

Routes to Diagnosis

Upper GI

5th December 2012

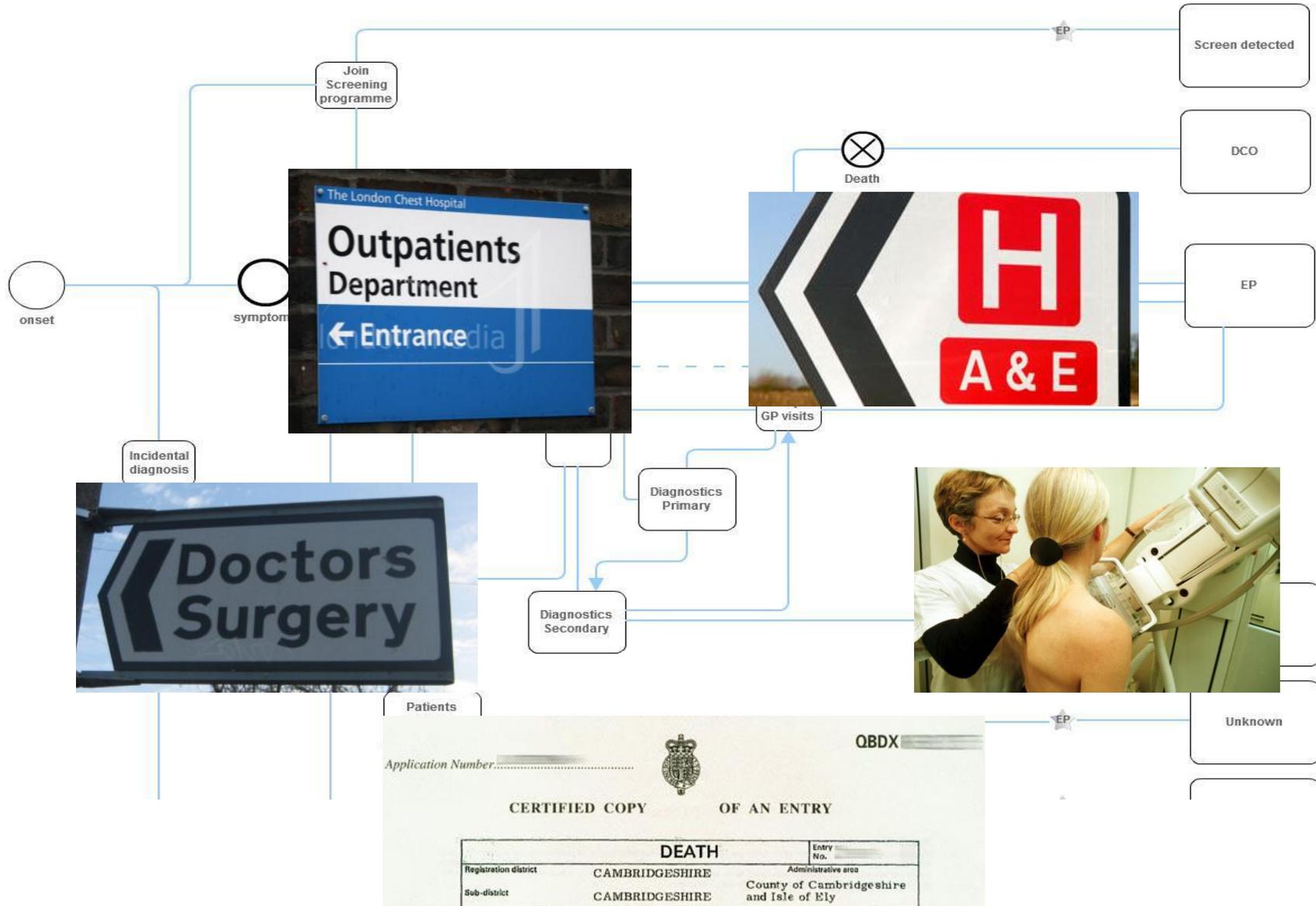
Routes to Diagnosis

- What is Routes to Diagnosis?
- Description of Routes
- Cancer sites Routes have been calculated for
- Overall results
- Specific results (age, sex, deprivation, survival) for *upper GI*
- Application of Routes to Diagnosis
- What next (outputs)?

Background to Routes to Diagnosis

- Nationally, what didn't we know?
 - How people come to get diagnosed with cancer
 - Whether late diagnosis arises in cases where patients have not gone through the screening or suspected cancer route
 - What impact awareness and early diagnosis initiatives might have on the routes to diagnosis
- Nationally, what did we want to know?
 - Can we use routinely available datasets to define the route to diagnosis for patients diagnosed with cancer?
 - If so, how do routes differ by cancer site, age, sex, ethnicity, deprivation or Cancer Network?
 - Are there differences in outcomes (one year survival) for different routes?

