

# Darmkanker op leeftijd

## nieuwe inzichten

Patiënt outcome: 1 jaar na curatieve therapie

Harm Rutten, chirurg, Catharina Ziekenhuis,  
Eindhoven

Symposium

19 januari 2016

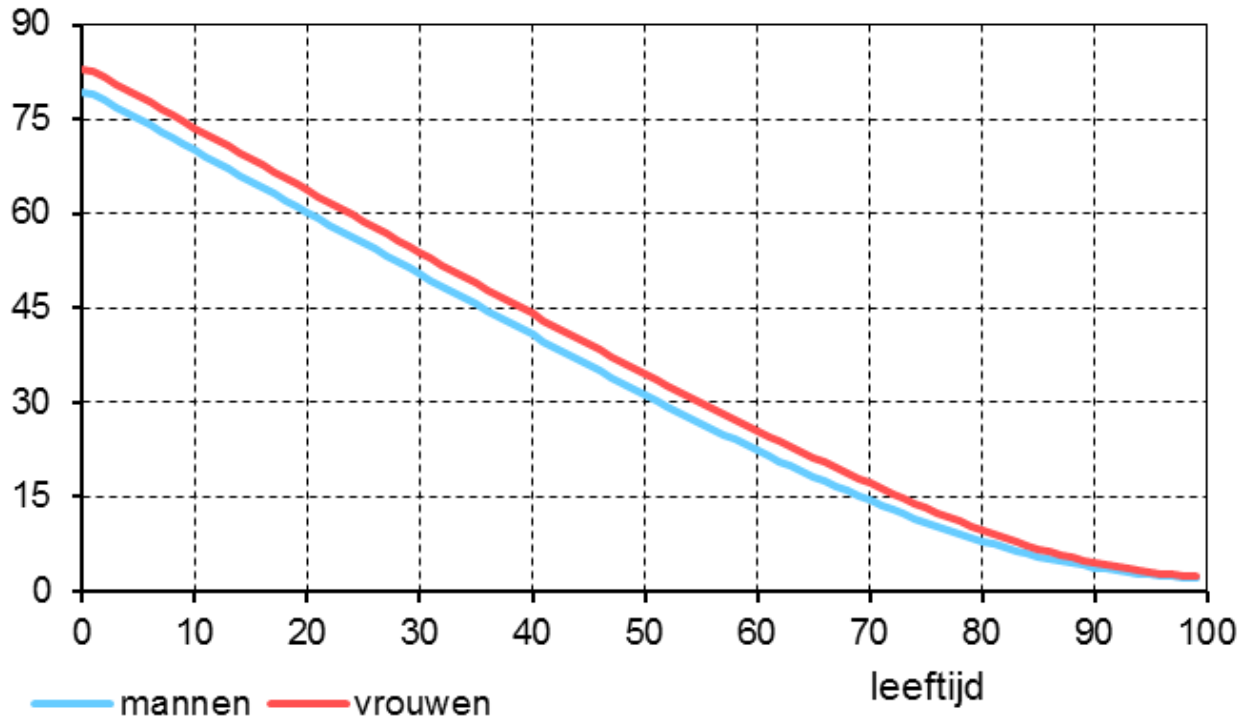
Theater de Veste Delft

**Waarom is het van belang om 1 jaars mortaliteit te kennen ?**

**Waardoor wordt 1 jaars mortaliteit veroorzaakt?**

**Wat is de verhouding tussen 1 jaars mortaliteit en overleving na curatieve behandeling van darmkanker?**

## resterende levensverwachting (jaren)



## Levensverwachting in 2012 (jaren)

leeftijd	mannen	vrouwen
75	10,97	13,25
76	10,32	12,51
77	9,68	11,79
78	9,07	11,08
79	8,5	10,39
80	7,95	9,72
81	7,43	9,08
82	6,91	8,46
83	6,45	7,87
84	5,99	7,3
85	5,57	6,77
86	5,19	6,25
87	4,79	5,77
88	4,45	5,33
89	4,1	4,91
90	3,76	4,5

From: **Cancer Screening in Elderly Patients: A Framework for Individualized Decision Making**

JAMA. 2001;285(21):2750-2756. L Walter

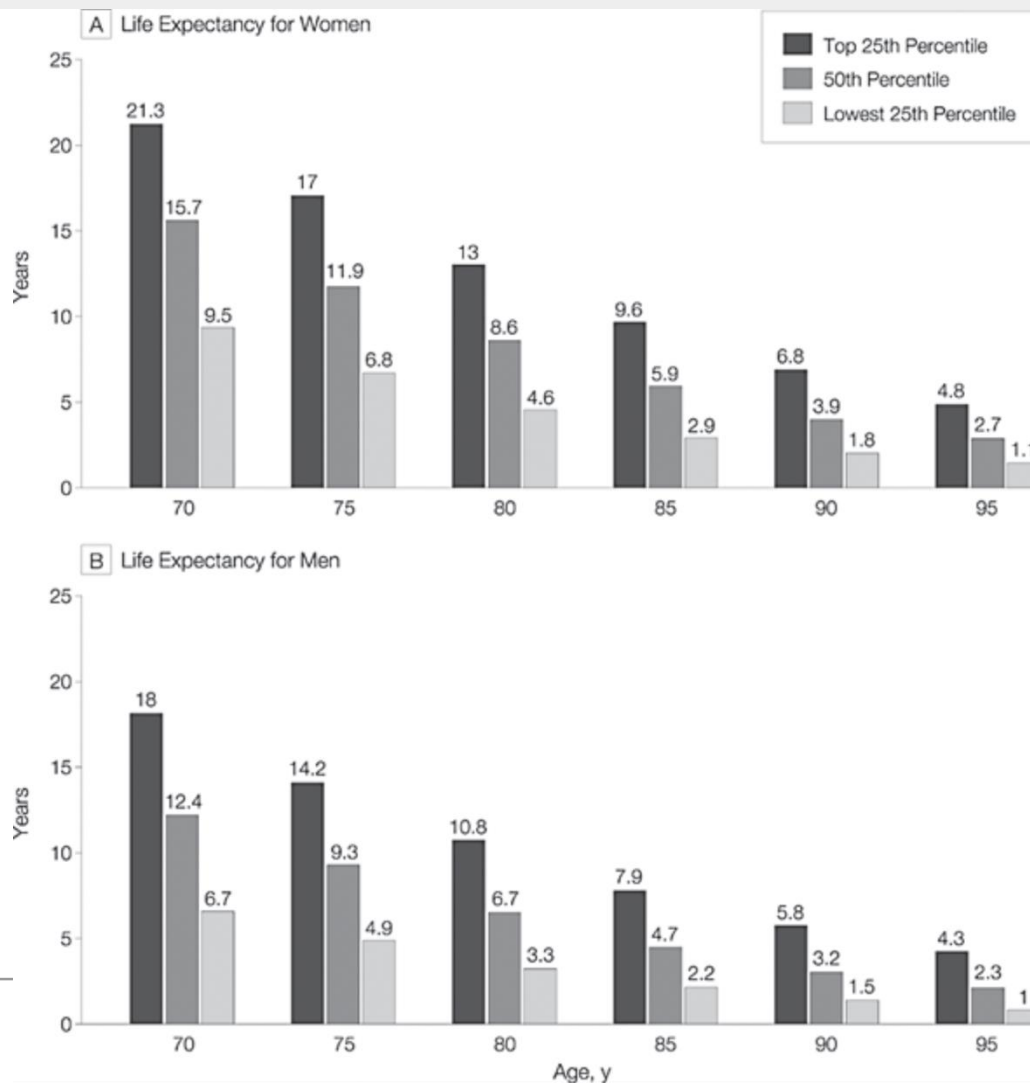
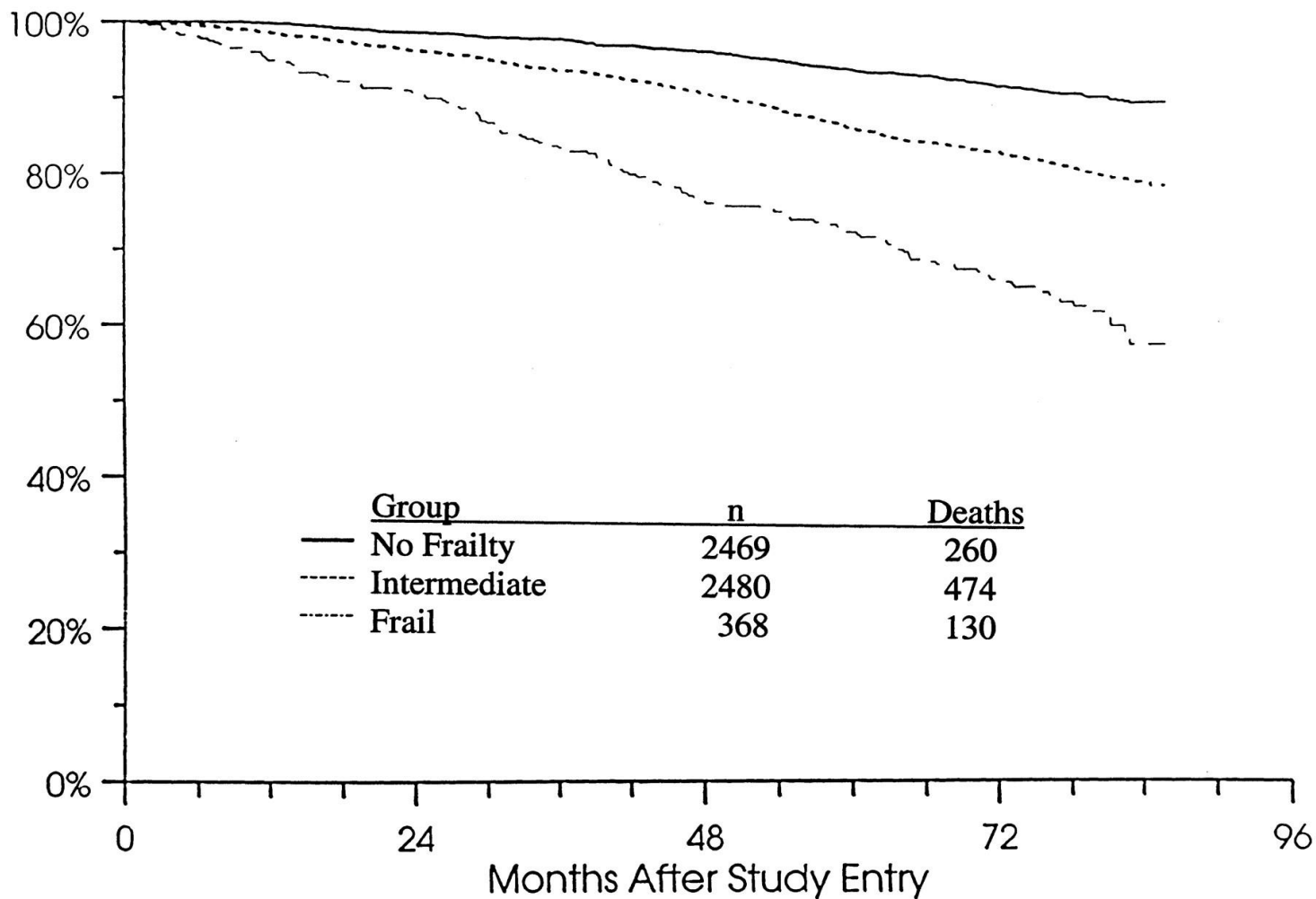


Figure Legend:

Data from the Life Tables of the United States.

