

# PANCREATIC HIGH RESOLUTION CANCER REGISTRY

## REGGIO EMILIA PROVINCE

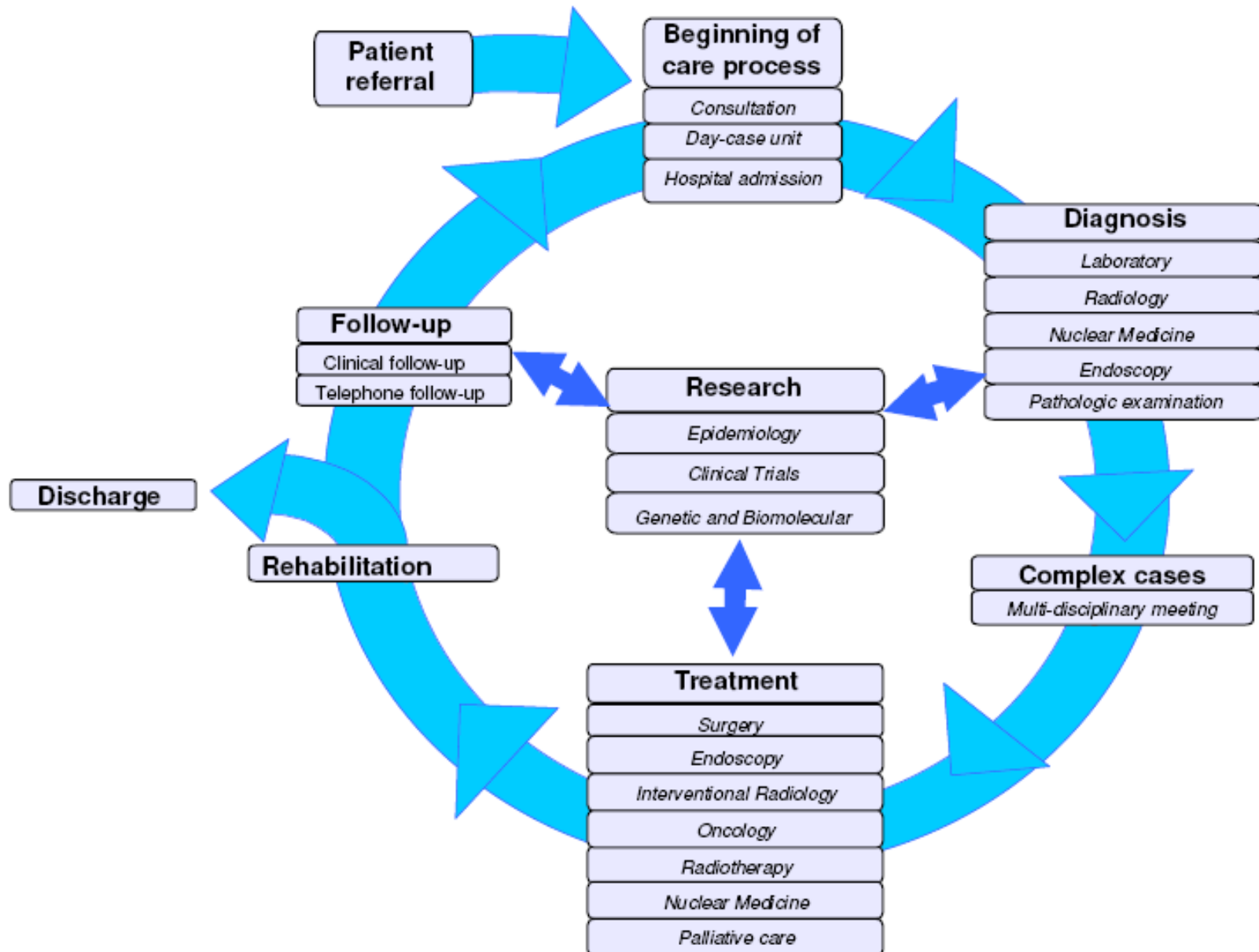
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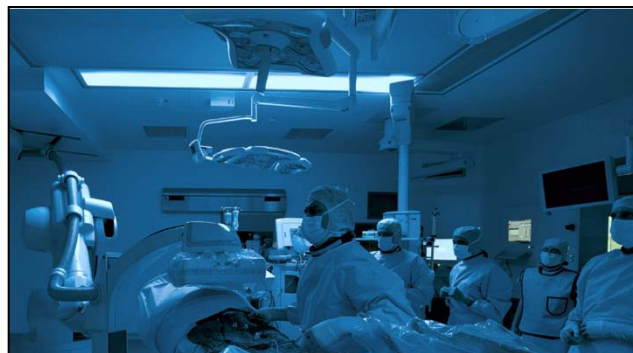
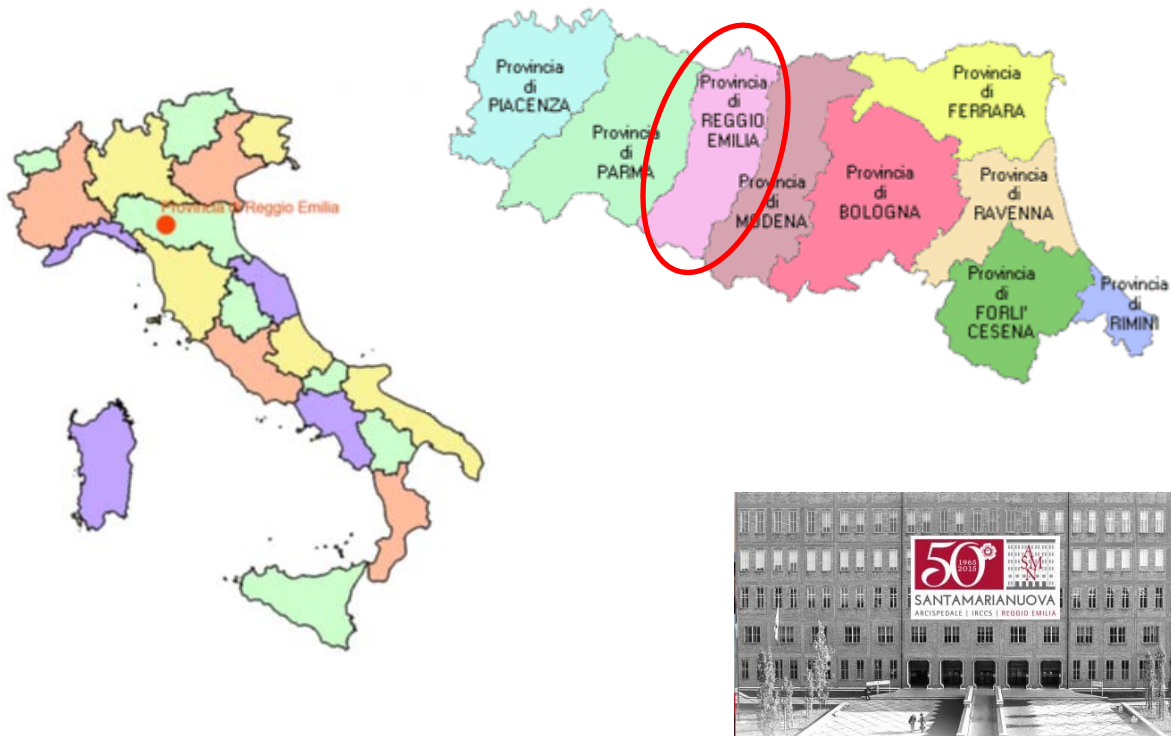
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# Pancreatic cancer: a complex circle!!!!!!!