What is Routes to Diagnosis?



Methodology (in brief!)

- Take all tumours recorded by cancer registries
- Link to routine data: In- and Out- patient HES data, Cancer Waits & Screening
- For HES data: Start at (registry) diagnosis date and look for an ‘end-point’ within 28 days prior to diagnosis, but up to 6 months prior to diagnosis
- Work backwards through routine records looking for the ‘start-point’
- Use the properties of the start-point to determine the HES type of Route
- Other data may indicate a different Route (e.g. 2WW). Where multiple data exists, in general, screening > emergency <> TWW > others
- For more detail see:

http://www.ncin.org.uk/publications/routes_to_diagnosis.aspx

<http://www.nature.com/bjc/journal/v107/n8/pdf/bjc2012408a.pdf>

Eight Routes assigned

- **Screen detected:** breast, bowel or cervical
- **Two week wait:** urgent GP referrals with a suspicion of cancer
- **GP referral:** includes routine and non-TWW GP referrals
- **Emergency presentation:** emergency route via A&E, emergency GP or consultant outpatient referral, emergency transfer etc
- **Other outpatient:** elective route starting with a consultant outpatient appointment
- **Inpatient elective:** elective route starting with an inpatient admission (no earlier information found)
- **DCO:** diagnosis by death certificate only
- **Unknown:** no data available from HES, CWT or screening

Cancer sites included

- All cancers
- Bladder
- Breast
- Cervix
- CNS
- Colorectal
- Head and neck:
 - Hypopharynx*
 - Larynx
 - oral cavity
 - oropharynx
 - other sites of the lip, oral cavity and pharynx*
 - salivary glands*
 - thyroid
- Hodgkin lymphoma
- Kidney and unspecified urinary organs
- Leukaemia:
 - acute lymphoblastic*
 - acute myeloid
 - chronic lymphocytic
 - chronic myeloid*
 - rarer types
- **Liver**
- Lung
- Melanoma
- Mesothelioma
- Multiple myeloma
- Non-Hodgkin lymphoma
- **Oesophagus**
- Ovary
- **Pancreas**
- Prostate
- Sarcoma:
 - Bone*
 - connective and soft tissue
 - retroperitoneum and peritoneum*
- **Stomach**
- Testis
- Uterus
- Vulva
- Other malignant neoplasms

* No breakdowns by age, sex, DQ, etc. are available for these sites

Sites with low proportion of emergencies

Percentage of diagnoses (2006-2008) by Route	Screen detected	Two Week Wait	GP referral	Other Outpatient	Inpatient Elective	Emergency presentation	Death Certificate Only	Unknown	Total	Number of patients
Melanoma		41%	27%	7%	3%	3%	0%	18%	100%	26,660
Breast	28%	43%	11%	3%	1%	5%	0%	9%	100%	110,173
Head and neck - Oral cavity		30%	22%	27%	5%	6%	0%	10%	100%	5,992
Head and neck – thyroid		12%	47%	18%	5%	8%	0%	11%	100%	5,304
Head and neck - Salivary glands		18%	42%	17%	4%	8%	0%	10%	100%	1,571
Vulva		32%	34%	12%	5%	8%	0%	9%	100%	2,733
Uterus		37%	31%	10%	5%	8%	0%	8%	100%	18,462
Head and neck - Oropharynx		39%	27%	12%	5%	9%	0%	8%	100%	3,859
Prostate		26%	32%	11%	8%	10%	0%	12%	100%	92,922

Low to medium emergencies

Percentage of diagnoses (2006-2008) by Route	Screen detected	Two Week Wait	GP referral	Other Outpatient	Inpatient Elective	Emergency presentation	Death Certificate Only	Unknown	Total	Number of patients
Testis		48%	15%	8%	8%	10%	0%	11%	100%	5,070
Head and neck - Other sites		27%	31%	18%	5%	11%	0%	9%	100%	2,740
Head and neck – larynx		32%	34%	11%	6%	11%	0%	5%	100%	5,200
Cervix	15%	17%	28%	10%	5%	13%	0%	12%	100%	7,000
Head and neck - Hypopharynx		37%	28%	12%	5%	14%	0%	4%	100%	1,098
Sarcoma: connective and soft tissue		12%	37%	16%	7%	16%	0%	12%	100%	3,447
Hodgkin lymphoma		26%	28%	14%	6%	17%	0%	8%	100%	3,644
Bladder		30%	24%	13%	9%	19%	1%	5%	100%	25,639
Oesophagus		34%	16%	8%	14%	22%	1%	5%	100%	19,449
All cancers	5%	26%	21%	10%	6%	24%	1%	8%	100%	739,667