**Survival curve estimates (unadjusted) over 72 months of follow-up by frailty status at baseline: Frail (3 or more criteria present); Intermediate (1 or 2 criteria present); Not frail (0 criteria present).**

**Frailty Criteria**  
 unintentional weight loss (10 lbs in past year),  
 self-reported exhaustion, weakness (grip strength),  
 slow walking speed, and  
 low physical activity.



From: **Development and Validation of a Prognostic Index for 1-Year Mortality in Older Adults After Hospitalization**

JAMA. 2001;285(23):2987-2994. doi:10.1001/jama.285.23.2987

**Table 2.** Bivariable Associations of Risk Factors and 1-Year Mortality in the Derivation Cohort

Risk Factor	No. (%) of Deaths	Odds Ratio (95% Confidence Interval)	P Value
Age, y			
70-74	102 (26)	1.0	
75-79	107 (29)	1.2 (0.8-1.6)	.44
80-84	117 (36)	1.5 (1.1-2.1)	.01
85-89	83 (37)	1.6 (1.1-2.3)	.01
≥90	83 (45)	2.2 (1.6-3.2)	<.001
Sex			
Women	312 (31)	1.0	
Men	180 (37)	1.3 (1.0-1.6)	.03
Race			
White	286 (32)	1.0	
Black	206 (35)	1.1 (0.9-1.4)	.32
Marital status			
Married	178 (34)	1.0	
Not married	314 (32)	0.9 (0.7-1.1)	.43
ADL dependency at discharge*			
Independent in all ADLs	112 (19)	1.0	
Dependent in 1-4 ADLs	158 (33)	2.1 (1.6-2.8)	<.001
Dependent in all ADLs	222 (54)	5.2 (4.0-7.0)	<.001
Comorbid conditions			
History of myocardial infarction			
Absent	410 (32)	1.0	
Present	82 (39)	1.4 (1.0-1.9)	.03
Congestive heart failure			
Absent	323 (29)	1.0	
Present	169 (42)	1.7 (1.4-2.2)	<.001

**Table 2.** Bivariable Associations of Risk Factors and 1-Year Mortality in the Derivation Cohort

Risk Factor	No. (%) of Deaths	Odds Ratio (95% Confidence Interval)	P Value
Cerebrovascular disease			
Absent	398 (32)	1.0	
Present	94 (38)	1.3 (1.0-1.7)	.08
Dementia			
Absent	364 (30)	1.0	
Present	128 (47)	2.1 (1.6-2.8)	<.001
Chronic obstructive pulmonary disease			
Absent	401 (32)	1.0	
Present	91 (36)	1.2 (0.9-1.5)	.32
Diabetes mellitus			
Absent	406 (33)	1.0	
Present	86 (32)	0.9 (0.7-1.3)	.86
Cancer			
Absent	401 (30)	1.0	
Solitary cancer	53 (48)	2.1 (1.4-3.2)	<.001
Metastatic cancer	38 (81)	9.9 (4.7-20.6)	<.001
Length of hospital stay, d			
1-7	303 (29)	1.0	
>7	189 (41)	1.7 (1.3-2.1)	<.001
Discharge destination			
Other	284 (27)	1.0	
Nursing home or skilled nursing facility	208 (46)	2.3 (1.8-2.9)	<.001
Laboratory values on admission			
Creatinine, mg/dL†			
<1.5	248 (28)	1.0	
1.5-3.0	178 (38)	1.6 (1.3-2.0)	<.001
>3.0	66 (49)	2.5 (1.7-3.6)	<.001
Albumin, g/dL			
≥4.0	165 (25)	1.0	
3.5-3.9	138 (32)	1.4 (1.1-1.8)	.02
3.0-3.4	106 (42)	2.1 (1.6-2.9)	<.001
<3.0	83 (55)	3.6 (2.5-5.2)	<.001

\*ADL indicates activities of daily living.

†To convert to  $\mu\text{mol/L}$ , multiply by 88.4.



## From: Development and Validation of a Prognostic Index for 1-Year Mortality in Older Adults After Hospitalization

JAMA. 2001;285(23):2987-2994. doi:10.1001/jama.285.23.2987

Curves are for each of the 4 risk groups in the validation cohort according to the bedside risk scoring system:

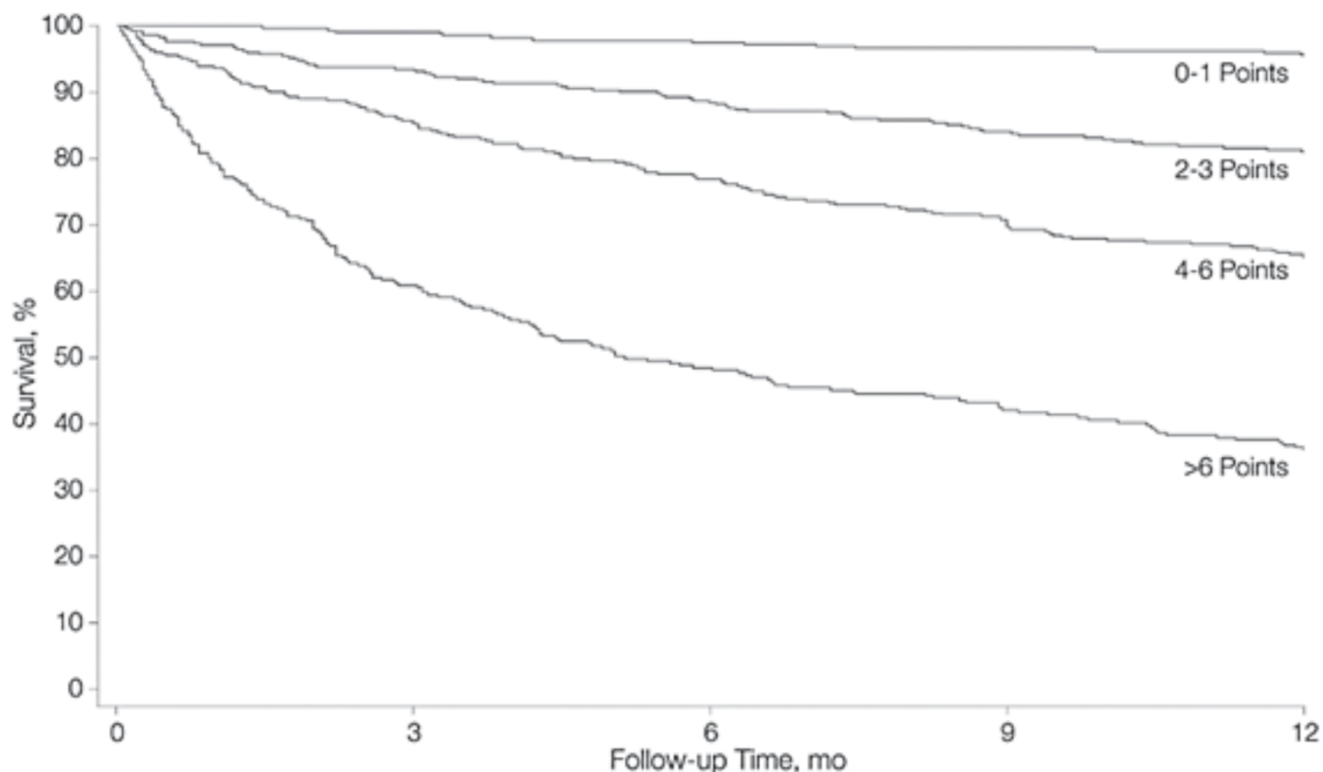
**male sex**, 1 point;

**Activities of daily living (ADL)** dependency: 2 points for 1 to 4 ADLs and 5 points for all ADLs;

**congestive heart failure**, 2 points; **cancer**: 3 points for solitary and 8 points for metastatic;

**creatinine level** higher than 3 mg/dL (265  $\mu$ mol/L), 2 points;

**albumin**: 1 point for level between 3 and 3.4 g/dL and 2 points for level lower than 3 g/dL.





## Covariates used to calculate a patient's Hospital-patient One-year Mortality Risk (HOMR) score at the time of admission to hospital.

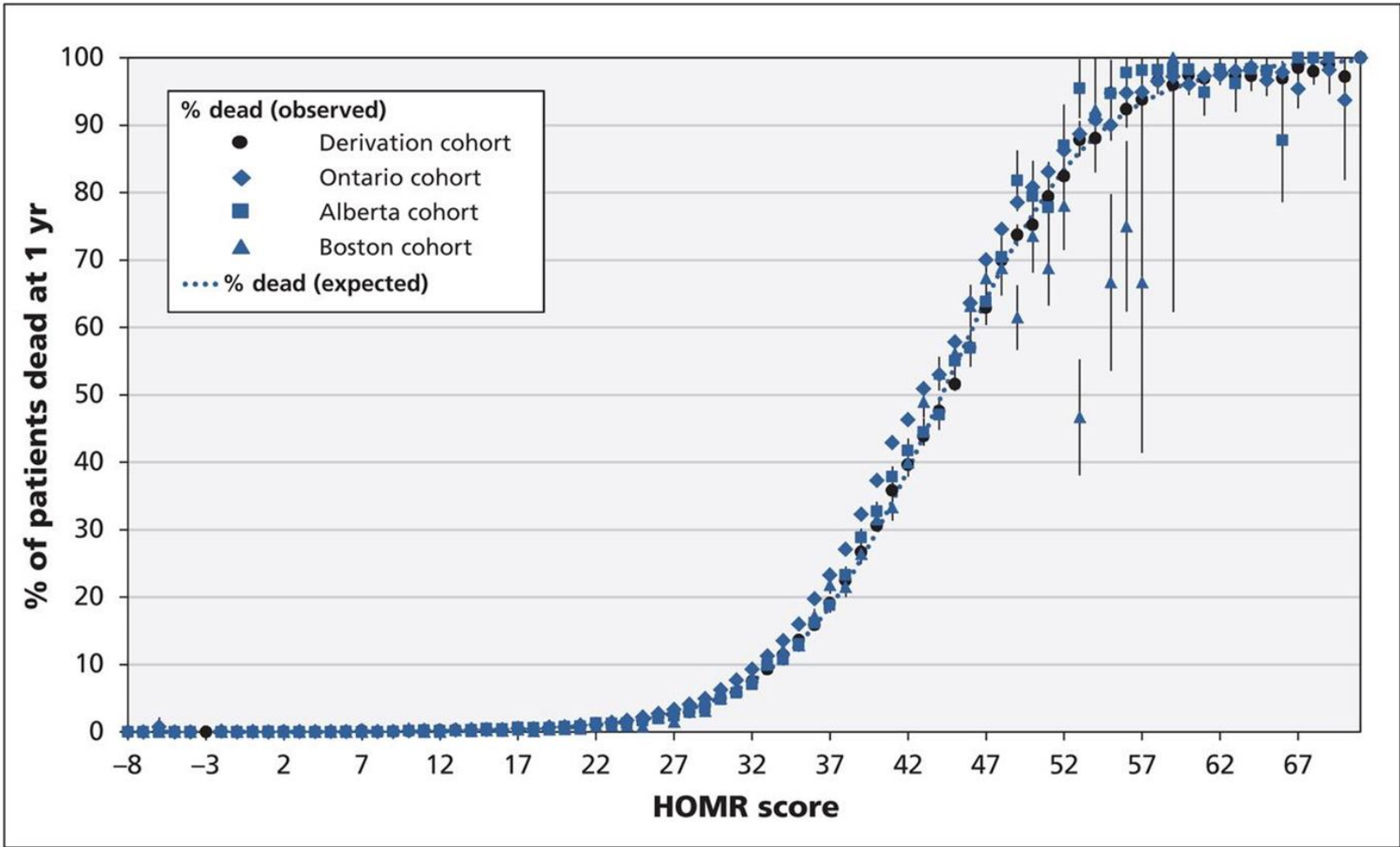
Sex	Points	ED visits*	Points	Home O <sub>2</sub>	Points	Diagnostic Risk Score	Admitting service†	Points
Female	0	0	0	No	0	Same as measured in Appendix 1	<b>Medicine</b>	
Male	1	≥ 1	1	Yes	4		General medicine	10
<b>Admission directly to ICU</b>		<b>Admissions by ambulance*</b>		<b>Urgent 30-d readmission</b>			Cardiology	8
No	0	0	0	No	0		Gastroenterology/ nephrology/neurology	9
Yes	2	1	3	Yes	1		Palliative care	28
		2	4				Hematology/oncology	14
		≥ 3	5				Ante/intra/postpartum	0
<b>Charlson Comorbidity Index score</b>								
<b>Diagnosis</b>	<b>Points</b>	<b>Diagnosis</b>	<b>Points</b>					
Myocardial infarction	1	Diabetes with chronic complications	2					
Congestive heart failure	2	Hemi- or paraplegia	1					
Peripheral vascular disease	1	Renal disease	3					
Cerebrovascular disease	1	Nonmetastatic cancer	2					
Dementia	3	Moderate to severe liver disease	4					
Chronic respiratory disease	2	Metastatic cancer	6					
Mild liver disease	2	HIV infection	4					
Diabetes without complications	1	<b>Total comorbidity score</b>	—					
							Gynecology	7
							<b>Surgery</b>	
							General surgery	8
							Cardiovascular surgery	9
							Neurosurgery	10
							Orthopedic/plastic surgery	7
							Thoracic/transplant surgery	7
							Trauma	8
							Urology	6

