

# Why is co-morbidity important?

Di Riley

Associate Director

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?

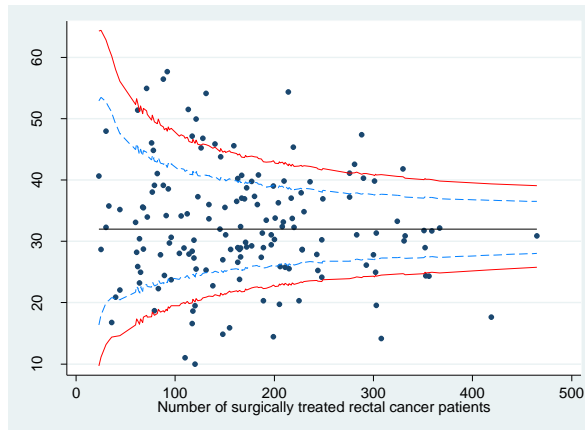
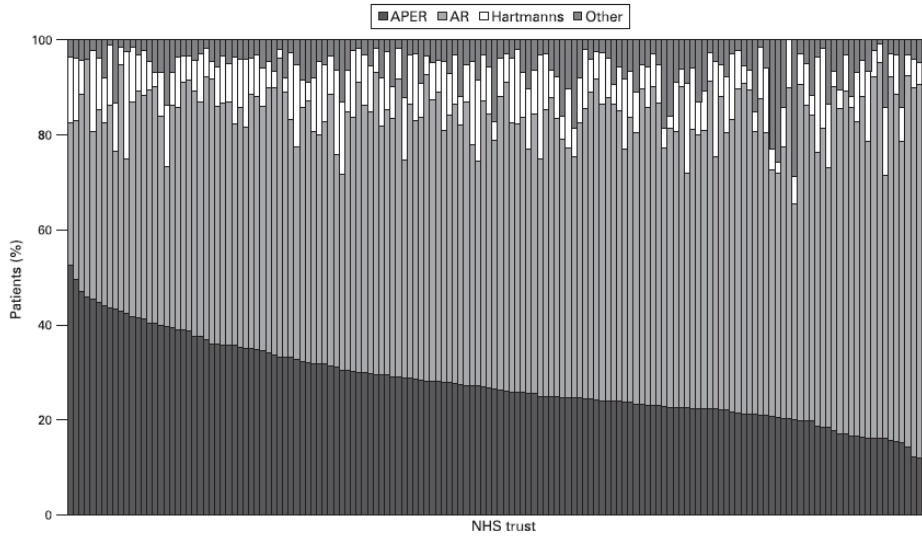
- Clinical decision making
- Risk adjusted outcomes analyses
- Highlighted in the CRS
  - Important but variably collected

# What influences cancer decision making?

- Tumour factors
  - Stage/grade
- Individual factors
  - *Patient preferences*
  - *Performance status*
  - *Frailty*
  - *Fitness*
  - **CO-MORBIDITY**
- To predict outcome - personal prognostograms?

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

E Morris,<sup>1,2</sup> P Quirke,<sup>2</sup> J D Thomas,<sup>1,2</sup> L Fairley,<sup>4</sup> B Cottier,<sup>3</sup> D Forman<sup>1,4</sup>




Low Graphics | Accessibility help

**BBC** Search Explore the BBC

**NEWS** LIVE BBC NEWS CHANNEL

Page last updated at 00:03 GMT, Thursday, 5 June 2008 01:03 UK

E-mail this to a friend Printable version

### Rectal surgeons using 'wrong op'

**Claims that many rectal cancer patients receive an "inappropriate" operation have been rejected by surgeons.**

Leeds University researchers said hospital data showed the APE operation, which leaves patients with a permanent colostomy, was being used too often.

In the Journal Gut, they said introducing official targets would cut it further.

However, leading colorectal surgeons said it remained the best option for many - and targets would harm care.

Every year in the UK, approximately 13,000 people are diagnosed with rectal cancer, and 5,000 die from the disease.

Although radiotherapy and chemotherapy can help, the operation is still the main treatment.

