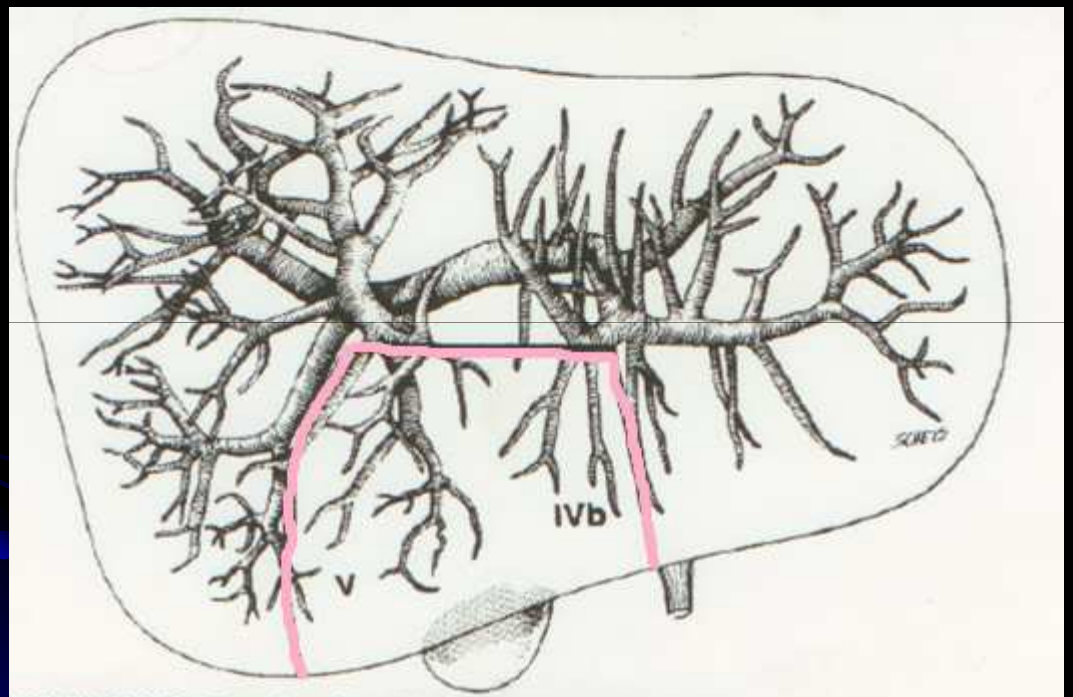


FIGURE 32.5-7A. Resection of a gallbladder carcinoma with adjacent segments IVb and V. (Gall FP, Kockerling F, Scheele J, et al. Radical operations for carcinomas of the gallbladder: present status in Germany. World J Surg 1991;15:328)

Resection of a gallbaladder cancer with adjacent segments IV b and V.