Carl van Walraven et al. CMAJ 2015;187:725-733

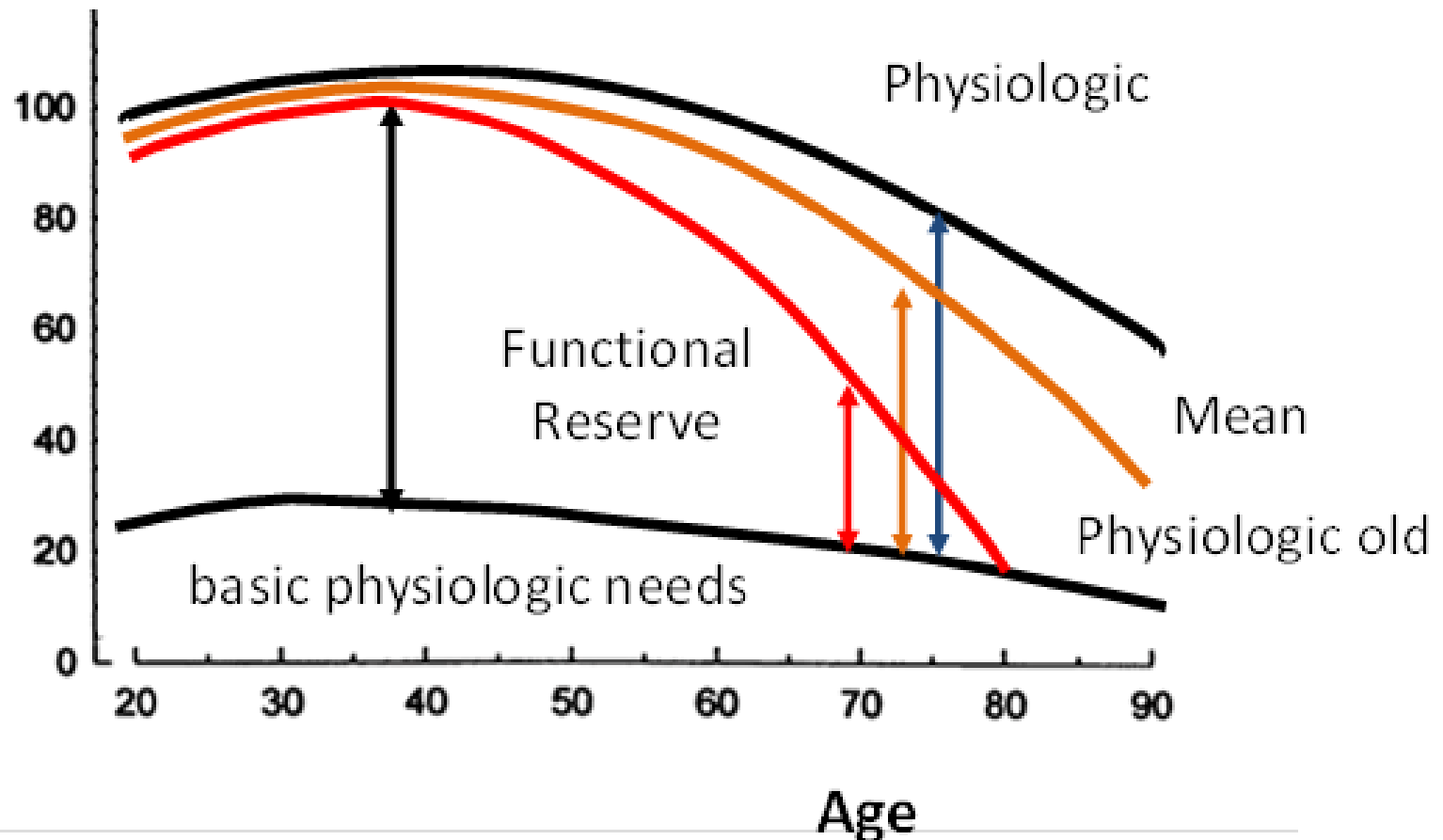
<b>Age × comorbidity</b>							
<b>Age, yr</b>	<b>Charlson Comorbidity Index score</b>						
	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>≥ 6</b>
20–24.9	0	3	5	7	8	9	10
25–29.9	2	5	7	9	10	11	11
30–34.9	4	7	9	11	12	12	13
35–39.9	7	9	11	12	13	14	15
40–44.9	8	11	13	14	15	15	16
45–49.9	10	13	14	15	16	17	17
50–54.9	12	14	16	17	17	18	18
55–59.9	14	16	17	18	19	19	20
60–64.9	15	17	18	19	20	20	21
65–69.9	17	19	20	21	21	22	22
70–74.9	18	20	21	22	22	23	23
75–79.9	20	21	22	23	23	24	24
80–84.9	21	23	23	24	24	25	25
85–89.9	23	24	25	25	25	26	26
90–94.9	24	25	26	26	26	27	27
≥ 95	25	26	27	27	27	28	28

<b>Living status / admission urgency × admissions by ambulance</b>				
	<b>No. of admissions by ambulance</b>			
	<b>0</b>	<b>1</b>	<b>2</b>	<b>≥ 3</b>
<b>Living status</b>				
Home, independent	0	0	0	0
Rehabilitation facility	3	3	2	2
Home with home care	4	3	3	3
Nursing home	4	4	4	3
Chronic care hospital	8	6	5	5
<b>Admission urgency</b>				
Elective	0	0	0	0
ED, no ambulance	3	1	0	0
ED, ambulance	5	2	1	0

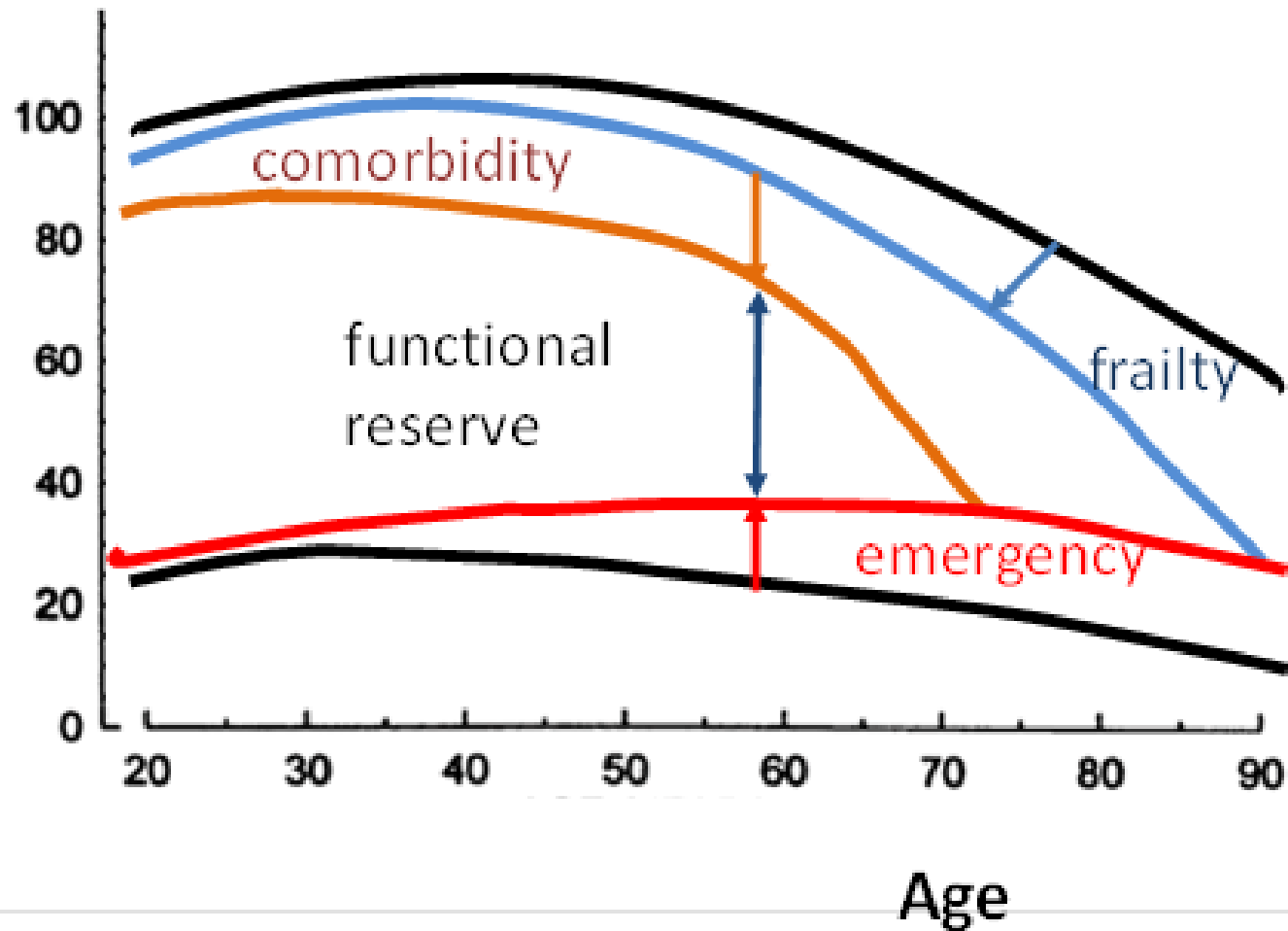
<b>Covariate</b>	<b>Total points</b>
Sex	—
ED visits	—
Home O <sub>2</sub>	—
Diagnostic Risk Score	—
Admission to ICU	—
Admissions by ambulance	—
Urgent readmission	—
Admitting service	—
Age × comorbidity	—
Living status/admission urgency × admissions by ambulance	—
<b>Total HOMR score</b>	—