Medium to high emergencies

Percentage of diagnoses (2006-2008) by Route	Screen detected	Two Week Wait	GP referral	Other Outpatient	Inpatient Elective	Emergency presentation	Death Certificate Only	Unknown	Total	Number of patients
Sarcoma: bone		10%	26%	19%	11%	25%	0%	9%	100%	1,378
Kidney and unspecified urinary organs		19%	26%	17%	6%	25%	1%	6%	100%	20,594
Leukaemia: chronic lymphocytic		11%	31%	11%	5%	25%	1%	17%	100%	6,835
Colorectal	2%	27%	20%	9%	9%	26%	1%	6%	100%	91,416
Non-Hodgkin lymphoma		18%	28%	12%	6%	27%	0%	9%	100%	25,413
Ovary		23%	20%	12%	5%	32%	1%	7%	100%	16,026
Stomach		23%	17%	8%	13%	33%	1%	5%	100%	18,613
Leukaemia: Chronic myeloid		8%	26%	12%	9%	35%	1%	9%	100%	1,518
Mesothelioma		18%	21%	15%	6%	36%	0%	4%	100%	6,179
Multiple myeloma		11%	27%	13%	6%	37%	1%	6%	100%	11,221

High proportion of emergencies

Percentage of diagnoses (2006-2008) by Route	Screen detected	Two Week Wait	GP referral	Other Outpatient	Inpatient Elective	Emergency presentation	Death Certificate Only	Unknown	Total	Number of patients
Leukaemia: rarer types		7%	29%	10%	7%	38%	1%	8%	100%	2,567
Lung		24%	17%	10%	4%	39%	1%	5%	100%	96,735
Sarcoma: retroperitoneum and peritoneu		15%	20%	14%	5%	39%	0%	7%	100%	1,513
Other malignant neoplasms	0%	10%	19%	10%	5%	46%	2%	8%	100%	50,497
Liver		8%	18%	12%	5%	48%	2%	7%	100%	8,576
Pancreas		11%	16%	9%	6%	50%	1%	6%	100%	19,896
Leukaemia: acute myeloid		2%	18%	12%	7%	54%	0%	6%	100%	6,365
CNS		1%	13%	11%	7%	62%	1%	6%	100%	11,697
Leukaemia: acute lymphoblastic		2%	10%	8%	10%	63%	0%	7%	100%	1,665

NICE Referral Guidelines

(Macmillan Rapid Referral Toolkit)

Upper gastrointestinal cancer

Urgent referral for endoscopy/referral to specialist

Refer urgently for endoscopy, or to a specialist, patients of any age with dyspepsia and any of the following:

- chronic gastrointestinal bleeding
- dysphagia
- progressive unintentional weight loss
- persistent vomiting
- iron deficiency anaemia
- epigastric mass

Urgent referral

Refer urgently patients presenting with:

- dysphagia
- unexplained upper abdominal pain and weight loss, with or without back pain
- upper abdominal mass without dyspepsia
- obstructive jaundice (depending on clinical state) – consider urgent ultrasound if available.

Consider urgent referral for patients presenting with:

- persistent vomiting and weight loss in the absence of dyspepsia
- unexplained weight loss or iron deficiency
- anaemia in the absence of dyspepsia
- unexplained worsening of dyspepsia and:
 - Barrett's oesophagus
 - known dysplasia, atrophic gastritis or intestinal metaplasia
 - peptic ulcer surgery over 20 years ago.

Urgent endoscopy

Refer urgently for endoscopy patients aged 55 years and older with unexplained and persistent recent-onset dyspepsia alone.

Please note:

For patients under 55 years, referral for endoscopy is not necessary in the absence of alarm symptoms.

Patients being referred urgently for endoscopy should ideally be free from acid suppression medication, including proton pump inhibitors or H2 receptor agonists, for a minimum of 2 weeks.

Liver by sex

Liver		Screen detected	Two Week Wait	GP referral	Other Outpatient	Inpatient Elective	Emergency presentation	Death Certificate Only	Unknown	Number of cases
2006-2008	Male		8%	19%	13%	5%	46%	2%	7%	5,391
	<i>Confidence interval</i>		7% 9%	18% 20%	12% 14%	5% 6%	45% 48%	2% 2%	6% 8%	
	Female		9%	15%	11%	5%	52%	2%	6%	3,185
	<i>Confidence interval</i>		8% 10%	14% 17%	10% 12%	5% 6%	50% 53%	1% 2%	5% 7%	