# Where we are...



Gastroenterology and  
Digestive Endoscopy  
Department,  
Arcispedale Santa Maria  
Nuova, IRCCS, Reggio Emilia,  
Italy



# High Resolution Cancer Registry (HRCR)



# Variables collected..

(more than 400 / case)



Variable	Explanation	Definition
SUD_CODPAZ	Patient's ID	Unique code to identify the patient
Birth date	Birth date	DD/MM/YYYY
Gender	Gender	M= male; F= female
Residence	Residence (Residence and not in Reggio Emilia Province)	ISTAT Classification
Marital status	Marital status	Married, Single, Divorced, Widowed, Unknown
Occupation	Occupation	Classification of occupations according to Istat ( <a href="http://cp2011.istat.it/">http://cp2011.istat.it/</a> )
Emigration	Emigration; To be filled if the patient is migrating	Yes; No; Unknown
Emigration Data	Emigration Data	DD/MM/YYYY
Country emigration	Country emigration	Country
City of death	City of death	ISTAT Classification
Cause of death	Cause of death	ICD X Classification
Status	Status	1- Alive, 2- dead, 3- Lost to follow-up, 4- DCO, 5- Autopsy
Last date	It is the date on which the vital status was confirmed	DD/MM/YYYY
DCI	Such cases are a subset of those registrations that are only initiated after death, and may be termed Death Certificate Initiated registrations	0- Not originate from death certificate, 1- Originate from death certificate, 9- Unknown



