Why is co-morbidity important for cancer patients?

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Clinical Outcomes Programme

Co-morbidity in cancer

- Definition:-

  Co-morbidity is a disease or illness affecting a cancer patient in addition to but not as a result of their index (current) cancer.

Why is co-morbidity important for cancer patients?

- Highlighted in the CRS
  - Important but variably collected
- Clinical decision making
- Risk adjusted outcomes analyses

What influences cancer decision making?

- Tumour factors
- Individual factors
  - *Patient preferences*
  - *Performance status*
  - *Frailty*
  - *Fitness*
  - *[Age]*
  - **CO-MORBIDITY**
- To predict outcome - personal prognostograms?

Paper

Unacceptable variation in abdominoperineal excision rates for rectal cancer: time to intervene?

E Morris,[1,2] P Quirke,[2] J D Thomas,[1,2] L Fairley,[4] B Cottier,[3] D Forman[1,4]

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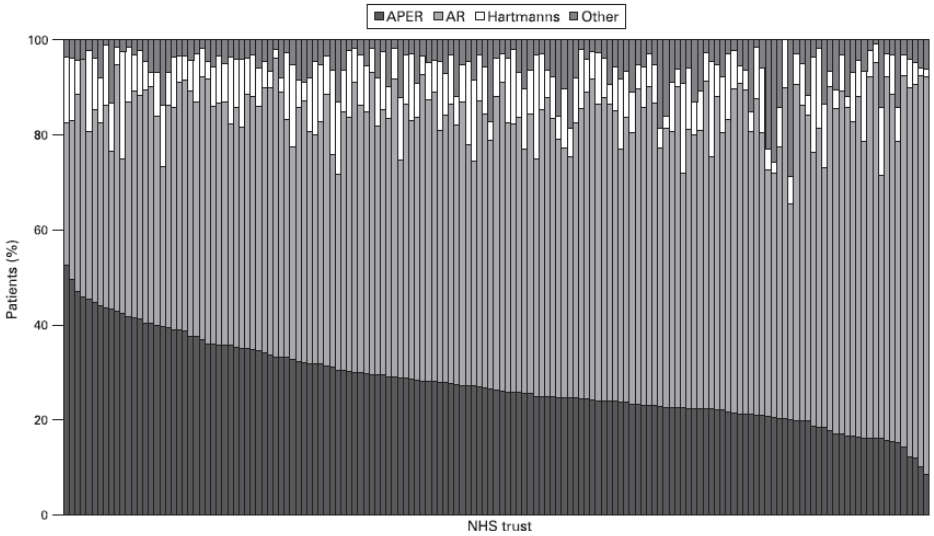

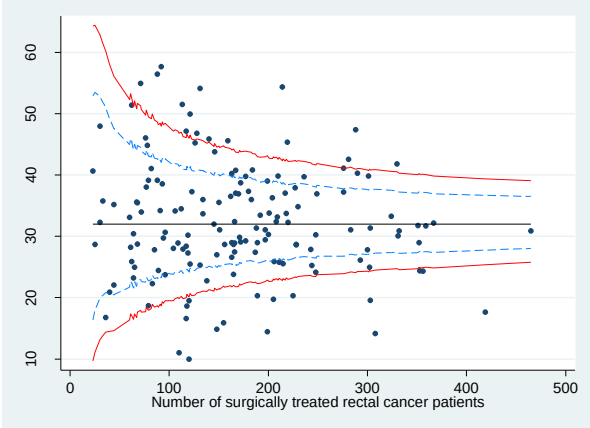

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What could co-morbidity information contribute?

- To adjust for casemix in comparative analyses
- To contribute to quality care assessment
- To understand treatment/morbidity/mortality and longer term complications
- To compare treatment selection

Co-morbidity

- What elements are important?
- Condition present versus decompensation from condition?
- Individual conditions versus overall cumulative diseases burden ?
- Life history versus current active disease?
- At point of diagnosis?
- At recurrence?

Main elements

- Selection for treatment
- Peri-treatment mortality and toxicity
- Impact on overall (population-based) survival / prognosis
- Late effects:
  - Predicting them
  - Identifying them
- Is it feasible to expect a single scale to answer all these questions?