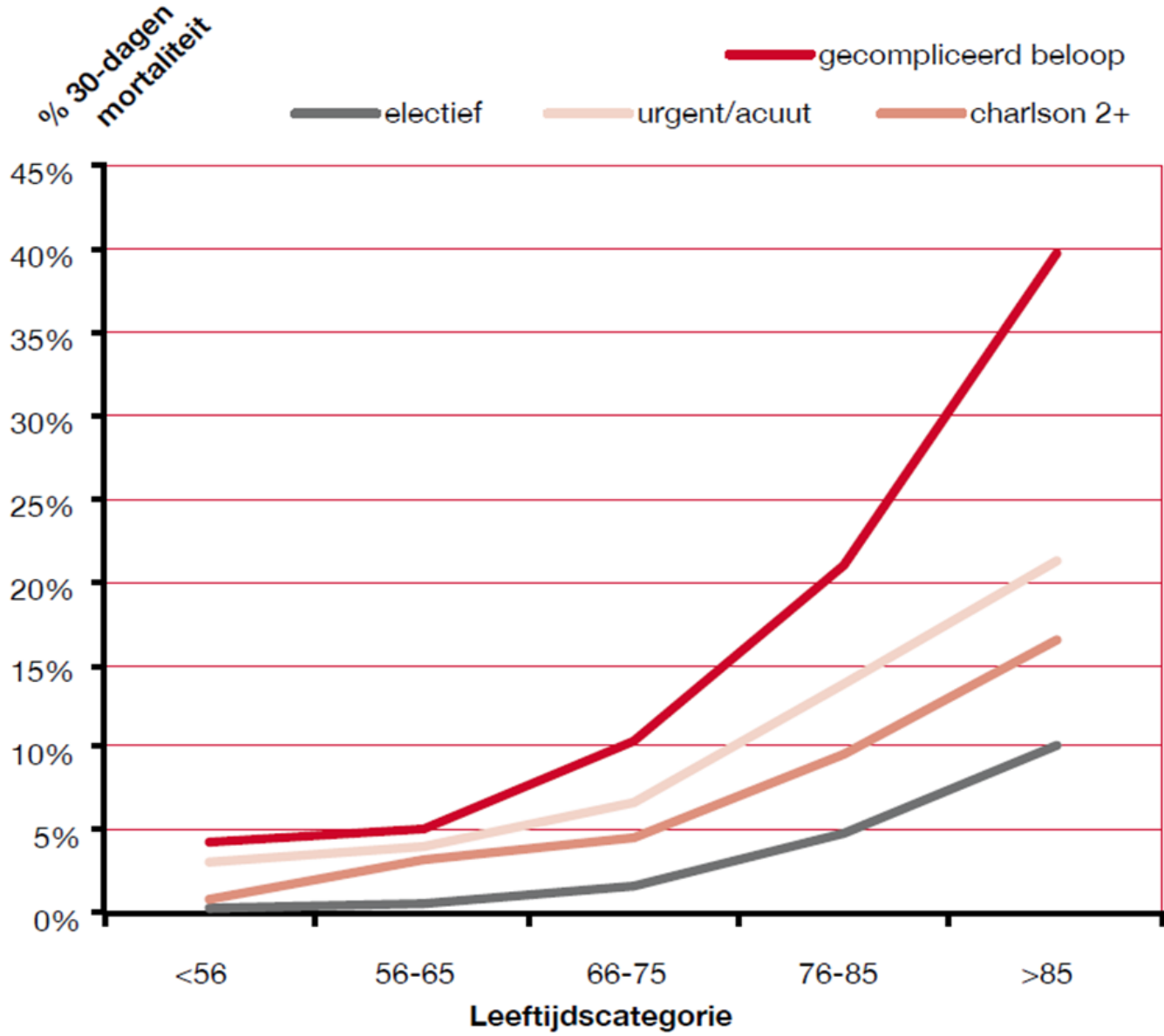


## % Organ function



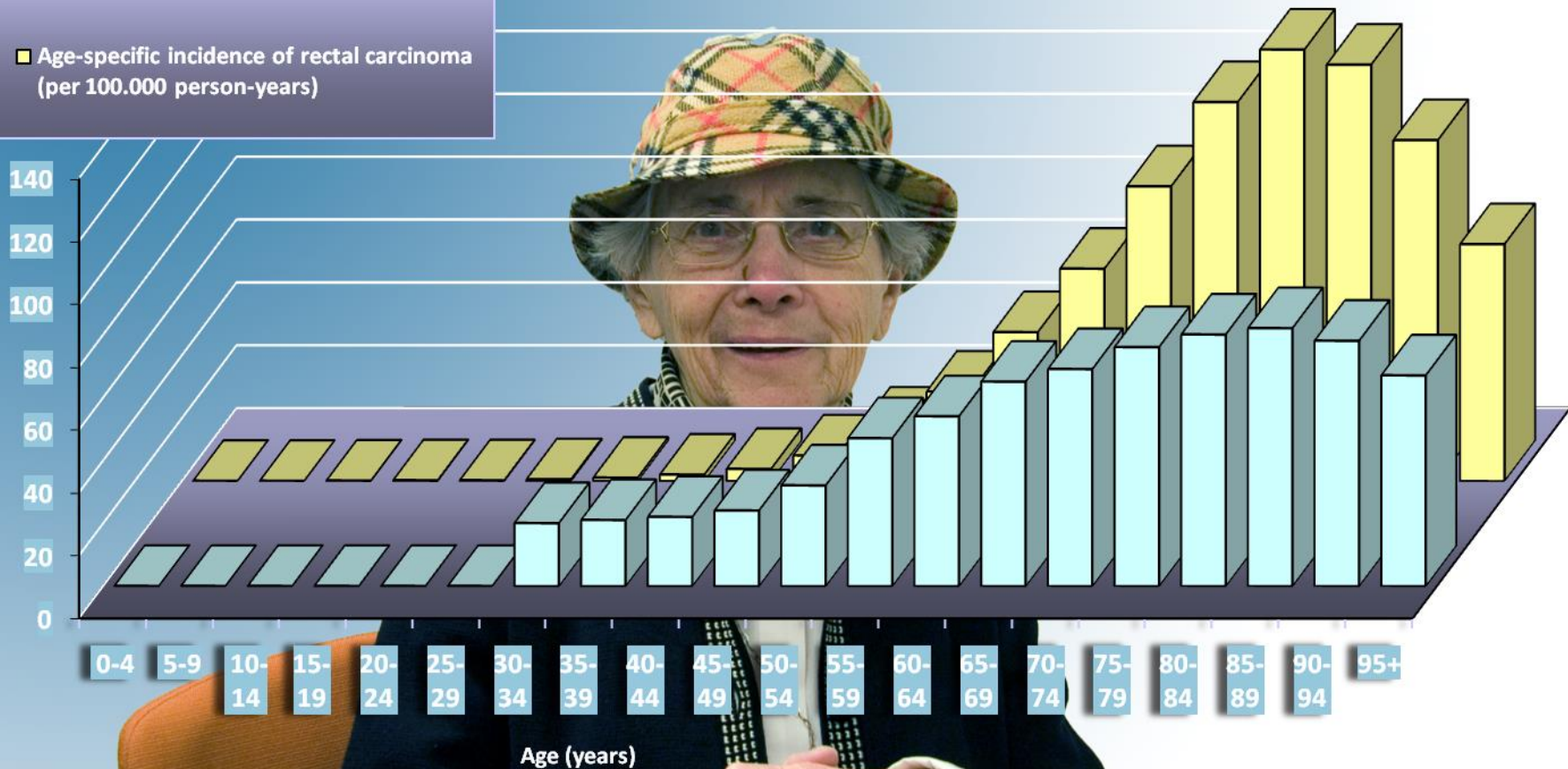
## % Organ function





**figuur 2:** incidentie van 30-dagen mortaliteit naar leeftijdsgroep uitgesplitst voor urgentie, comorbiditeitscore en ernstige complicaties

- Age-specific prevalence of comorbidity at rectal cancer diagnosis (in %)
- Age-specific incidence of rectal carcinoma (per 100.000 person-years)



Comprehensive Cancer Centre South, Eindhoven, the Netherlands

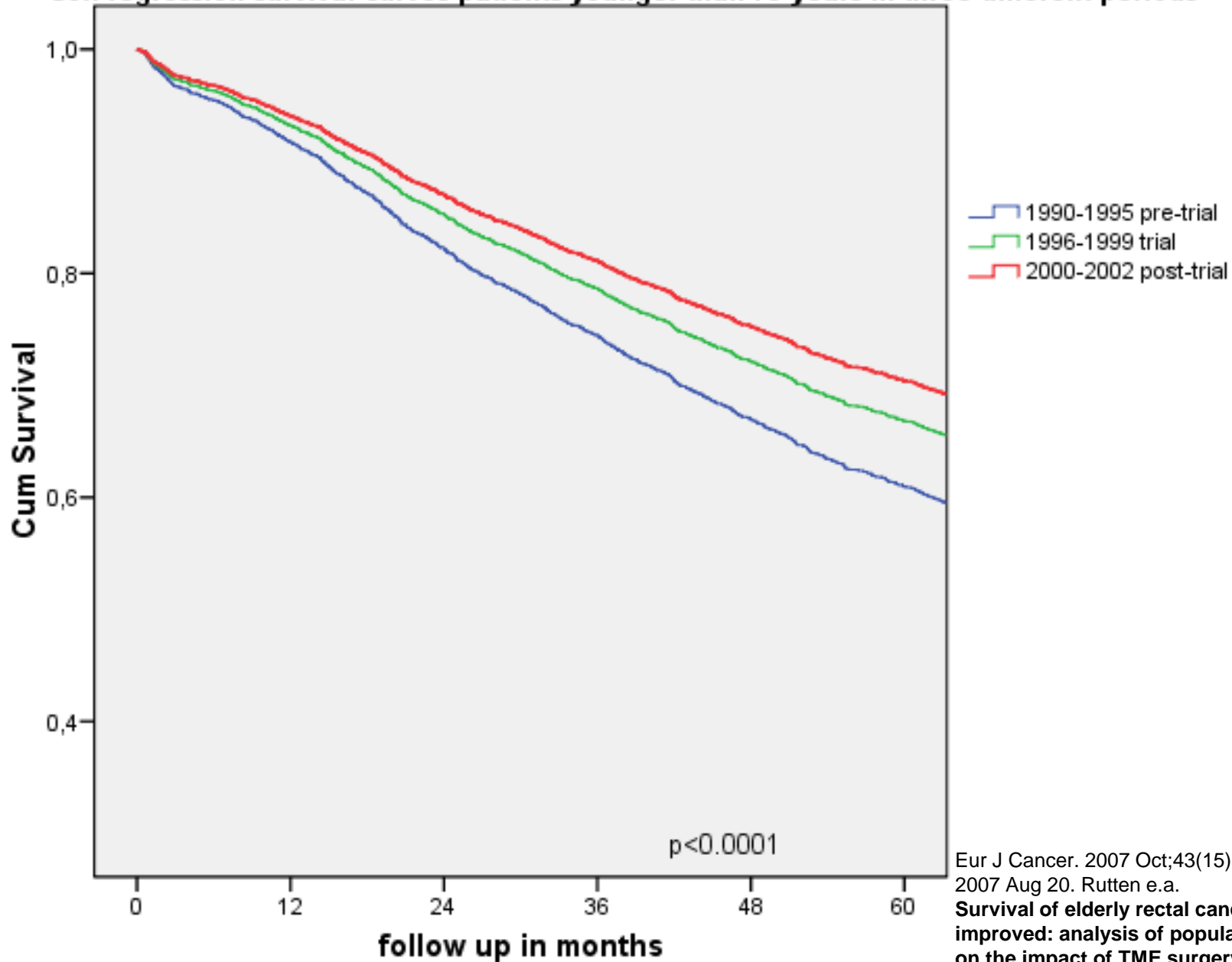
Lancet Oncol. 2008 May;9(5):494-501.