Variable	Explanation	Definition
Creation date	Creation date of the case in the database	DD/MM/YYYY
Diagnosis date	Incidence date	DD/MM/YYYY
Incidental finding	Incidental findings are previously undiagnosed cancer that are discovered unintentionally	Yes; No
<b>Blog discussion</b>	Specifies whether the case was discussed by the blog	Yes; No; Unknown
Blog discussion date	Date of discussion of case in the blog of pancreas	DD/MM/YYYY
MDT discussion	Discussion of case by MDT of pancreas	Yes; No; Unknown
MDT discussion date	Date of discussion of case in the pancreatic MDT	DD/MM/YYYY
<b>Primary neoplasm</b>	Site and Subsite of primary neoplasia	ICDO3T
Primary site, other	Specific part of the pancreas	
Morphology	Specific morphology of the neoplasm	ICDO3M
Behavior	Several features of the neoplasm	Benign lesions; Lesions of uncertain behavior; In Situ Lesions; Malignant lesions
Grading	Differentiation grade	Well, Intermediately, Poorly, Undifferentiated, Unknown
Basis of diagnosis	Basis of diagnosis	DCO, Clinical, Clinical investigation, Autopsy without histology, Oncological markers, Cytology, Histology on metastases, Histology on primary site, Autopsy with histology, Unknown
Extent of the disease	It is a summary staging	Localized cancer, Local infiltration, Metastases to regional lymph nodes, Local infiltration and metastases to regional lymph nodes; Distant metastasis, Extra regional Lymph node metastasis, Not confined to the organ of origin; Not distant organ metastasis, Unknown
Hospital	Hospital diagnosis	
Diagnosis method	Diagnosis method	CAT; RNM; EUS; EUS+FNA; Abdominal ultrasound; Scintigraphy; PET; Cytology





Variable	Explanation	Definition
Staging classification	Classification staging at diagnosis	Clinical; Pathologic; Post therapy; Clinic post therapy; Pathologic post therapy; Recurrence; Autopsy
TNM staging	Classification TNM at diagnosis (AJCC 7° edition)	(see AJCC 7° edition)
TNM staging rebuild	Classification TNM at diagnosis (AJCC 7° edition)	(see AJCC 7° edition)
Cancer stage	Stage at diagnosis (AJCC 7° edizione)	(see AJCC 7° edition)
<b>Secondary malignant neoplasm</b>	Metastasis site	(see ICDX)
Date of secondary malignant neoplasm	Diagnosis's date of secondary malignant neoplasm	DD/MM/YYYY
<b>Multiple primary cancers</b>	MPMTs are defined as two or more independent primary malignancies of different histologies/origins in the same individual.	Yes; No; Unknown
Multiple primary cancer type	Multiple primary cancer type	Synchronous (used when the second primary cancer is diagnosed within 6 months of the primary cancer); Metachronous (used when the second primary cancer is diagnosed more than 6 months after the diagnosis of the primary cancer)
Date of Multiple primary cancer	Incident date of multiple primary cancer	DD/MM/YYYY
Primary Site	Topography of multiple primary cancer	(see ICDO3T)
Morphology	The histology (morphology) of neoplasms	(see ICDO3M)
Behavior	Several features of the neoplasm	Benign lesions; Lesions of uncertain behavior; In Situ Lesions; Malignant lesions
Grading	Differentiation grade	Well, Intermediately, Poorly, Undifferentiated, Unknown





# Diagnostic path, risk factors



Variable	Explanation	Definition
Emergency rooms	Admission in Emergency rooms	Yes; No; Unknown
Genealogical tree	Pedigree chart	Yes; No; Unknown
Main symptoms	Signs and symptoms	Jaundice; Abdominal or back pain; Weight loss, Poor appetite, Digestive problems, Other
Comorbidities	Disorders or illnesses occur in the same person at the diagnosis	Diabetes; Chronic Pancreatitis; Men-1; Pituitary disease; Cerebrovascular disease; Heart disease; Hypertension; Obesity; Other
Smoke	Smoking habit	Smoker; Passive smoker; Ex smoker; No; Unknown
Smoke dose	Amount of cigarettes smoked	(SEE <a href="http://www.epicentro.iss.it/passi/dati/fumo.asp">http://www.epicentro.iss.it/passi/dati/fumo.asp</a> )
Alcohol	Alcohol consumption	Yes; Former alcoholic; Unknown; No Alcoholic
Alcohol Dose	amount of alcohol drunk	( <a href="http://www.salute.gov.it/imgs/c_17_opuscoliposter_104_allegato.pdf">http://www.salute.gov.it/imgs/c_17_opuscoliposter_104_allegato.pdf</a> )
Specifica Family history	Familiarity history of pancreatic pathology/neoplasia	Yes; No; Unknown
Hereditary syndromes	Presence of risk factors	Lynch S.; Peutz-Jeghers S; Fap; Familial breast cancer gene(BRCA2); Familial melanoma; Hereditary pancreatitis
Biochemical parameters	Biochemical parameters at the time of diagnosis	Blood glucose; Insuline; Bilirubin (total, direct, indirect);
Tumour markers	Tumour markers at the time of diagnosis and after di jaundice	Ca19.9; CEA; NSE; CROMOGRANINA A