age distribution for liver diagnoses, by sex, for selected ages

Gender	% Aged over 80	% Aged over 85
Male	20%	8%
Female	34%	18%

Liver by age

Liver		Screen detected	Two Week Wait	GP referral	Other Outpatient	Inpatient Elective	Emergency presentation	Death Certificate Only	Unknown	Number of cases
2006-2008	Under 50		5%	19%	17%	7%	42%	2%	9%	593
	Confidence interval		3% 7%	16% 22%	14% 20%	5% 9%	38% 46%	1% 4%	7% 11%	
	50-59		6%	20%	19%	5%	43%	1%	7%	1,037
	Confidence interval		5% 8%	18% 22%	16% 21%	4% 6%	40% 46%	1% 2%	6% 9%	
	60-69		8%	20%	15%	6%	43%	2%	7%	1,967
	Confidence interval		7% 9%	18% 22%	13% 16%	5% 8%	40% 45%	1% 3%	6% 9%	
	70-79		10%	19%	12%	5%	46%	1%	6%	2,743
	Confidence interval		9% 12%	18% 21%	11% 14%	4% 6%	44% 48%	1% 2%	5% 7%	
	80-84		8%	14%	7%	4%	59%	2%	6%	1,173
	Confidence interval		6% 9%	12% 16%	6% 9%	3% 5%	57% 62%	1% 3%	5% 8%	
	85+		8%	11%	6%	5%	62%	4%	5%	1,063
	Confidence interval		7% 10%	10% 13%	5% 7%	4% 6%	59% 65%	3% 5%	4% 6%	

Oesophagus by age

Oesophagus		Screen detected	Two Week Wait	GP referral	Other Outpatient	Inpatient Elective	Emergency presentation	Death Certificate Only	Unknown	Number of cases
2006-2008	Under 50		29%	18%	8%	20%	17%		9%	799
	Confidence interval		26% 32%	15% 20%	6% 10%	17% 22%	15% 20%		7% 11%	
	50-59		37%	15%	9%	18%	15%	0%	7%	2,613
	Confidence interval		35% 39%	14% 16%	8% 10%	16% 19%	13% 16%	0% 1%	6% 8%	
	60-69		37%	16%	10%	16%	15%	0%	6%	4,905
	Confidence interval		35% 38%	15% 17%	9% 11%	15% 17%	14% 16%	0% 1%	5% 7%	
	70-79		35%	17%	8%	14%	21%	0%	5%	5,907
	Confidence interval		34% 36%	17% 18%	8% 9%	13% 14%	20% 22%	0% 1%	4% 5%	
	80-84		35%	15%	7%	11%	28%	1%	3%	2,702
	Confidence interval		33% 37%	14% 16%	6% 8%	10% 12%	26% 30%	1% 1%	2% 4%	
	85+		28%	12%	6%	10%	38%	2%	5%	2,523
	Confidence interval		26% 29%	11% 13%	5% 7%	9% 12%	37% 40%	1% 2%	4% 6%	

Pancreas

by deprivation

Pancreas		Screen detected	Two Week Wait	GP referral	Other Outpatient	Inpatient Elective	Emergency presentation	Death Certificate Only	Unknown	Number of cases
2006-2008	1 (least deprived)		13%	17%	10%	8%	43%	2%	8%	3,847
	<i>Confidence interval</i>		12% 14%	16% 18%	9% 11%	7% 9%	42% 45%	1% 2%	7% 9%	
	2		12%	17%	9%	6%	48%	1%	7%	4,353
	<i>Confidence interval</i>		11% 13%	16% 18%	8% 10%	5% 7%	46% 49%	1% 2%	6% 7%	
	3		11%	16%	10%	6%	50%	1%	6%	4,373
	<i>Confidence interval</i>		10% 12%	15% 17%	9% 10%	6% 7%	49% 52%	1% 2%	6% 7%	
	4		10%	15%	9%	5%	54%	1%	5%	3,966
	<i>Confidence interval</i>		9% 11%	14% 16%	8% 10%	4% 6%	52% 56%	1% 2%	5% 6%	
	5 (most deprived)		9%	14%	9%	4%	56%	2%	5%	3,357
	<i>Confidence interval</i>		8% 10%	13% 16%	9% 11%	3% 5%	54% 58%	1% 2%	5% 6%	