**Controversies of total mesorectal excision for rectal cancer in elderly patients.**

[Rutten HJ](#), [den Dulk M](#), [Lemmens VE](#), [van de Velde CJ](#), [Marijnen CA](#)

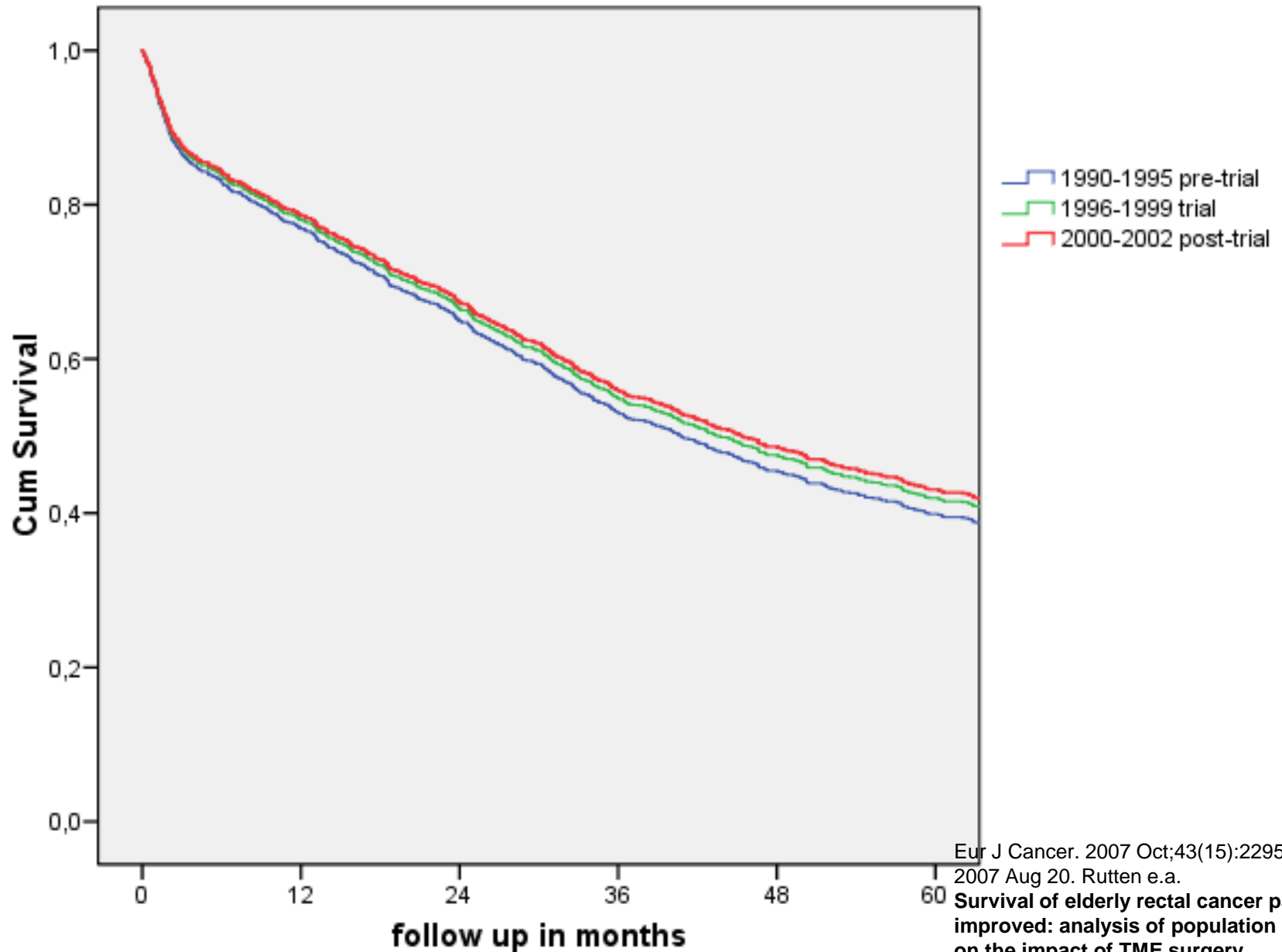


Cox regression survival curves patients younger than 75 years in three different periods



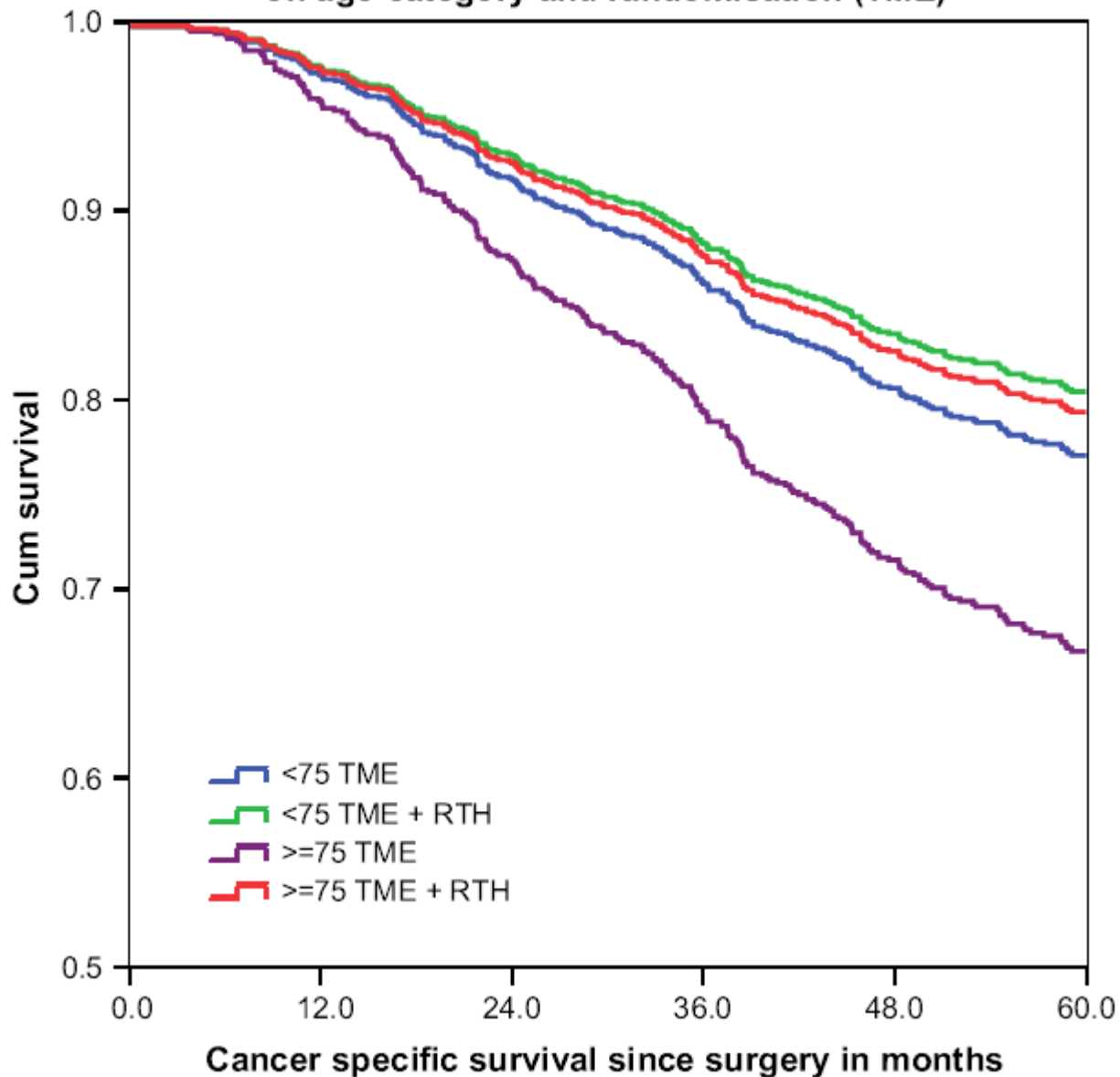
Eur J Cancer. 2007 Oct;43(15):2295-300. Epub 2007 Aug 20. Rutten e.a.  
**Survival of elderly rectal cancer patients not improved: analysis of population based data on the impact of TME surgery.**

### Cox regression survival curves patients 75 years and older in three different periods



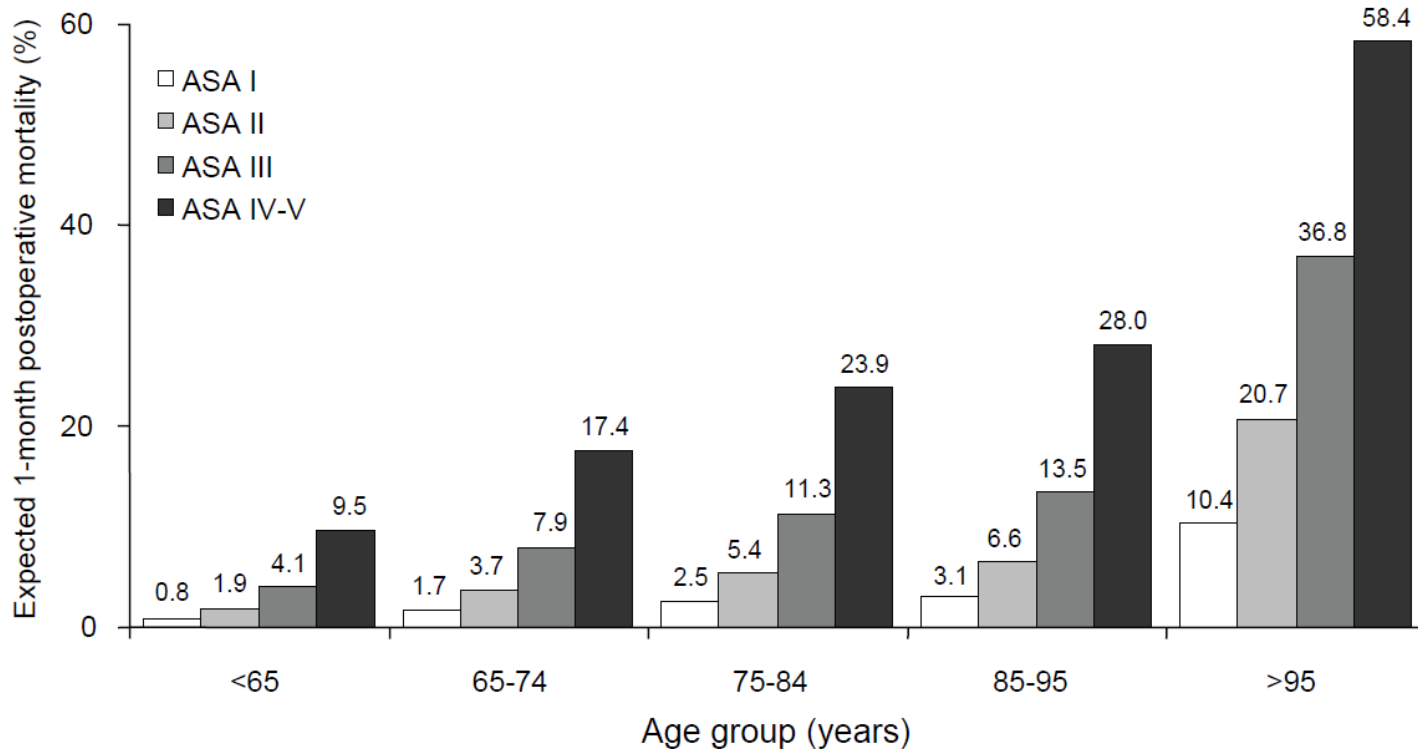
Eur J Cancer. 2007 Oct;43(15):2295-300. Epub 2007 Aug 20. Rutten e.a.  
**Survival of elderly rectal cancer patients not improved: analysis of population based data on the impact of TME surgery.**