Gallbladder and bile ducts cancer

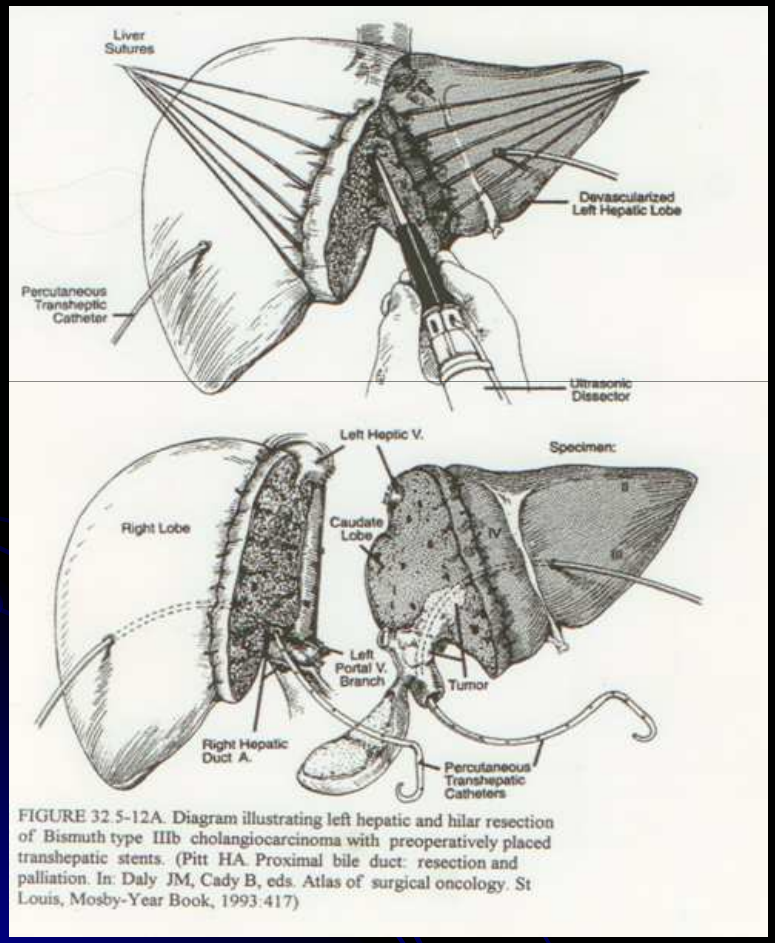
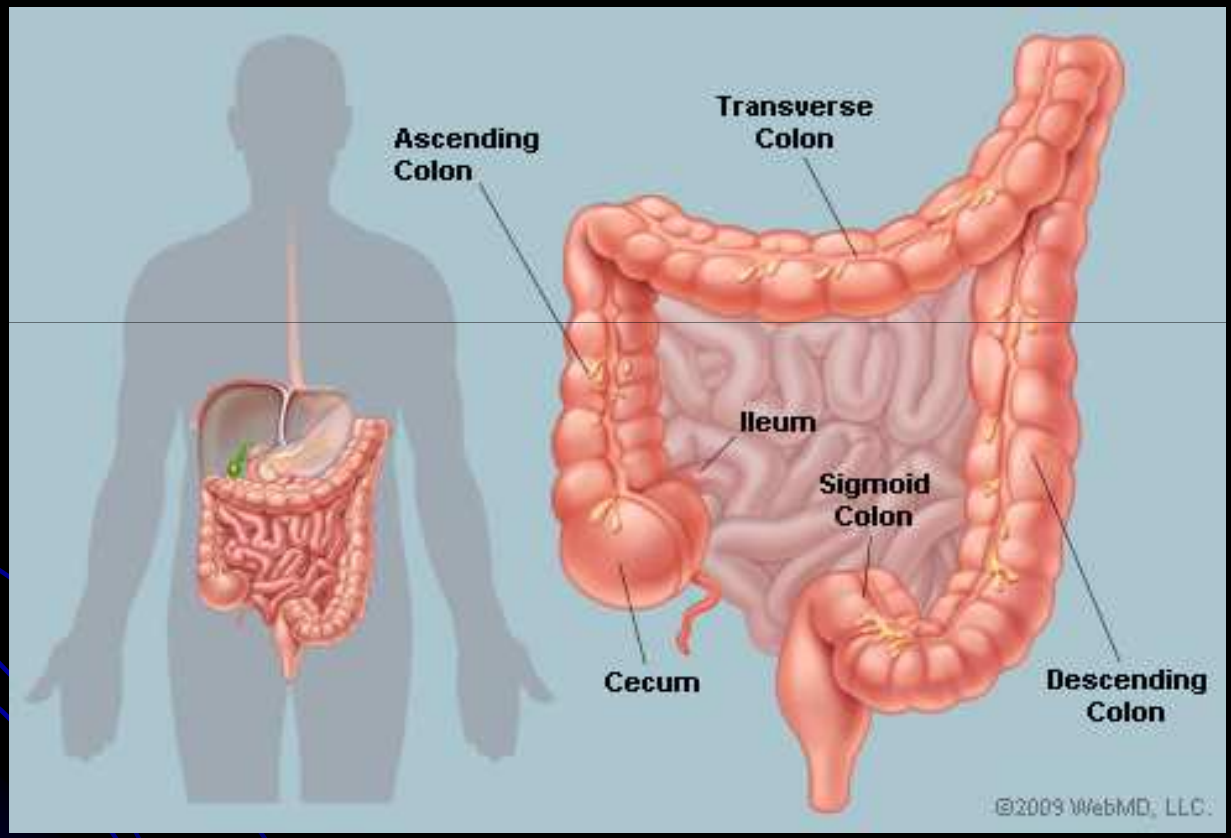


FIGURE 32.5-12A. Diagram illustrating left hepatic and hilar resection of Bismuth type IIIb cholangiocarcinoma with preoperatively placed transhepatic stents. (Pitt HA. Proximal bile duct: resection and palliation. In: Daly JM, Cady B, eds. Atlas of surgical oncology. St Louis, Mosby-Year Book, 1993:417)

Left hepatic and hilar resection of Bismuth type IIIb bile ducts cancer with preoperatively placed transhepatic stents

Colon cancer



Colon cancer

Risk factors

- Genetics
- Environmental factors
- Colon diseases

Colon cancer

Genetics

Family history:

- one of the 1st degree relatives had a colon cancer
- one of the 2nd degree relatives had a colon cancer (during two generations)
- colon cancer diagnosed before 40 yrs
- coincidence with cancers of other location (endometrial cancer)

Colon cancer

Genetics

- Runs in the family (10-30%)
  - Mutations (aprox. 3%)
  - Lynch syndrome (aprox. 2%)
  - Familial polyposis – FAP (0.5-1%)

Colon cancer

Genetics

- FAP
- >100 polyps , usually on the left side
- causes 1% of all colon cancers
- APC gene mutation, autosomal dominant
- 1/10000 live born, 20% spontaneous mutation
- all APS mutation positive will develop cancer before 35 yrs
- other symptoms: secondary pancreatic, liver, bile ducts, gastric, thyroid cancers and osteomas
- Treatment: TPC-IPAA- total proctocolectomy with ileal pouch- anal anastomosis