Surgery can leave a patient needing a colostomy

SEE ALSO

- Why is the UK lagging on cancer? 21 Aug 07 | Health
- Fat hormone 'boosts colon cancer' 07 Apr 07 | Health
- Trial slashes bowel cancer risk 09 Oct 06 | Health

RELATED INTERNET LINKS

- Gut
- Association of Coloproctology of Great Britain and Ireland
- Cancer Research UK

The BBC is not responsible for the content of external internet sites

TOP HEALTH STORIES

- Birth defect test guru knighted
- Shirdj cracks amnesia attack tactic

What this does is serve

# Main elements

- Selection for treatment
  - Intent, toxicity and mortality
- Late effects:
  - Predicting them
  - Identifying them
- Impact along with stage on overall survival / prognosis
- ***Is it feasible to expect a single scale to answer all these questions?***

# 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	+++	++	+	+++	+	+	+	+	+	+++



# When to record?

- **Prospective Recording**
  - Presence or absence?
  - Severity?
  - Type of co-morbidity present?
  - ACE-27?
  - Other scale e.g. ASA?
- **Derive retrospectively**
  - HES – favours admitted care
  - Accuracy/completeness of coding
  - Less timely

# Adult Co-morbidity Evaluation-27

prospectively recorded by MDT as  
part of treatment planning process?