- Prospective Recording
  - Presence or absence?
  - Moderate or severe?
  - Type of co-morbidity present?
  - ACE-27
  - Other scale?
- Derive retrospectively
  - HES – favours admitted care
  - Accuracy/completeness of coding
  - Less timely

Questionnaire to Site-Specific Clinical Reference Group Chairs

In your speciality area, what are:

- the indices/scores are in use?
- the most important ways in which co-morbidity affects treatment and/or outcomes?
- the major C-Ms which impact on treatment decisions and outcomes?

- Do you use ‘frailty’ as an indicator?
- Other comments

Site-specific review

	Breast	Colo-rectal	Gynae	Haem	H&N	Lung	Sarcoma	Skin	UGI	TYA
PS	±	+++	+	+++	+	+++	±	++	+++	±
C-M	++	+++	++	+	++	+++	+	+	+++	±
Surgery	+	+++	+	-	++	+++	+	±	+++	±
Chemo	++	++	++	++	++	++	+	+	++	±
RT	++	+	+	±	+	++	±	-	±	±
Peri-op mortality	+	++	+	-	+	+++	+	-	+++	±
Tools	ASA	ASA Possum	*UK Gosoc*	ACE27 ADL	ACE 27	No (lung function)	No	No	ASA	No
Overall survival	+	++	+	+	++	+	±	±	+	±
Late effects	+++	++	+	+++	+	+	+	+	+	+++

Co-morbidity	Sites of most relevance	Key Measures
Cardiac	Lung, UGI, Colo-rectal	Echo, Exercise ECG, MUGA scan, Angiography
Respiratory	Lung, UGI, Colo-rectal	Lung Function (FEV_1, etc.) Exercise testing Quantitative perfusion scan
Cerebro-vascular	Lung, UGI, Colo-rectal	
Dementia	All	
Renal	All	Creatinine & clearance
Hepatic	All	LFTs
Weight loss/nutrition	UGI	BMI; Serum albumin
Obesity	Gynae	BMI
Previous surgery/RT/Chemo	Gynae, colo-rectal, urology	
'Frailty'	?All (except children & TYAs)	Stair climb; 'Tray test' Subjective

Workshop Action Plan

- **Recommend collection of ACE-27 co-morbidity score is mandated for all adult cancer patients**
- Ensure that appropriate training is delivered
- Research different collection methodologies e.g. Patient questionnaires
- Identify where supplementary indices or information may be required
- Continue to retrospectively calculate co-morbidity scores from HES
- Consider establishing a Co-morbidity ‘CRG’

Adult Co-morbidity Evaluation-27

prospectively recorded by MDT

ACE-27

- Chart-based comorbidity index for patients with cancer
- Developed through modification of the

  Kaplan-Feinstein Comorbidity Index (KFI)
- Modifications were made through discussions with clinical experts and a review of the literature
- Validated in study of 19,268 cancer patients treated at Barnes-Jewish Hospital, USA