Colon cancer

Genetics

- AFAP- attenuated FAP
- < 100 polyps on the right side
- APS gene mutation, another loci
- hereditary flat adenomas syndrome
- High risk of colon cancer
- Late symptoms, after 50 yrs of age
- Treatment less aggressive

Colon cancer

Genetics

- HNPCC, Lynch syndrome
- colon cancer before 40 yrs of age
- numerous foci syn- and metachronic
- Lynch I – cecum, ascending and transverse colon cancer, without polyposis
- Lynch II – colon cancer and other accompanying cancers: endometrial, stomach, breast, liver and bile ducts, lymphomas
- Symptoms around 40 yrs of age
- Better over all survival, less metastatic lymph nodes

Colon cancer

Environmental factors

- Low fiber, rich in polysaturated fats diet
- Wealth
- Low physical activity, sitting way of life
- Low calcium intake
- Constipation
- Nicotine

Colon cancer

Colon diseases

- Ulcerous colitis
- Crohn's disease
- Adenomas: tubular (75 % of all, 5% becomes malignant), villous (10% of all, 40% becomes malignant), tubule-villous (15% of all, 20% becomes malignant). The risk of transformation gets higher with the diameter of an adenoma (Ø <1 - 1%, Ø>2cm-50%)

- All polyps seen during colonoscopy should be removed and histologically tested

Colon cancer

Primary prophylaxis

- Avoid risk factors
- Increase physical activity
- End smoking
- Modify diet

Colon cancer

Secondary prophylaxis

- Occult blood test (Haemoccult, Haemoccult SENSA) every 1-2 yrs starting at 40. when positive –colonoscopy
- Colonoscopy:
  - starting at 50, every 10 yrs, for people with negative family history
  - starting at 40, for people with one 1st degree relative with diagnosed colon cancer
  - Starting at 20, for people diagnosed with FAP or HNPCC mutation

Colon cancer

Symptoms

Right colon:

- Unspecific pain in the umbilical, hypa- and epigastric area
- Dark stool
- Hypochromic anemia
- Palpable pathological resistance, tumor

Colon cancer

Symptoms

Left colon:

- Meteorism, colic (symptoms of intermittent obstruction)
- Blood in and in the stool
- Bowel movement rhythm change (constipation/diarrhea)

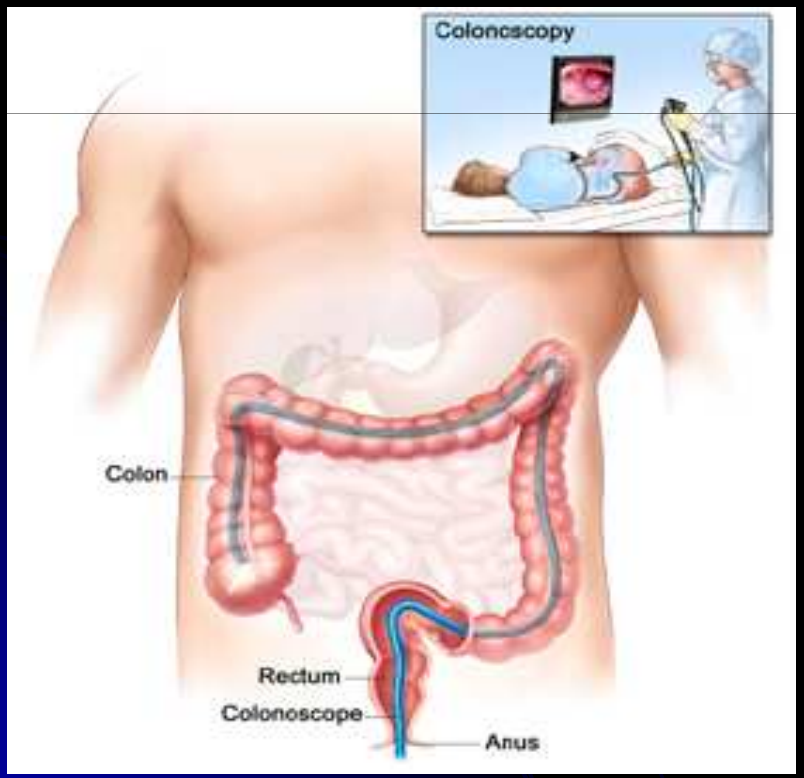
Colon cancer

Symptoms

Rectum:

- Uncomfortable defecation
- Ileus
- Painful straining
- Pencil-like stool
- Perineal pain
- Blood on stool

Colon cancer



Diagnosis

- History
- Physical examination *(per rectum!)*
- Endoscopy
- USG
- CT/MRI
- CEA
- histopathology

Colon cancer

Clinical stage evaluation

- Duke's classification: A,B,C,D
- Astler – Coller classification: A, B1, B2, C1, C2, D
- TNM

Histopathological differentiation

- G 1,2,3

Evaluation of the surgical margins

- R0, R1, R2

Colon cancer

Treatment

- Surgery
  - Radical
  - Palliative
- Radiotherapy
  - Radical (neo-, adjuwant)
  - Palliative
- Chemotherapy
  - Radical
  - Palliative