Stomach by deprivation

Stomach		Screen detected	Two Week Wait	GP referral	Other Outpatient	Inpatient Elective	Emergency presentation	Death Certificate Only	Unknown	Number of cases
2006-2008	1 (least deprived)		24%	18%	9%	14%	28%	1%	7%	3,055
	<i>Confidence interval</i>		22% 25%	16% 19%	8% 10%	13% 15%	26% 29%	1% 1%	6% 8%	
	2		22%	18%	8%	13%	31%	1%	6%	3,516
	<i>Confidence interval</i>		21% 24%	17% 20%	8% 9%	12% 14%	29% 32%	1% 1%	6% 7%	
	3		24%	16%	9%	13%	32%	1%	5%	3,913
	<i>Confidence interval</i>		23% 25%	15% 18%	8% 10%	12% 14%	31% 34%	1% 1%	5% 6%	
	4		22%	17%	8%	13%	34%	1%	5%	4,053
	<i>Confidence interval</i>		21% 23%	16% 18%	7% 9%	12% 15%	32% 35%	1% 1%	4% 6%	
	5 (most deprived)		22%	16%	8%	11%	38%	1%	4%	4,076
	<i>Confidence interval</i>		21% 23%	15% 17%	8% 9%	10% 12%	36% 39%	1% 1%	4% 5%	

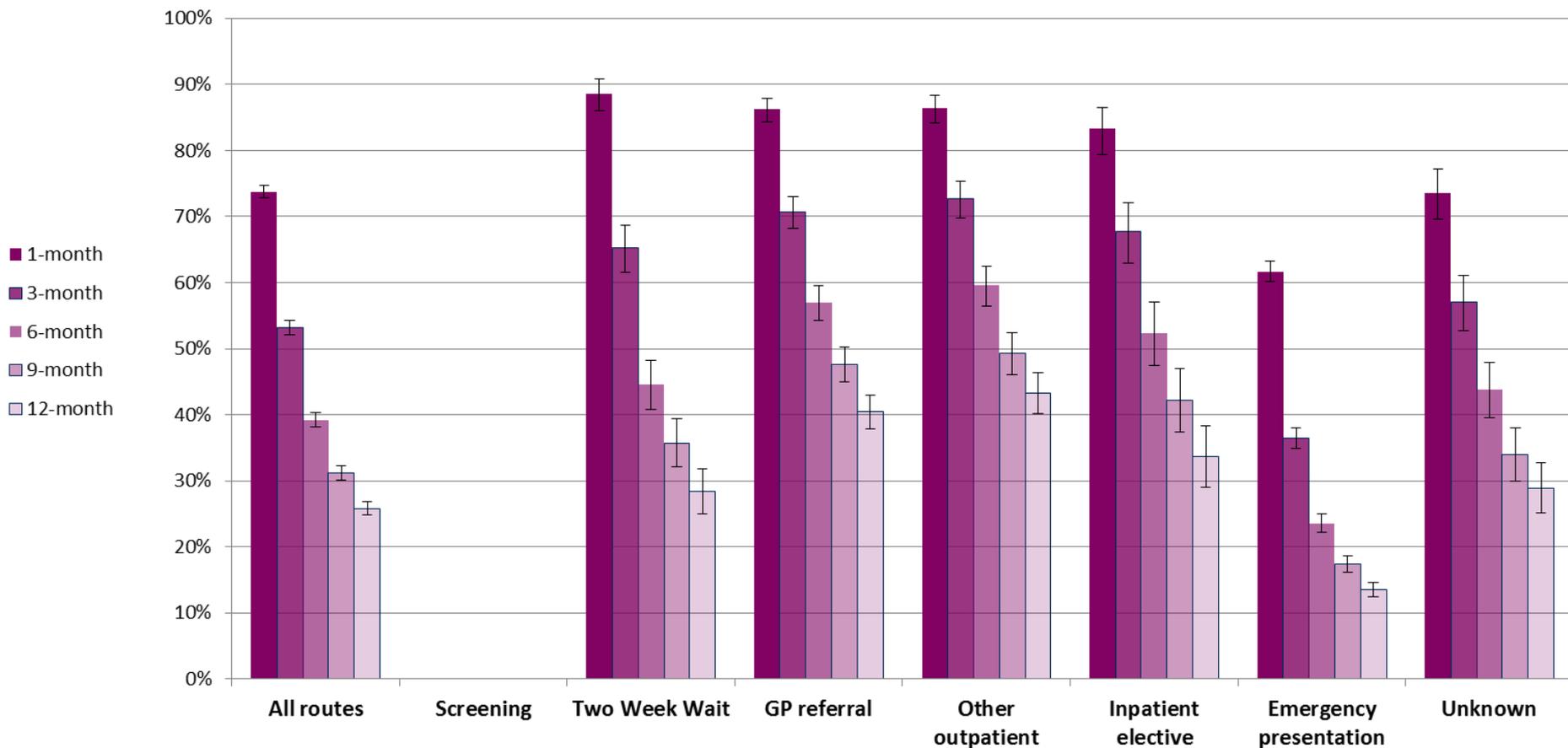
Upper gastrointestinal *relative survival estimates*