# Diagnostic imaging

- Abdominal Ultrasound
- Computed axial tomography
- PET
- EUS



Variable	Explanation	Definition
Acceptance and reporting data	Acceptance and reporting data	DD/MM/YYYY
Hospital	Hospital	
Site	Topography	(see ICDO3T)
Diameter (mm)	Diameter	
Type of neoplasm	Type of neoplasm	Cystic; NET; Adenocarcinomas; Metastasis; Recurrence; IPMN; Heteroplasia; Unknown; Other
Regional lymph nodes	Presence or not of regional lymph nodes metastasis	Absent; Only; Multiple; Date not available
Distant metastasis	Presence or not of distant metastasis	(see ICDX)
Complications	Complication	None; Allergy to the contrast medium/Radiotracer; Other





# Diagnostic imaging

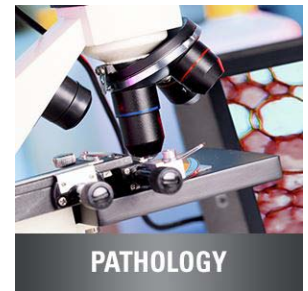


Variable	Explanation	Definition
<b>CT</b>	Computed axial tomography	Yes (adabominal, chest, Abdominal-chest, unknown); No; Unknown
<b>Extent of the disease</b>	Extension of disease	Unilocular; Multilocular; Intraglandular; Extraglandular; Unknown
<b>Infiltration nearby organs</b>	Tumour extend beyond the pancreas	Peripancreatic fat; Duodenum; Stomach; Colon; common bile duct; Spleen; Adrenal left; Kidney left; Liver; Absent; Date not available
<b>Vascular invasion</b>	Venous and arterial invasion	Celiac trunk; Hepatic artery; Gastroduodenal artery; Superior mesenteric artery; Aorta; Portal system; Superior mesenteric vein; Splenic vein; Absent; Date not available
<b>Radiological review</b>	Radiological review	Yes; No; Unknown
<b>Radiological review date</b>	Radiological review date	DD/MM/YYYY
<b>Resectability of pancreatic cancer</b>	Resectability of pancreatic cancer before and after radiological review	Resectable, Unresectable; resectable borderline, Unknown
<b>PET/CT</b>	Positron Emission Tomography	Yes; No; Unknown
<b>Radiotracer</b>	Type of radiotracer used	68Ga-DOTATOC ; 68Ga-DOTANOC; 68Ga-DOTATATE; 90Y-DOTATOC; 90Y-DOTANOC; 90Y-DOTATATE; 177Lu-DOTATOC; 177Lu-DOTANOC; 177Lu-DOTATATE; Unknown
<b>Dose of radiotracer (MBq)</b>	Radiotracer dose used	
<b>Result</b>	PET result	Negative; Positive; Uncertainty; Unknown
<b>EUS</b>	Endoscopic Ultrasound	Yes; No; Unknown
<b>EUS_FNA</b>	Endoscopic Ultrasound/Fine Needle Aspiration	Yes; No; Unknown
<b>Cyto assistance</b>	Cyto assistance aspiration cytology	Yes; No; Unknown
<b>Needle</b>	Needle used for FNA	19G; 19G Procore; 22G; 25G; Unknown
<b>Infiltration nearby organs</b>	Tumour extend beyond the pancreas	Peripancreatic fat; Duodenum; Stomach; Colon; common bile duct; Spleen; Adrenal left; Kidney left; Liver; Absent; Date not available
<b>Vascular invasion</b>	Venous and arterial invasion	Celiac trunk; Hepatic artery; Gastroduodenal artery; Superior mesenteric artery; Aorta; Portal system; Superior mesenteric vein; Splenic vein; Absent; Date not available