ACE-27

Cogent comorbid ailment	Grade 3 Severe Decompensation	Grade 2 Moderate Decompensation	Grade 1 Mild Decompensation
Cardiovascular System			
Myocardial Infarct	▪ MI ≤ 6 months	▪ MI > 6 months ago	▪ Old MI by ECG only, age undetermined
Angina / Coronary Artery Disease	▪ Unstable angina	▪ Chronic exertional angina ▪ Recent (≤ 6 months) Coronary Artery Bypass Graft (CABG) or Percutaneous Transluminal Coronary Angioplasty (PTCA) ▪ Recent (≤ 6 months) coronary stent	▪ ECG or stress test evidence or catheterization evidence of coronary disease without symptoms ▪ Angina pectoris not requiring hospitalization ▪ CABG or PTCA (>6 mos.) ▪ Coronary stent (>6 mos.)
Congestive Heart Failure (CHF)	▪ Hospitalized for CHF within past 6 months ▪ Ejection fraction < 20%	▪ Hospitalized for CHF >6 months prior ▪ CHF with dyspnea which limits activities	▪ CHF with dyspnea which has responded to treatment ▪ Exertional dyspnea ▪ Paroxysmal Nocturnal Dyspnea (PND)
Arrhythmias	▪ Ventricular arrhythmia ≤ 6 months	▪ Ventricular arrhythmia > 6 months ago ▪ Chronic atrial fibrillation or flutter ▪ Pacemaker	▪ Sick Sinus Syndrome
Hypertension	▪ DBP≥130 mm Hg ▪ Severe malignant papilledema or other eye changes ▪ Encephalopathy	▪ DBP 115-129 mm Hg ▪ Secondary cardiovascular symptoms: vertigo, epistaxis, headaches	▪ DBP 90-114 mm Hg ▪ DBP <90 mm Hg while taking antihypertensive medications
Venous Disease	▪ Recent PE (≤ 6 mos.) ▪ Use of venous filter for PE's	▪ DVT controlled with Coumadin or heparin ▪ Old PE > 6 months	▪ Old DVT no longer treated with Coumadin or Heparin
Peripheral Arterial Disease	▪ Bypass or amputation for gangrene or arterial insufficiency < 6 months ago ▪ Untreated thoracic or abdominal aneurysm (≥6 cm)	▪ Bypass or amputation for gangrene or arterial insufficiency > 6 months ▪ Chronic insufficiency	▪ Intermittent claudication ▪ Untreated thoracic or abdominal aneurysm (< 6 cm) ▪ s/p abdominal or thoracic aortic aneurysm repair

http://cancercomorbidity.wustl.edu/ElectronicACE27.aspx

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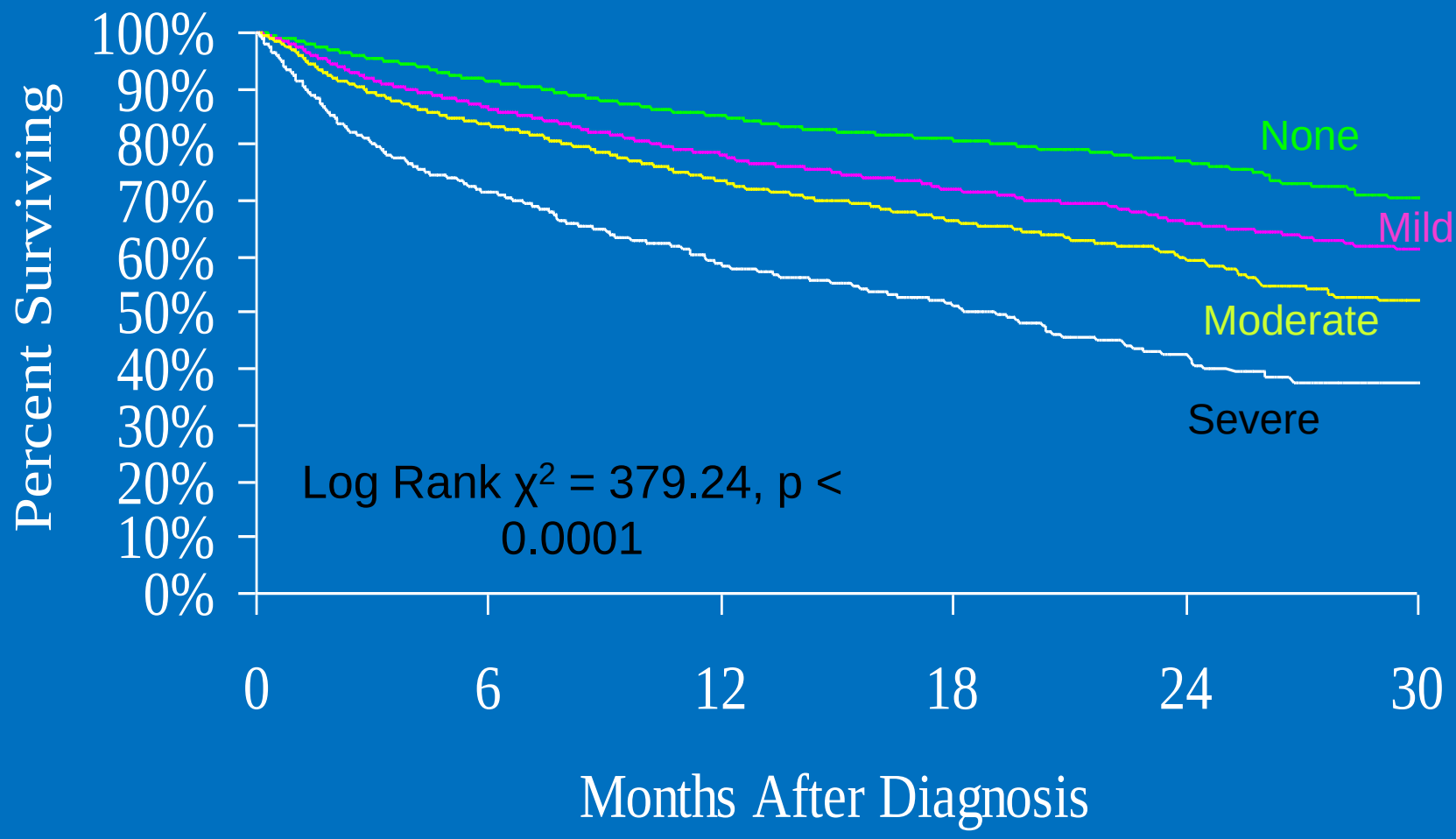
Prognostic Impact of Comorbidity