12-month		All routes	Screening	Two Week Wait	GP referral	Other outpatient	Inpatient elective	Emergency presentation	Unknown	Number of cases
Persons	Liver	26%		28%	40%	43%	34%	13%	29%	7,897
	<i>Confidence interval</i>	25% 27%		25% 32%	38% 43%	40% 46%	29% 38%	12% 15%	25% 33%	
	Oesophagus	40%		42%	47%	50%	49%	18%	44%	19,089
	<i>Confidence interval</i>	39% 40%		41% 43%	45% 48%	48% 53%	47% 51%	17% 20%	41% 48%	
	Pancreas	17%		19%	26%	33%	29%	9%	16%	18,591
	<i>Confidence interval</i>	16% 17%		18% 21%	24% 27%	31% 35%	26% 32%	9% 10%	14% 18%	
	Stomach	41%		43%	52%	55%	53%	23%	44%	18,085
	<i>Confidence interval</i>	40% 41%		42% 45%	50% 54%	52% 58%	51% 55%	21% 24%	41% 47%	

Liver

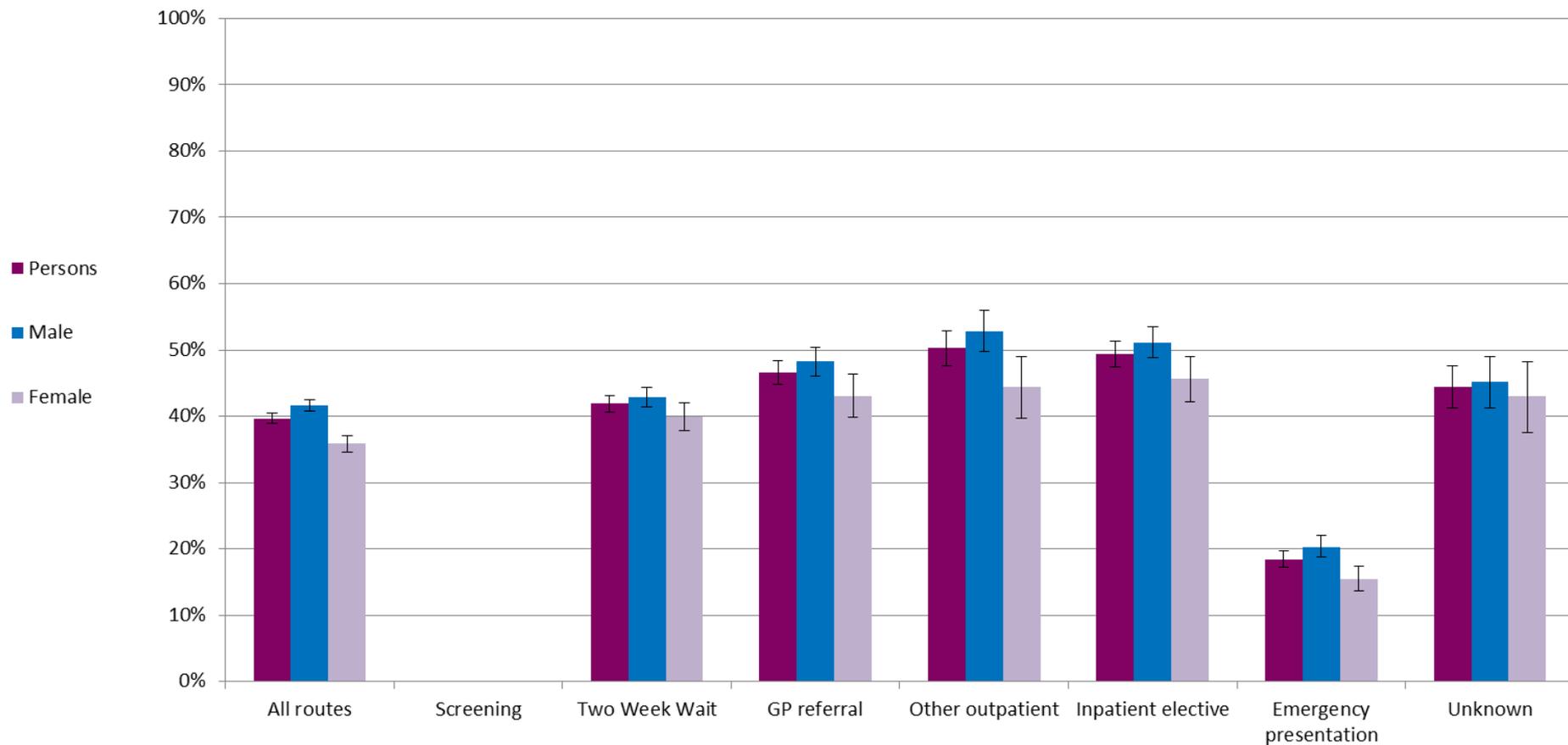
by survival interval

Relative survival estimates by presentation route and survival time, Liver, 2006-2008