# Pathology (pre/intra surgery)



Variable	Explanation	Definition
<b>Citology/Biopsy</b>	Citology or biopsy	Yes; No; Unknown
Type	Type of cytological/bioptica examination performed	Citology; Brushing; Biopsy
Site	Anatomical site in which cytology and biopsy was performed	
Acceptance and reporting data	Acceptance and reporting data	DD/MM/YYYY
Hospital sampling and Hospital diagnosis	Hospital	
Type of sampling	Sampling procedure	CT-guided; ultrasound-guided; EUS-FNA; Surgical; EGD; EUS; Unknown
Assessing	Assessing cytological sampling	Negative; Positive; Uncertainty; Unknown
Morphology	Morphology	(See ICDO3M)
Assess adequacy	the adequacy of the sample material for cytology and biopsy	Insufficient; Poor; Good; Excellent
Type of neoplasm	Type of neoplasm	Cystic; NET; Adenocarcinomas; Metastasis; Recurrence; IPMN; Heteroplasia; Unknown; Other
IHC markers	Immunohistochemical (IHC) markers	Chromogranin; Synaptophysin; CD56; LCA; Gastrin; Keratin; CDX2; KI 76





# Pathology (post-surgery)



Variable	Explanation	Definition
<b>Specimen available</b>	Tissue surgeon	Yes; No; Unknown
Acceptance and reporting data	Acceptance and reporting data	DD/MM/YYYY
Hospital (surgery) and Hospital (pathology)	Hospital	
Diameter (mm)	Diameter	
Multifocal	Multifocal	Yes; No; Unknown
Surgical margins	Evaluation of surgical margins	Yes; No; Unknown
Residual tumour	Absence or presence of residual tumour	Rx; R0; R1; R2 (see AJCC 7° edizione)
Grading	Degree of differentiation	Gx; G1; G2; G3; G4
TNM staging	Staging	(see AJCC 7° edizione)
Morphology	Morphology	(See ICDO3M)
N° lymph nodes removed positive lymph nodes	Number of lymph nodes removed and positive lymph nodes	
Site of lymph nodes removed	Site of lymph nodes removed	Regional lymph nodes
Infiltration nearby organs	Tumour extend beyond the pancreas	Peripancreatic fat; Duodenum; Stomach; Colon; common bile duct; Spleen; Adrenal left; Kidney left; Liver; Absent; Date not available
Vascular invasion	Vascular invasion	Yes; No; Unknown
Neural invasion	Neural invasion	Perineural; Intraneural; No; Unknown
IHC markers	Immunohistochemical (IHC) markers	Chromogranin; Synaptophysin; CD56; LCA; Gastrin; Keratin; CDX2; KI 76





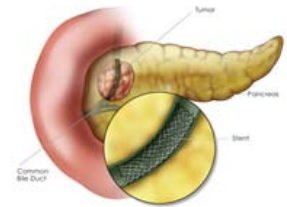
# Surgery



Variable	Explanation	Definition
<b>Surgical treatment (resective)</b>	Surgical treatment	Yes; No; Unknown
Type of surgical treatment	curative surgery	Pancreaticoduodenectomy (Whipple procedure); Distal pancreatectomy; Total pancreatectomy; Other
Admission, surgery and discharge date	Data	DD/MM/YYYY
Surgical Ccmplications	Complication	Bleeding; Pancreatic fistula; Biliary fistula; Enteric fistula; Acute pancreatitis; Slowing gastric emptying; Bowel obstruction; None; Other
Ccmplications during surgery	Comorbidities occurred during the surgical resection	DVT; Outbreak lung; Other
Department	Surgical department	
Hospital	Hospital	
ASA Score	American society of anesthesiology score	not reported; I; II; III; IV; V; Unknown. (see <a href="http://www.asahq.org/resources/clinical-information/asa-physical-status-classification-system">http://www.asahq.org/resources/clinical-information/asa-physical-status-classification-system</a> )
Revision surgery resection	Revision surgery resection	Yes; No; Unknown
<b>Palliative surgery</b>	Pallitive surgery	Yes; No; Unknown
Type of palliative surgery	Pallitive surgery	Exploratory laparotomy; Anastomotic biliary digestive; Gastroenteroanastomosi; Other
Admission, surgery and discharge date	Data	DD/MM/YYYY
Department	Surgical department	
Hospital	Hospital	
ASA Score	American society of anesthesiology score	not reported; I; II; III; IV; V; Unknown. (see <a href="http://www.asahq.org/resources/clinical-information/asa-physical-status-classification-system">http://www.asahq.org/resources/clinical-information/asa-physical-status-classification-system</a> )