- 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

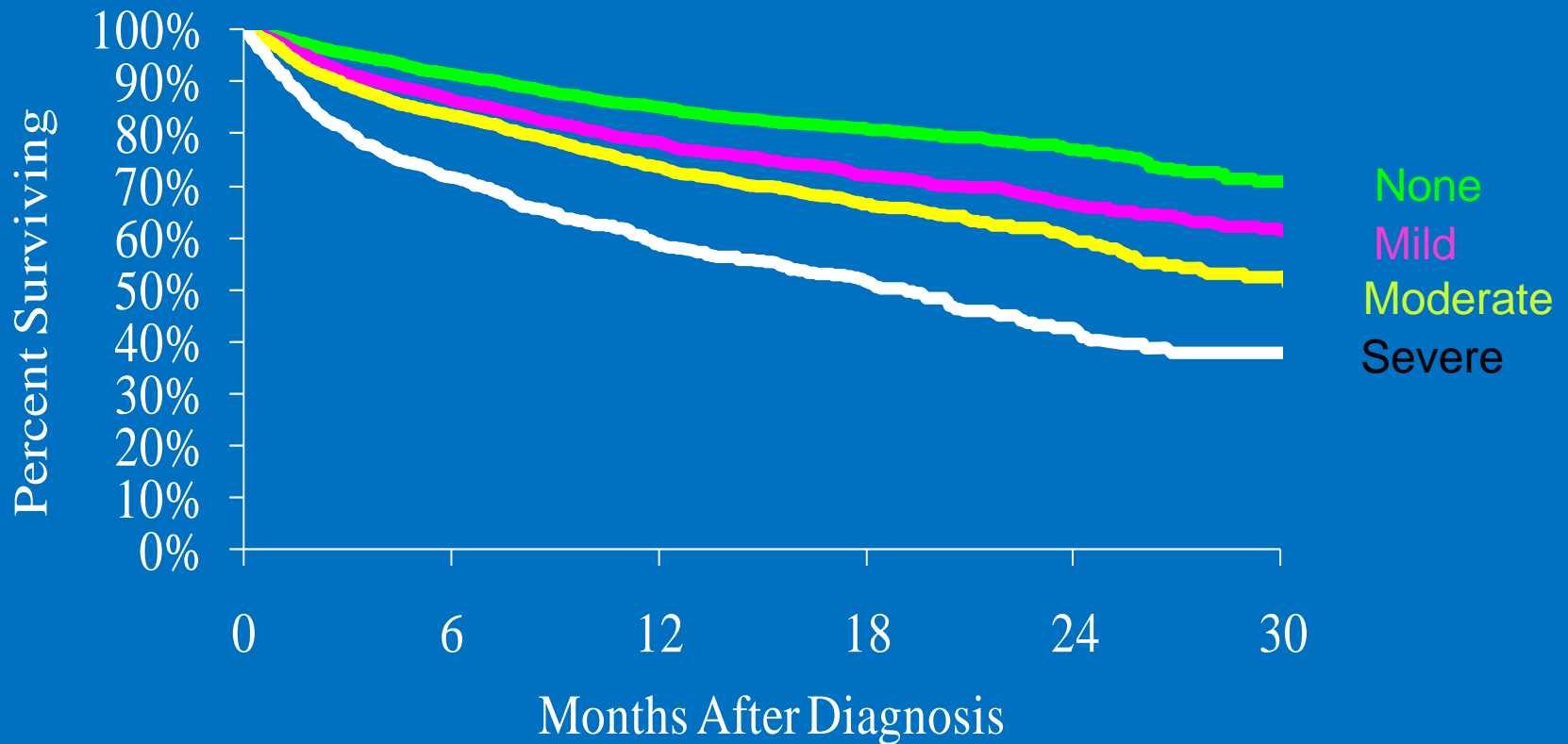
Cogent comorbid ailment	Grade 3 Severe Decompensation	Grade 2 Moderate Decompensation	Grade 1 Mild Decompensation
<b>Cardiovascular System</b>			
Myocardial Infarct	<ul style="list-style-type: none"> <li>MI ≤ 6 months</li> </ul>	<ul style="list-style-type: none"> <li>MI &gt; 6 months ago</li> </ul>	<ul style="list-style-type: none"> <li>Old MI by ECG only, age undetermined</li> </ul>
Angina / Coronary Artery Disease	<ul style="list-style-type: none"> <li>Unstable angina</li> </ul>	<ul style="list-style-type: none"> <li>Chronic exertional angina</li> <li>Recent (≤ 6 months) Coronary Artery Bypass Graft (CABG) or Percutaneous Transluminal Coronary Angioplasty (PTCA)</li> <li>Recent (≤ 6 months) coronary stent</li> </ul>	<ul style="list-style-type: none"> <li>ECG or stress test evidence or catheterization evidence of coronary disease without symptoms</li> <li>Angina pectoris not requiring hospitalization</li> <li>CABG or PTCA (&gt;6 mos.)</li> <li>Coronary stent (&gt;6 mos.)</li> </ul>
Congestive Heart Failure (CHF)	<ul style="list-style-type: none"> <li>Hospitalized for CHF within past 6 months</li> <li>Ejection fraction &lt; 20%</li> </ul>	<ul style="list-style-type: none"> <li>Hospitalized for CHF &gt;6 months prior</li> <li>CHF with dyspnea which limits activities</li> </ul>	<ul style="list-style-type: none"> <li>CHF with dyspnea which has responded to treatment</li> <li>Exertional dyspnea</li> <li>Paroxysmal Nocturnal Dyspnea (PND)</li> </ul>
Arrhythmias	<ul style="list-style-type: none"> <li>Ventricular arrhythmia ≤ 6 months</li> </ul>	<ul style="list-style-type: none"> <li>Ventricular arrhythmia &gt; 6 months ago</li> <li>Chronic atrial fibrillation or flutter</li> <li>Pacemaker</li> </ul>	<ul style="list-style-type: none"> <li>Sick Sinus Syndrome</li> </ul>
Hypertension	<ul style="list-style-type: none"> <li>DBP ≥ 130 mm Hg</li> <li>Severe malignant papilledema or other eye changes</li> <li>Encephalopathy</li> </ul>	<ul style="list-style-type: none"> <li>DBP 115-129 mm Hg</li> <li>Secondary cardiovascular symptoms: vertigo, epistaxis, headaches</li> </ul>	<ul style="list-style-type: none"> <li>DBP 90-114 mm Hg</li> <li>DBP &lt; 90 mm Hg while taking antihypertensive medications</li> </ul>
Venous Disease	<ul style="list-style-type: none"> <li>Recent PE (≤ 6 mos.)</li> <li>Use of venous filter for PE's</li> </ul>	<ul style="list-style-type: none"> <li>DVT controlled with Coumadin or heparin</li> <li>Old PE &gt; 6 months</li> </ul>	<ul style="list-style-type: none"> <li>Old DVT no longer treated with Coumadin or Heparin</li> </ul>
Peripheral Arterial Disease	<ul style="list-style-type: none"> <li>Bypass or amputation for gangrene or arterial insufficiency &lt; 6 months ago</li> <li>Untreated thoracic or abdominal aneurysm (≥ 6 cm)</li> </ul>	<ul style="list-style-type: none"> <li>Bypass or amputation for gangrene or arterial insufficiency &gt; 6 months</li> <li>Chronic insufficiency</li> </ul>	<ul style="list-style-type: none"> <li>Intermittent claudication</li> <li>Untreated thoracic or abdominal aneurysm (&lt; 6 cm)</li> <li>s/p abdominal or thoracic aortic aneurysm repair</li> </ul>

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

*Using information to improve quality & choice*



# Prognostic Impact of Comorbidity



Log Rank  $\chi^2 = 379.24$ ,  $p < 0.0001$

## Charlson Score

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

# 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	S679	-			
5494782					
5494782	D171	-			
5494782	H332	D569	Z853		
5494782	M720	-			

Charlson Group	Group Description	Score	Codes
1	Acute Myocardial Infarction	1	I21, I22, I25
2	Congestive Heart Failure	1	I09, I11, I15, 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