Oesophagus *survival by sex*

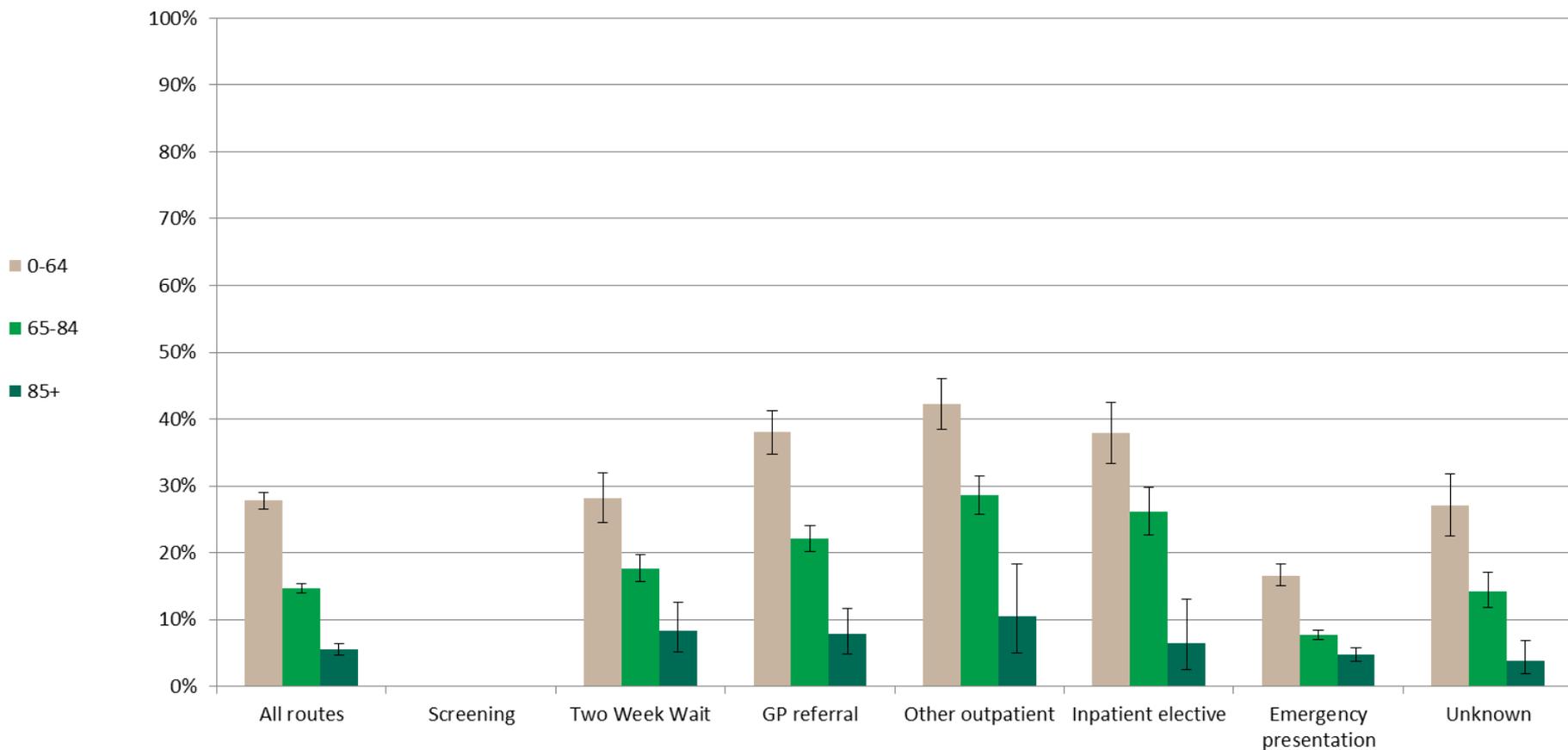
**12-month relative survival estimates by presentation route,
Oesophagus, 2006-2008, by sex**