# Jundice palliation



Variable	Explanation	Definition
<b>Endoscopic palliation</b>	Palliation by endoscopic treatment	Yes; No; Unknown
Stage	Stage	Clinical classificatio TNM Stage (see AJCC 7° edizione)
BIL TOT (mg/dl)	Bilirubin total	
Endoscopic palliation data	Data	DD/MM/YYYY
Type of biliary drainage	Biliary drainage	ERCP; EUS; Unknown
Type of stent	Type of stent	Plastic; Metallic; Completely covered; Partially covered; SNB; Unknown
N° stent	Number of stent used for biliary drainage	
Hospital	Hospital	
<b>Radiological palliation</b>	Palliation by radiological treatment	Yes; No; Unknown
Stage	Stage	Clinical classificatio TNM Stage (see AJCC 7° edizione)
<b>PCT</b>	Percutaneous transhepatic cholangiography	Yes; No; Unknown
Type of pct	Type of Biliary drainage	DTBE; DTBEI; DTBI
Hospital	Hospital	
Result of procedure	Result of CPT	technical success; clinical success; technical failure; Clinical failure; Unknown





# Chemotherapy



Variable	Explanation	Definition
<b>Chemotherapy</b>	Chemotherapy treatment	Yes; No; Unknown
Physical, Start and end date	Date	DD/MM/YYYY
Protocol for chemotherapy	Protocol for chemotherapy	Neoadjuvant; Adjuvant; Palliative; Follow-up; Visit
Hospital	Hospital	
Chemotherapeutic drug	Chemiotherapeutic drug	Gemcitabine; Gemcitabine+Capecitabine; Folfoxiri; Folfox; Folfiri; Other; Unknown
Recommended/performed N° of chemotherapy cycles	Number of chemotherapy cycles	
Side effects	Side effects	Vomiting; Nausea; Diarrhea; vein irritation at the infusion site; leukopenia; thrombocytopenia; Anemia; Anorexia; Asthenia; Water retention; Stomatitis and mouth ulceration; urticarial rash; Redness and dry skin on the hands and feet; Tingling in the hands and feet and around the mouth; Hyperthermia fever; Other
Stage	Stage	Clinical classificatio TNM Stage (see AJCC 7° edizione)
<b>Immunotherapy</b>	Immunotherapy	Yes; No; Unknown
Stage	Stage	Clinical classificatio TNM Stage (see AJCC 7° edizione)
Physical, Start and end date	Date	DD/MM/YYYY
Hospital	Hospital	
Immunotherapeutic drug	Immunotherapeutic drug	
Recommended /performed N° of chemotherapy cycles	Number of chemotherapy cycles	
Side effects	Side effects	Vomiting; Nausea; Diarrhea; vein irritation at the infusion site; leukopenia; thrombocytopenia; Anemia; Anorexia; Asthenia; Water retention; Stomatitis and mouth ulceration; urticarial rash; Redness and dry skin on the hands and feet; Tingling in the hands and feet and around the mouth; Hyperthermia fever; Other





# Radiotherapy



Variable	Explanation	Definition
<b>Radiotherapy</b>	Radiotherapy treatment	Yes; No; Unknown
<b>Physical, Start and end date</b>	Date	DD/MM/YYYY
<b>Protocol for radiotherapy</b>	Protocol for radiotherapy	Neoadjuvant; Adjuvant; Palliative; Follow-up; Visit
<b>Hospital</b>	Hospital	
<b>Site radiation folder</b>	Site radiation folder	(vedi ICDX)
<b>Dose of radiotherapy</b>	Dose of radiotherapy	
<b>Dose fractioning</b>	Several fractions	
<b>Side effects</b>	Side effects	Fatigue; Hair loss / hair in the radiation zone; Redness of the skin in the radiation zone; Nausea; Diarrhea; vomiting; digestive problems; Other
<b>Stage</b>	Stage	Clinical classificatio TNM Stage (see AJCC 7° edizione)





# Palliative care



Variable	Explanation	Definition
<b>Palliative care</b>	Palliative care entrustment	Yes; No; Unknown
Place of treatment	Palliative Care Service, which is entrusted the patient	Home help; Hospice; etc
Stage	Stage	Clinical classificatio TNM Stage (see AJCC 7° edizione)
Physical, Start and end date	Date	DD/MM/YYYY
Treatment protocol	Drug protocol	Opiates; Neurolysis of celiac plexus; Splancnicectomy; Other; Unknown
Death place	Place where the patient died	hospital; hospice; domicile; other specialized structure; Unknown