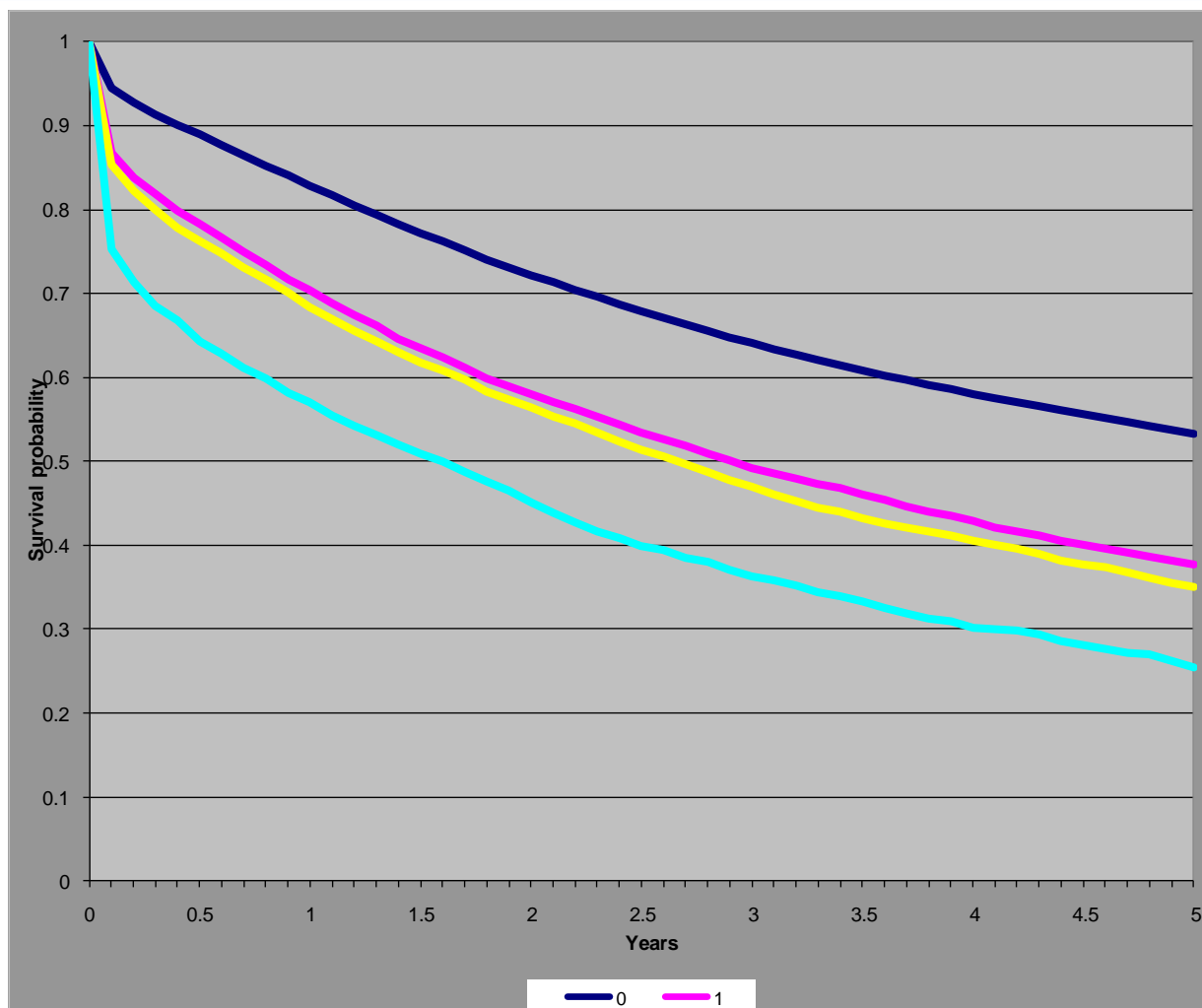
Acute Myocardial Infarction	1
Liver Disease	2
Final Score	3

# 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 individual colorectal tumour could be coded as C18 in registry and C19 in HES, this could lead to
- Suspected cancer diagnosis coded in HES
  - 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



*Using information to improve quality & choice*

# Conclusions

- NCDR has Charlson score available at individual tumour level
- Further analysis required to assess best approach to calculating co-morbidity from available data
- Work with DH/CfH on national co-morbidity project
  - SSCRGs to define pertinent conditions

# Workshop Action Plan

- **Prospective:**
  - 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
- **Retrospective:**
  - Continue to evaluate co-morbidity scores from HES
- **Consider establishing a Co-morbidity ‘CRG’**

NCIN



national cancer  
intelligence network

---

*Using information to improve quality & choice*

*Thank you*

[www.ncin.org.uk](http://www.ncin.org.uk)



NCRI  
National  
Cancer  
Research  
Institute