Cox regression survival curve for groups based on age-category and randomisation (TME)



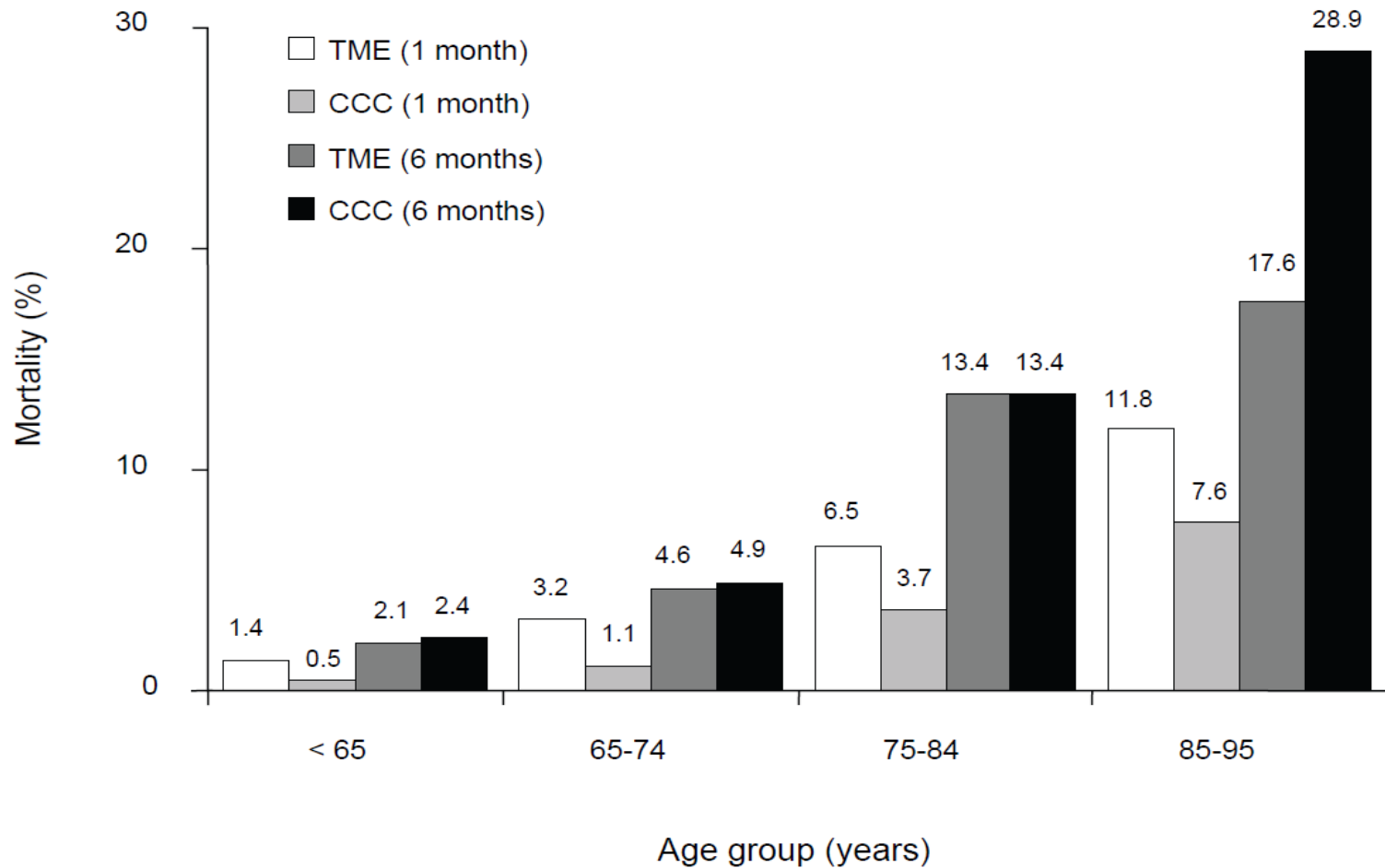
Eur J Cancer. 2007 Oct;43(15):2295-300. Epub 2007 Aug 20. Rutten e.a.  
**Survival of elderly rectal cancer patients not improved: analysis of population based data on the impact of TME surgery.**

# Association of Coloproctology of Great Britain and Ireland score



**Expected 1 month mortality rate after curative surgery stage 2 or 3 rectal cancer.**

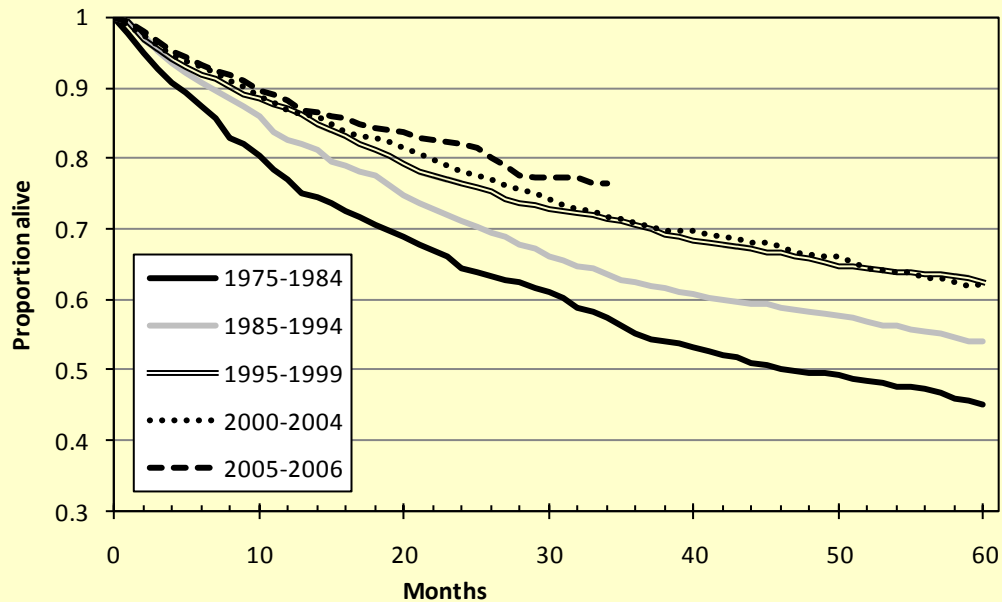
# 1 and 6 month mortality rate in the dutch TME and CCC study



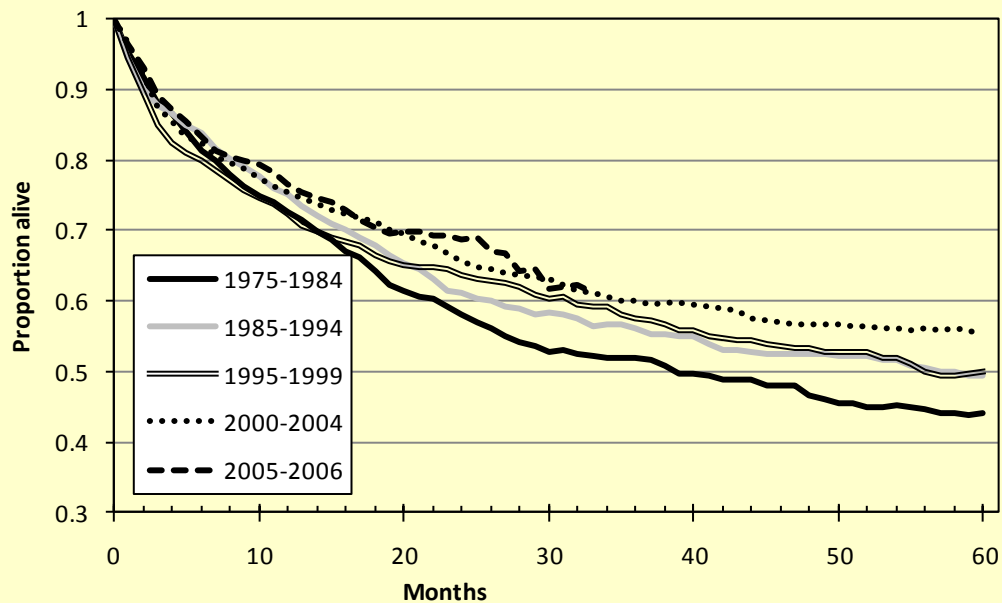
Complication	Prevalence (% per age group)		6-month mortality (% within group with this complication)		RR of 6-month mortality for patients aged ≥75 years compared to <75 years, per complication
	<75 years	≥75 years	<75 years	≥75 years	
<b>Postoperative infections</b>	<b>208 (18.5)</b>	<b>49 (21.3)</b>	<b>19 (9.1)</b>	<b>11 (22.4)</b>	<b>2.46</b>
Abdominal wound infection	69 (6.1)	17 (7.4)	3 (4.3)	2 (11.8)	2.71
Urinary tract infection	96 (8.5)	27 (11.7)	2 (2.1)	3 (11.1)	5.33
Abscess	37 (3.3)	11 (4.8)	1 (2.7)	3 (27.3)	10.09
Sepsis	69 (6.1)	11 (4.8)	15 (21.7)	7 (63.6)	2.93
<b>General postoperative complications</b>	<b>163 (14.5)</b>	<b>49 (21.3)</b>	<b>19 (11.7)</b>	<b>15 (30.6)</b>	<b>2.63</b>
Pulmonary complications	78 (6.9)	27 (11.7)	5 (6.4)	7 (25.9)	4.04
Renal complications	8 (0.7)	2 (0.9)	3 (37.5)	1 (50.0)	1.33
Embolism	17 (1.5)	2 (0.9)	5 (29.4)	1 (50.0)	1.70
Cardiac complications	35 (3.1)	20 (8.7)	6 (17.1)	10 (50.0)	2.92
Line sepsis	18 (1.6)	1 (0.4)	2 (11.1)	0 (0.0)	0

Complication	Prevalence (% per age group)		6-month mortality (% within group with this complication)		RR of 6-month mortality for patients aged $\geq 75$ years compared to $< 75$ years, per complication
	$< 75$ years	$\geq 75$ years	$< 75$ years	$\geq 75$ years	
<b>Postoperative surgical complications</b>	<b>302 (26.8)</b>	<b>61 (26.5)</b>	<b>25 (8.3)</b>	<b>19 (31.1)</b>	<b>3.76</b>
Abdominal wound dehiscence	35 (3.1)	5 (2.2)	3 (8.6)	2 (40.0)	4.67
Perineal wound dehiscence (APR only)	34 (9.5)	10 (14.9)	1 (2.9)	2 (20.0)	6.80
Intestinal necrosis	10 (0.9)	1 (0.4)	4 (40.0)	1 (100.0)	2.50
Ileus	64 (5.7)	18 (7.8)	6 (9.4)	2 (11.1)	1.19
<b>Anastomotic leakage (LAR only)</b>	<b>85 (11.5)</b>	<b>14 (10.1)</b>	<b>7 (8.2)</b>	<b>8 (57.1)</b>	<b>6.94</b>
Bleeding	42 (3.7)	8 (3.5)	6 (14.3)	3 (37.5)	2.63
Stoma complications	23 (2.0)	3 (1.3)	1 (4.3)	2 (66.7)	15.33
Other	52 (4.6)	15 (6.5)	3 (5.8)	3 (20.0)	3.47
<b>Any postoperative complications</b>	<b>471 (41.8)</b>	<b>118 (51.3)</b>	<b>33 (7.0)</b>	<b>27 (22.9)</b>	<b>3.27</b>





*Relative survival among patients with rectal cancer, all stages, younger than 70 years*



survival among patients with rectal cancer, all stages, 70 years or older

Acta Oncol. 2010 Aug;49(6):784-96.