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Charlson Score

derived retrospectively by analysts based on information in notes coded by clinical coders

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Cancer Diagnosis

HES episodes 1 yr previous

time

HESID	DIAG_1	DIAG_2	DIAG_3	DIAG_4	DIAG_5
5494782	I211	T814	Y838	I802	
5494782					
5494782	D259	-			
5494782	K740	K528			
5494782	C679	-			
5494782					
5494782	D171	-			
5494782	H332	D569	Z853		
5494782	M720	-			

Acute Myocardial Infarction	1
Liver Disease	2
Final Score	3

Charlson Group	Group Description	Score	Codes
1	Acute Myocardial Infarction	1	I21, I22, I25
2	Congestive Heart Failure	1	I09, I11, I13, I25, I42, I43, I50, P29
3	Peripheral Vascular Disease	1	I70, I71, I73, I77, I79, K55, Z95
4	Cerebral Vascular Accident	1	G45, G46, H34, I60-69
5	Dementia	1	F00-03, F05
6	Pulmonary Disease	1	I27, J40-47, J60-68, J70
7	Connective Tissue Disorder	1	M05-06, M31-36
8	Peptic Ulcer	1	K25-K28
9	Diabetes	1	E10-14
10	Diabetes Complications	2	E10-14
11	Paraplegia	2	G04, G11, G80-83
12	Renal Disease	2	I12-13, N03, N05, N18, N19, N25, Z49, Z94, Z99
13	Cancer	2	C00-76, C81-97
14	Metastatic Cancer	6	C77-80
15	Severe Liver Disease	3	I58, I85, I86, K71-72, K76
16	HIV	6	B20-22, B24
17	Liver Disease	2	B17-18, K70-71, K73-74, K76, Z94