# NET treatment PNET

Variable	Explanation	Definition
NET treatment	NET treatment	Yes; No; Unknown
Physical, Start and end date	Date	DD/MM/YYYY
Hospital	Hospital	
Drug therapy for NET	Drug therapy	Somatostatin analogues; lanreotide; octreotide; octreotide; Lar Pasireotide; Other
Side effects	Side effects	Diarrhea; abdominal pain; Nausea; Other; Unknown





# Grief counseling



Variable	Explanation	Definition
<b>Pain Therapy</b>	Pain therapy	Yes; No; Unknown
<b>Physical, Start and end date</b>	Date	DD/MM/YYYY
<b>Critica pain</b>	Critical pain	Yes; No; Unknown
<b>NRS</b>	Numerical Rating Scale	From 1 to 10
<b>Analgesic consulting</b>		Yes; No; Unknown
<b>TERAPIA ANTALGICA PER OS</b>	Viene riportato se il paziente ha eseguito una terapia antalgica per OS	Yes; No; Unknown
<b>RISOLUZIONE TD</b>	Viene riportata l'efficaci della terapia	Yes; No; Unknown
<b>PROVVEDIMENTI FARMACOLOGICI TD</b>	Provvedimenti farmacologici utilizzati	Farmacologica per os; Infusione continua ev; Neurolisi del plesso celiaco; Splancnicectomy
<b>Radiation therapy analgesic</b>	Performing of the analgesic therapy	Yes; No; Unknown
<b>Hospital of radiotherapeutic treatment</b>	Radiotherapy for pain	
<b>NRS POST Treatment</b>	Numerical Rating Scale	From 1 to 10





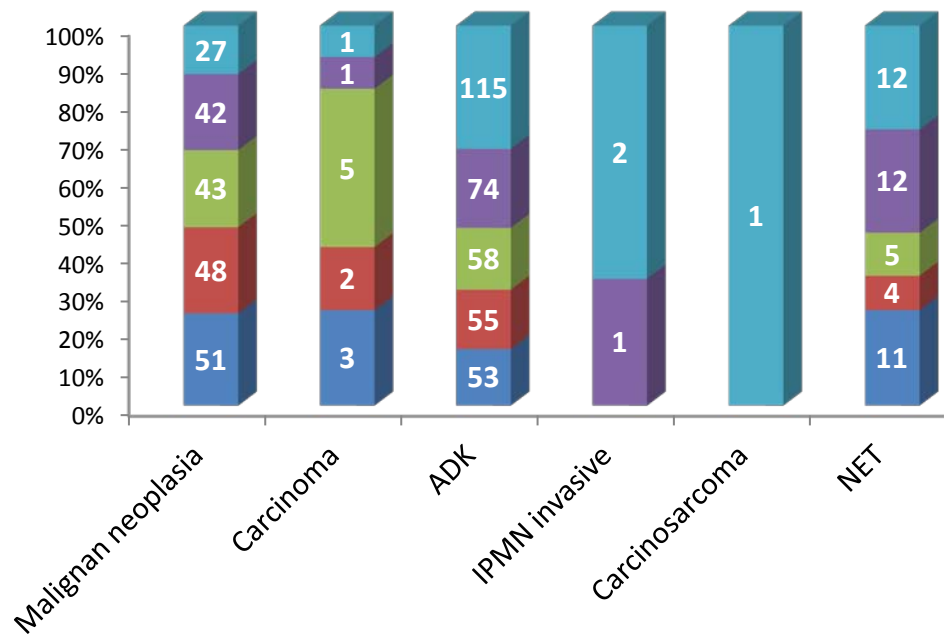
# What we recorded

Behavior	Total		2008		2009		2010		2011		2012	
	N	%	N	%	N	%	N	%	N	%	N	%
Total	815	100	146	18	122	15	132	16	196	24	219	27
Benign	186	23	28	19	13	11	19	14	66	34	61	28
In situ	1*	0	0	0	0	0	1*	1*	0	0	0	0
Malignant	627	77	118	81	109	89	112	85	130	66	158	72