Trends in colorectal cancer in the south of the Netherlands 1975-2007: rectal cancer survival levels with colon cancer survival.

[Lemmens V](#), [van Steenbergen L](#), [Janssen-Heijnen M](#), [Martijn H](#), [Rutten H](#), [Coebergh JW](#).

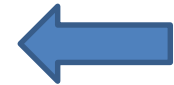
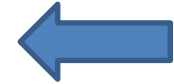
Age	Numbers	RR	CI	p-value	postop mortality %	6-month mortality %
< 61	1179	123	56-275	<i>p</i> < 0.0001	1.1	2.1
61-62-63	354	127	20-806	<i>p</i> < 0.0001	1.1	3.1
64-65-66	401	9.0	6.4-12	<i>p</i> < 0.0001	2.0	4.7
67-68-69	481	4.7	3.7-6.1	<i>p</i> < 0.0001	2.5	6.2
70-71-72	428	3.1	2.5-3.9	<i>p</i> < 0.0001	1.6	4.9
73-74-75	452	2.8	2.2-3.4	<i>p</i> < 0.0001	3.5	8.0
76-77-78	423	1.8	1.5-2.2	<i>p</i> < 0.0001	6.9	13.0
79-80-81	329	1.6	1.3-2.0	<i>p</i> < 0.0001	7.9	14.9
82-83-84	321	1.2	0.9-1.6	<i>p</i> = 0.17	10.4	17.7
85-86-87	169	2.4	1.7-3.2	<i>p</i> < 0.0001	14.8	27.2
88-89-90	71	1.5	0.9-2.5	<i>p</i> = 0.09	18.3	26.8
> 90	31	1.5	0.5-2.5	<i>p</i> = 0.14	25.8	38.7

Lancet Oncol. 2008 May;9(5):494-501.

**Controversies of total mesorectal excision for rectal cancer in elderly patients.**

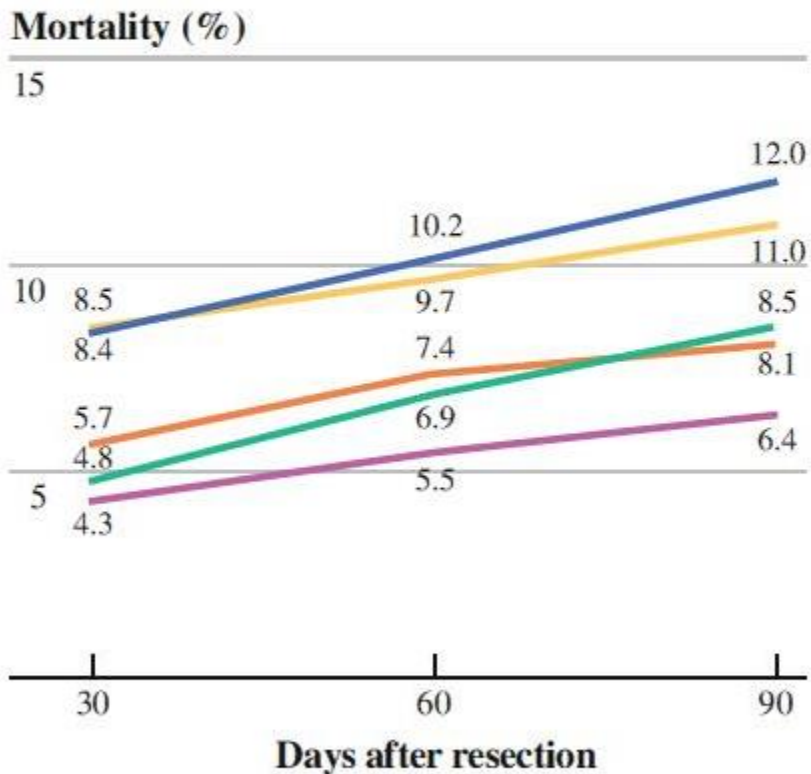
[Rutten HJ](#), [den Dulk M](#), [Lemmens VE](#), [van de Velde CJ](#), [Marijnen CA](#)

cT-Stage	Neo-adj.therapy	N (%) <75 y	N (%) ≥75 y
<b>cT1</b>	no rth	38 (34%)	21 (57%)
	Pre-Rth (short)	56 (51%)	15 (41%)
	Pre-Rth (long)	3 (2,7%)	0 (0%)
	Pre-Chemorad	14 (13%)	1 (3%)
<b>cT2</b>	no rth	91 (15%)	88 (30%)
	Pre-Rth (short)	461 (73%)	190 (64%)
	Pre-Rth (long)	18 (2,9%)	6 (2,0%)
	Pre-Chemorad	59 (9,4%)	24 (4,7%)
<b>cT3</b>	no rth	153 (10%)	115 (21%)
	Pre-Rth (short)	631 (41%)	288 (52%)
	Pre-Rth (long)	117 (7,5%)	39 (7,1%)
	Pre-Chemorad	651 (42%)	109 (20%)
<b>cT4</b>	no rth	31 (9%)	14 (16%)
	Pre-Rth (short)	27 (7,8%)	15 (17%)
	Pre-Rth (long)	34(9,9%)	12 (14%)
	Pre-Chemorad	252 (73%)	45 (52%)

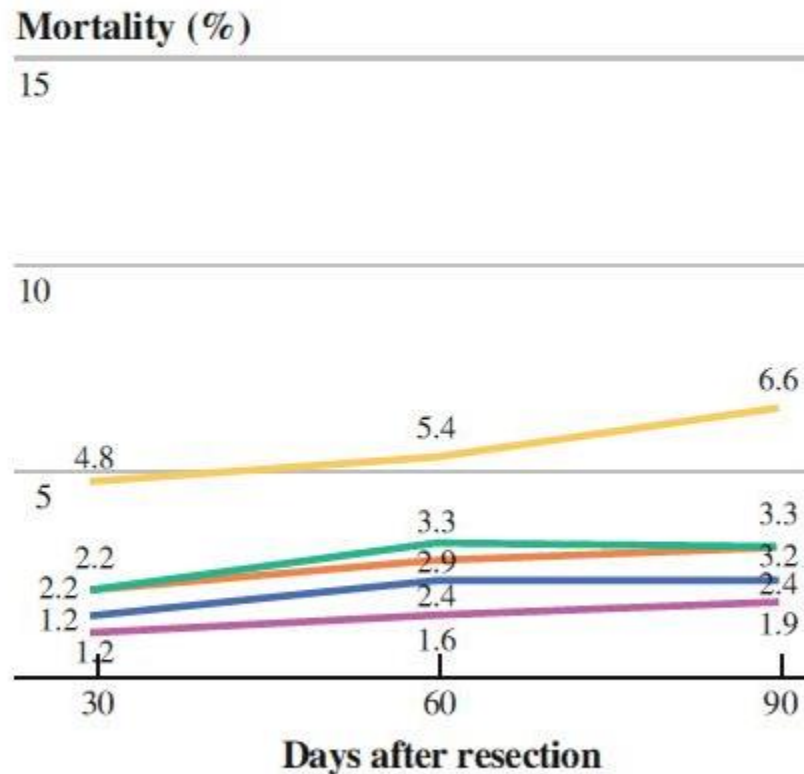


Data DSCA registratie

**a** Percentage 30-, 60-, 90-day postoperative mortality among patients with comorbidity



**b** Percentage 30-, 60-, 90-day postoperative mortality among patients without comorbidity



— Oesophageal cancer    — Periapillary cancer    — Rectal cancer  
— Gastric cancer    — Colon cancer

## Percentage

20

15

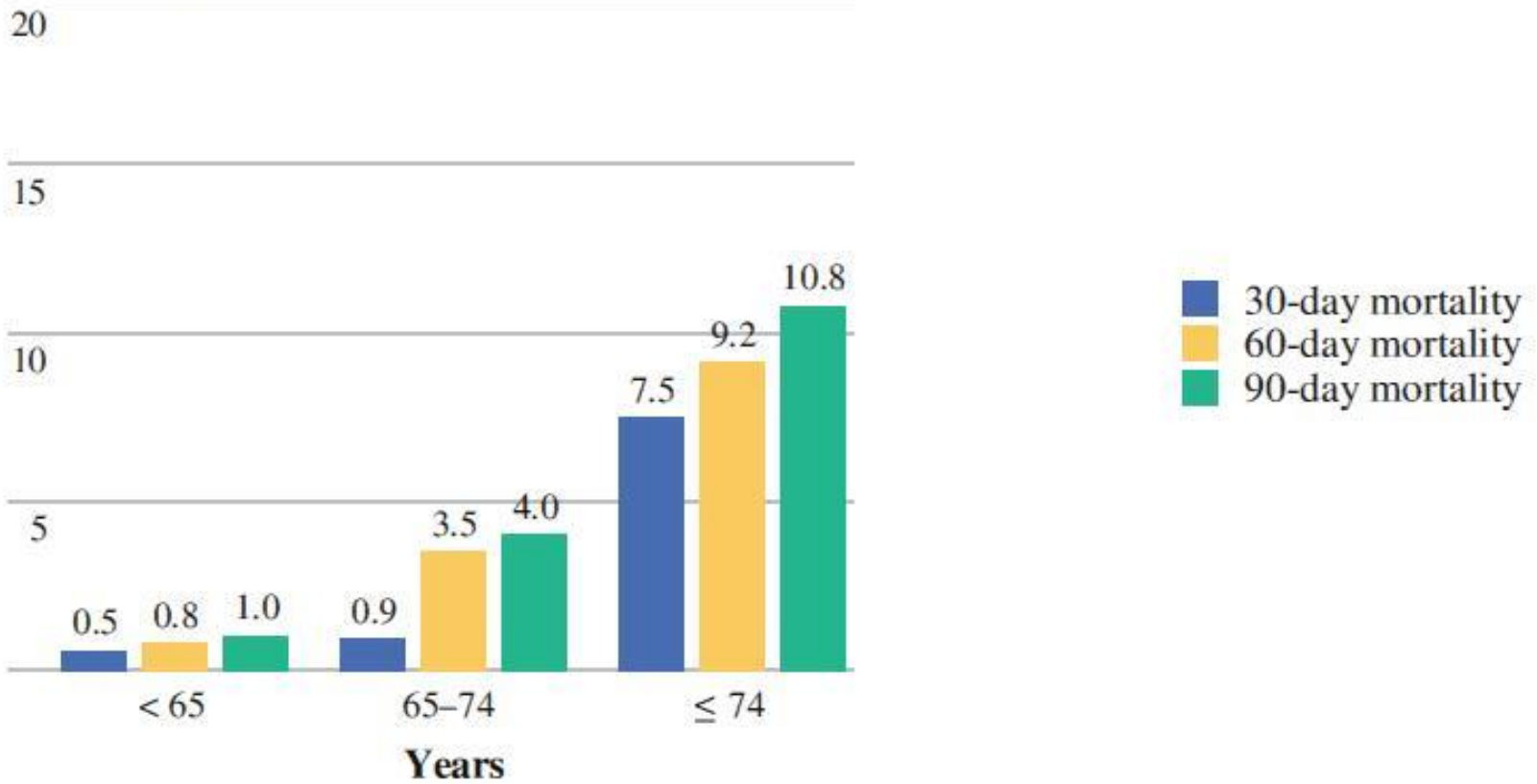
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5