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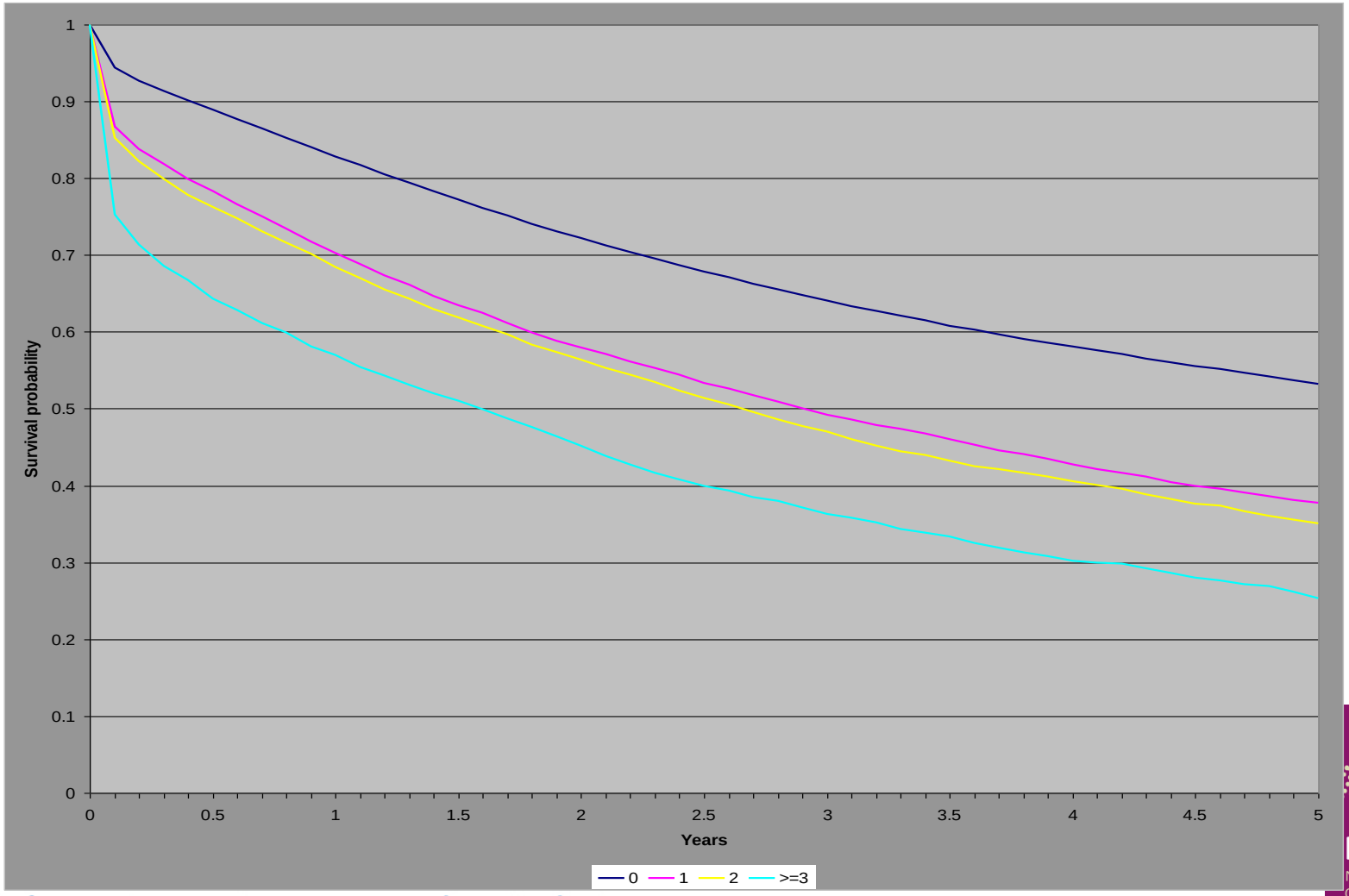
Complications

- Score is very dependent on date of cancer diagnosis
  - Differences in registration processes between registries
- Cancer diagnosis is often first in-patient episode
  - Only including episodes prior to diagnosis may miss co-morbidity codes
- Coding of Cancers differ in Registry/HES Meaning cancers can be counted twice
  - e.g. an individuals colorectal tumour could be coded as C18 in registry and C19 in HES, this could lead to
- Suspected cancer diagnosis coded in HES
  - 100% over-reporting of cancer diagnosis in HES
- Cancers and Metastatic Cancer make up main proportion of scores
  - Should any cancer information be used in the calculation of the score for cancer purposes.
  - Would it be better to use definitive data on multiple tumours/mets

Colorectal survival by Charlson Score



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Conclusions

- NCDR has Charlson score available at individual tumour level
- Analysis needs to be undertaken to assess the best approach to calculating co-morbidity from data we have available
- Work with DH/CfH on national co-morbidity project
  - SSCRGs to define pertinent conditions

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Thank you

www.ncin.org.uk

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