Pancreas

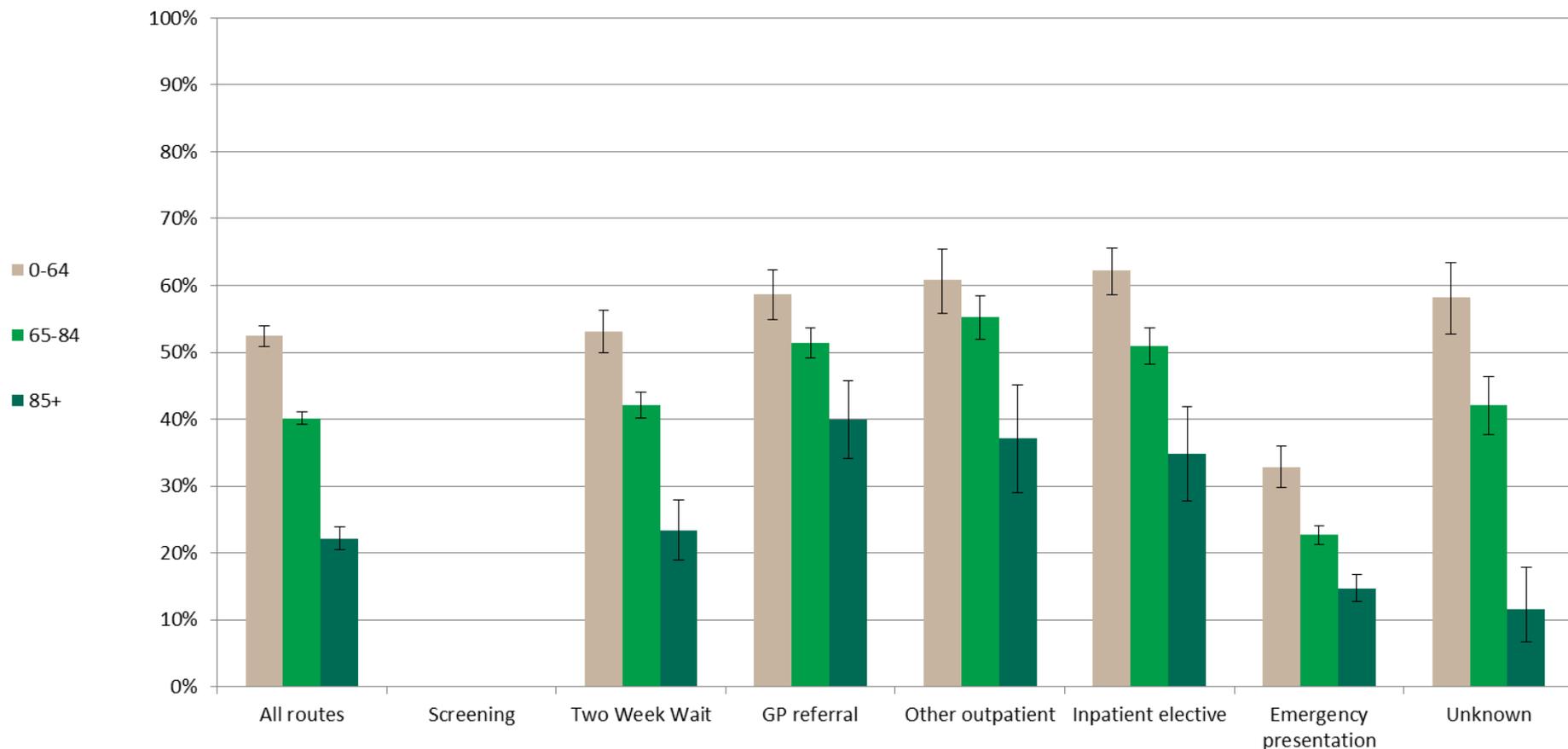
survival by age

**12-month relative survival estimates by presentation route,
Pancreas, 2006-2008, by age**



Stomach *survival by age*

**12-month relative survival estimates by presentation route,
Stomach, 2006-2008, by age**



Application of Routes to Diagnosis

- Understand the different routes for different cancer sites
- Build a picture for each cancer site
- Explore possible reasons for delayed diagnosis
- Direct the focus of early diagnosis initiatives
 - Awareness campaigns
 - Targeted interventions
 - Monitoring and evaluating impact
- Identify areas for further research
 - Link to GP audit and GP data
 - Routes from diagnosis
 - Exploring emergency presentations
- Patient-level Routes are available to registries for further investigation

What next?

- Peer reviewed paper in British Journal of Cancer November 2012, advanced online publication 21st September 2012
- Full spreadsheet of results available to the public, containing:
 - proportion by Route by age, sex, deprivation quintile and cancer network by year and 06-08 combined
 - relative survival estimates by age, sex and deprivation quintile for 1, 3, 6, 9 and 12 month survival intervals
- Information supplement of results for selected sites, and a basic explanation of methodology available from the NCIN website
- PCT level results available with data presented as age-standardised funnel plots
- Updated results for 2010 to be produced in Spring 2013

For data – please visit

www.ncin.org.uk

For more information, please contact:

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