Influence of Comorbidity and Age on 1-, 2-, and 3-Month Postoperative Mortality Rates in Gastrointestinal Cancer Patients. Yvette R. B. M. van Gestel, Valery E. P. P. Lemmens, Ignace H. J. T. de Hingh, Jessie Stevens, Harm J. T. Rutten, e.a. *Annals of Surg Oncol* 2012 in press

## Percentage



Influence of Comorbidity and Age on 1-, 2-, and 3-Month Postoperative Mortality Rates in Gastrointestinal Cancer Patients. Yvette R. B. M. van Gestel, Valery E. P. P. Lemmens, Ignace H. J. T. de Hingh, Jessie Stevens, Harm J. T. Rutten, e.a. Annals of Surg Oncol 2012

ORIGINAL ARTICLE – COLORECTAL CANCER

## Importance of the First Postoperative Year in the Prognosis of Elderly Colorectal Cancer Patients

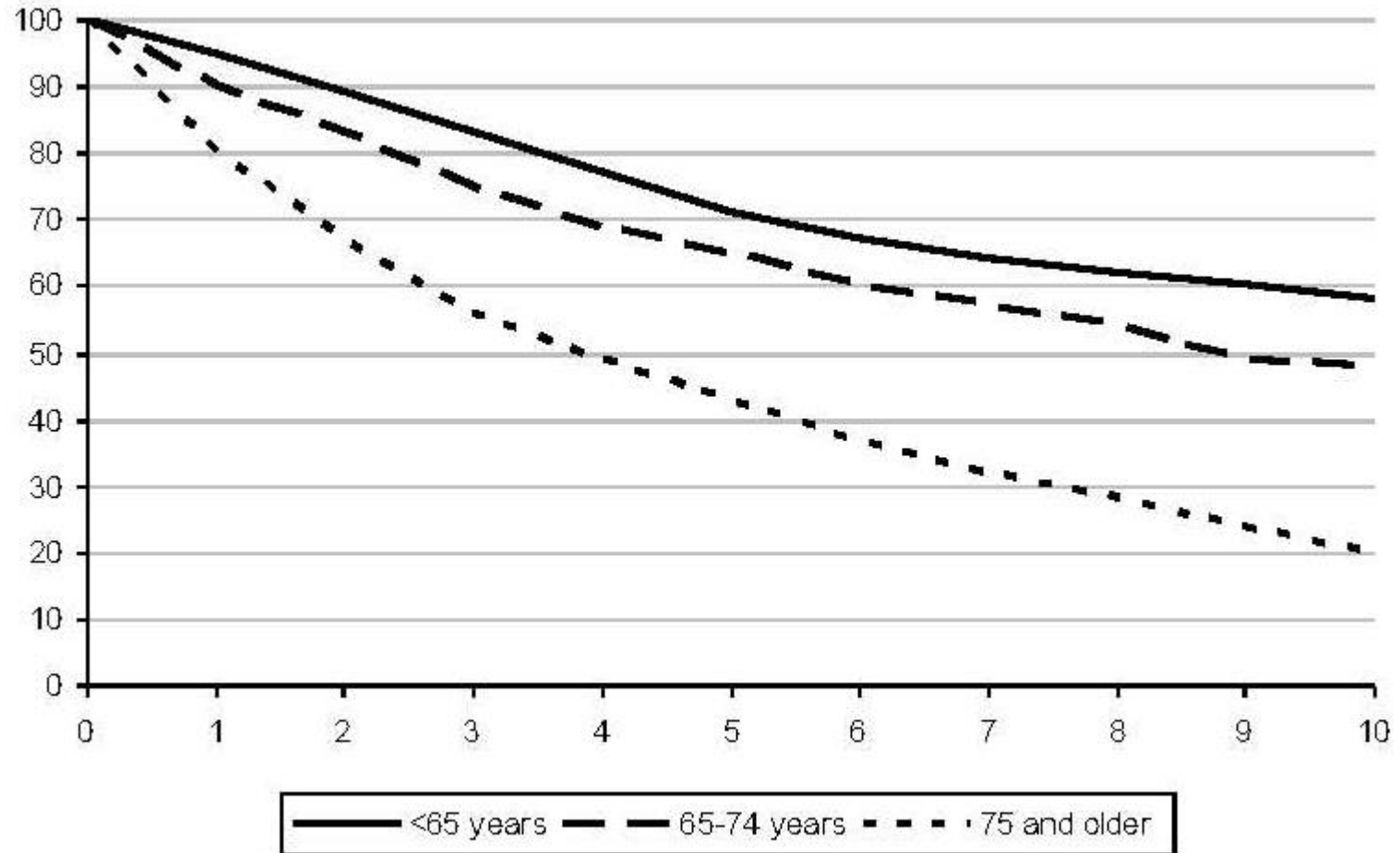
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**TABLE 3** Overall 30-day and 1-year mortality and relative 1-year mortality rates in percentages according to type of tumor

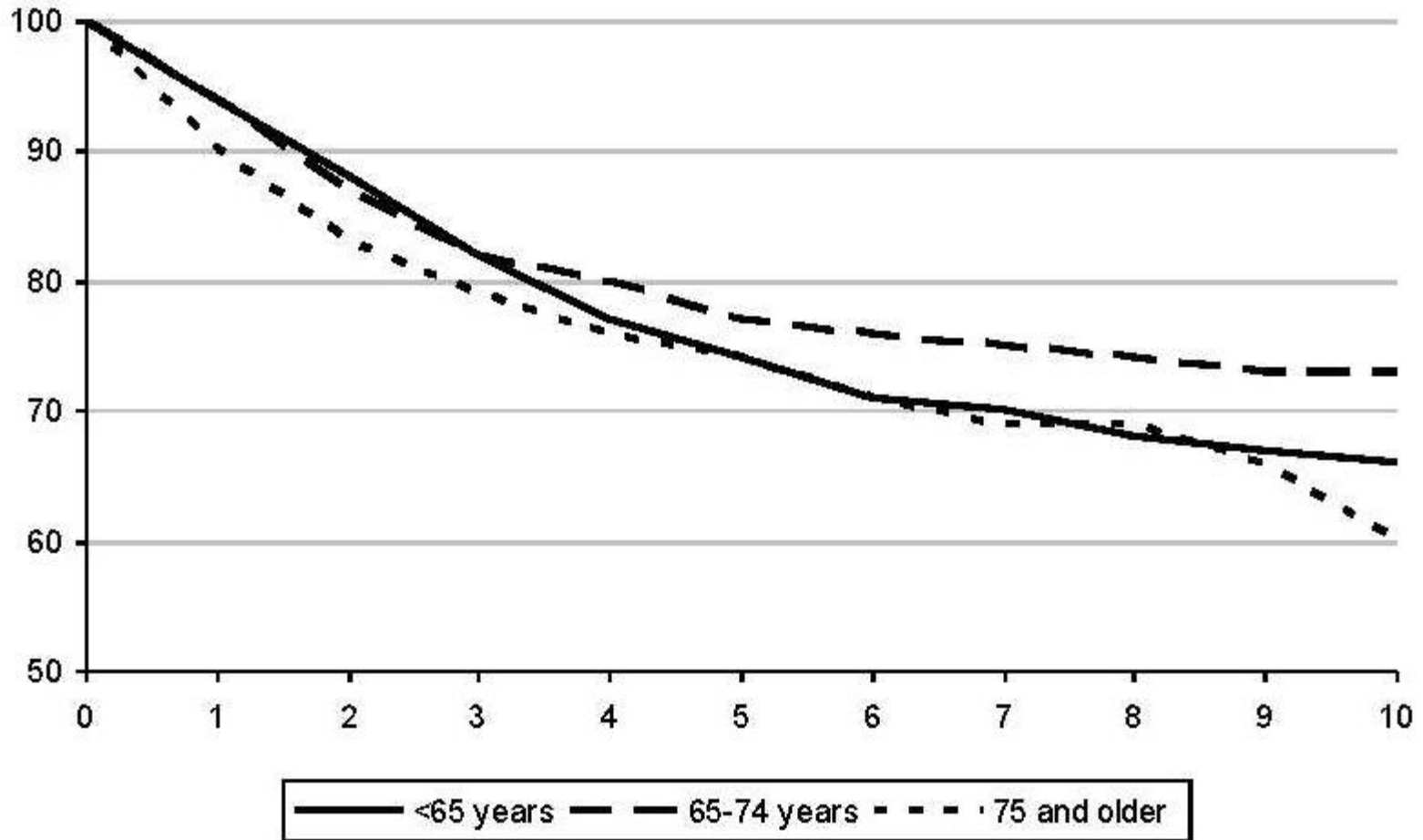
	Colon cancer				Rectal cancer			
	Overall mortality			Excess mortality	Overall mortality			Excess mortality
	<i>N</i>	≤30 days	1st year	1st year	<i>N</i>	≤30 days	1st year	1st year
Sex								
Male	2,976	4.6	15.7	11.3	1,639	2.1	13.2	9.4
Female	3,429	4.1	14.5	10.9	1,353	1.3	9.9	6.9
Age (years)								
<65	1,740	1.4	6.8	6.1	1,047	0.2	5.1	4.4
65–74	1,916	2.4	10.8	8.5	892	1.4	9.5	7.2
≥75	2,749	7.5	23.2	16.0	1,053	3.7	20.1	13.1



## Overall Survival by Age Group



## Conditional (survival at least the first postop year) Relative Survival



## Key Points

1. Leeftijd, maar meer nog de fysiologische aan leeftijd gerelateerde veranderingen zijn onafhankelijke prognostische factoren.
2. Co-morbiditeit is een goed herkenbare prognostische factor, maar de vraag is in hoeverre optimalisatie bijdraagt tot een betere uitkomst
3. Acute chirurgie is een zeer negatieve prognostische factor en moet vermeden dan wel geminimaliseerd worden
4. Ouderen vormen een zeer heterogene groep en dwingen tot geïndividualiseerde behandelplannen
5. Bestaande richtlijnen mogen dan wel evidence based zijn, maar er is weinig evidence over de juiste behandeling van oudere patiënten met darmkanker
- 6 Shared decision making is belangrijk, maar de keuzes van de oudere patiënt moeten leidend zijn

# Darmkanker op leeftijd

nieuwe inzichten

Bedankt