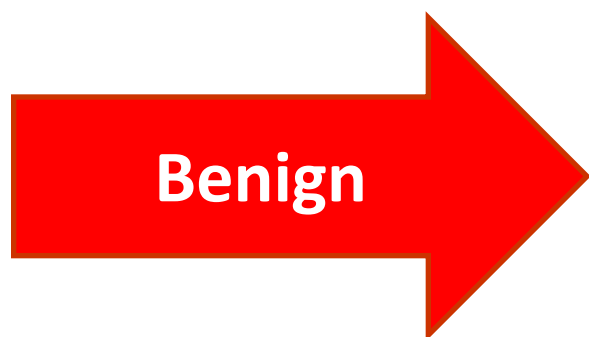
70 years is the average age of patients with malignancy

The proportion of 25-64-year patients increased (48% vs 51%,  $p=0.06$ ) in the period

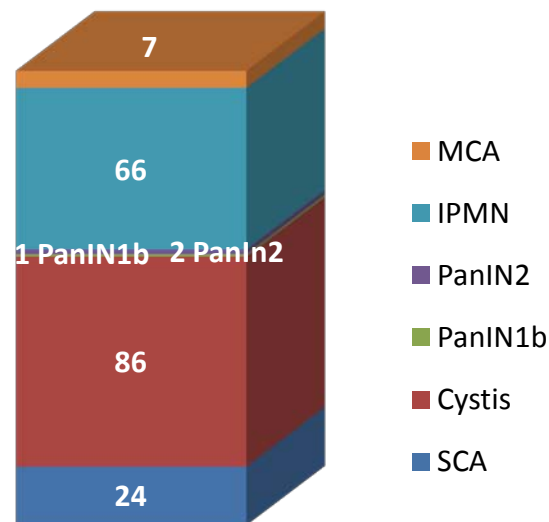




■ 2012  
 ■ 2011  
 ■ 2010  
 ■ 2009  
 ■ 2008



100%  
 90%  
 80%  
 70%  
 60%  
 50%  
 40%  
 30%  
 20%  
 10%  
 0%





**2008-2012**



## Management and prognosis for pancreatic cancers in the Reggio Emilia High Resolution Cancer Registry, according to stage

### Results

The 550 patients (50% males) were often >75 years (53%)

Stage	I	II	III	IV	X
%	3	23	10	59	5

Tumours were more commonly ADK (60%) and in the head of pancreas (60%)

50% of cases were not treated

14% of cases who received Curative Surgery (mainly in stage I-II and <75 years)

Proportions of stage and Curative Surgery did not differ between the study periods

Palliative Surgery decreased overtime (64% vs 36%,  $p=0.112$ ).

The proportion of 25-64-year patients increased (48% vs 51%,  $p=0.06$ ) in the period

Overall Relative Survival was 5% (range 20% for stage I; 2% for stage IV), reaching 30% (range 80%; 21%) for surgically treated patients.

There were no differences in survival between patients treated with CT/RT alone or associated to PS, but the risk of death decreased overtime (RER=0.8,  $p=0.03$ ).

### Discussion and conclusions

**PDAC is diagnosed mainly at advanced stage and only a minority of patients can undergo curative surgery.**

The **increase of diagnoses at young ages** points the need of research and prevention.



## Prognostic factors in pancreatic adenocarcinoma (PDAC): data from High Resolution Cancer Registry (HRCR)

### Results

542 resident (excluded 8 cases diagnosed with Death Certificate Only) subjects diagnosed with PDAC

The relative survival at three years was 10%.

Risk of death increase with age.

Female have lower risk (HR 0.8 [0.7-1.0]).

Survival increased in the most recent period (HR 0.8[0.7-1.0]).

Unknown subsite has worst prognosis compared to those defined (HR 1.2 [1.0-1.6]).

Survival decrease only for stage IV (HR 2.2 [1.3-3.7]), while stage II and III have comparable survival compared to stage I (HR 0.9 [0.5-1.6]).

Compared to urban area, mountain shows a significantly increased risk (HR 1.62[1.19-2.20]) and sub-urban area shows a slightly increased risk (HR 1.11[0.90-1.37]).

Subjects with diabetes have a two fold increased risk of death (HR 2.2 [1.6-3.1]). HRCR was linked with Reggio Emilia diabetes register

There are no differences in prognosis between different plasmatic levels of Ca19.9 (HR 1.1[0.9-1.5]).

### Conclusions

The main prognostic factors, age, stage and sex, have been confirmed. Surprisingly only stage IV have poorer prognosis, while stage II and III do not discriminate patients with shorter survival. **Onset of diabetes** just before the diagnosis strongly predict a short survival, suggesting that this condition is an indicator of late cancer symptoms presentation. **Diagnostic setting seems to predict mortality risk.**





**2013-2014????  
will be available soon!!!!**





**THE END**

**Thanks for your attention**

