

OUTCOME OF CYTORERUCTIVE SURGERY AND HIPEC A DANISH EXPERIENCE

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AARHUS –DENMARK???

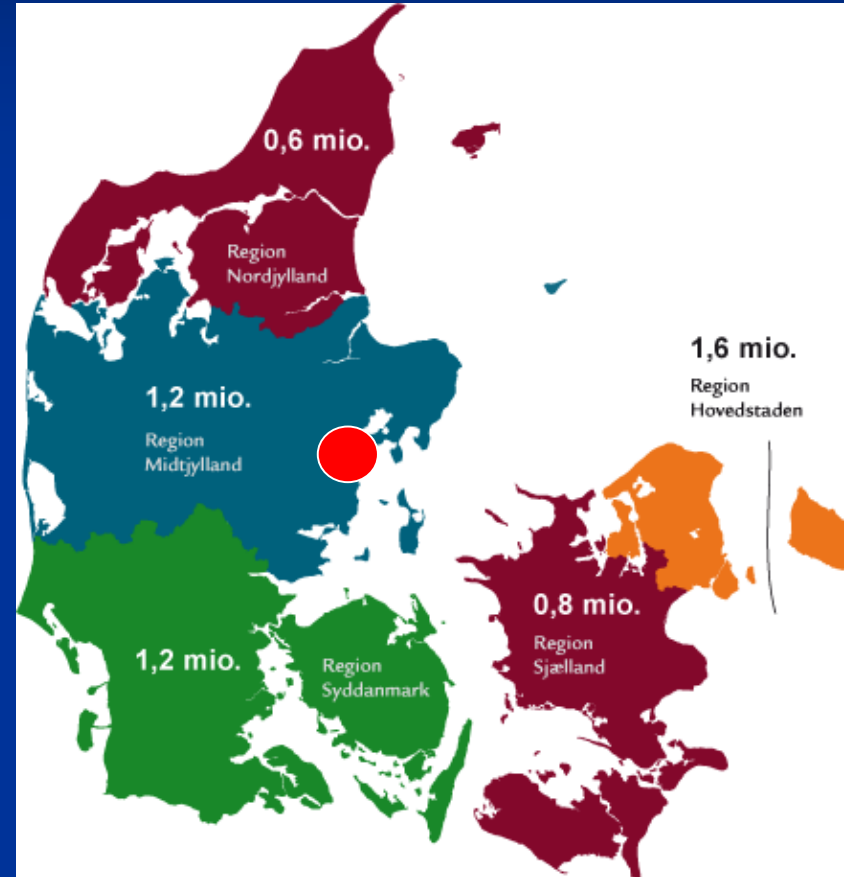
350.000

5.5 million

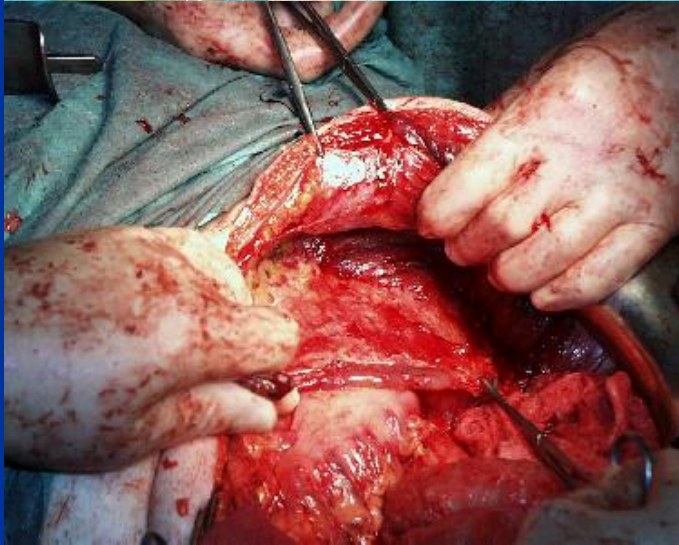
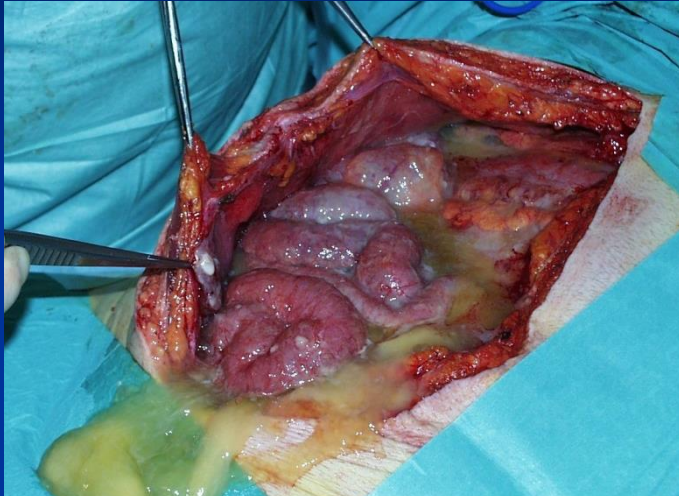


HEALTH CARE DK

- Public-free
- Tax payed
- 5 regions
- NATIONAL BOARD OF HEALTH
 - CRS+HIPEC
 - Higly specialized
 - 1 site



CRS



HIPEC



History DK

- 2000
 - Patient with pseudomyxoma peritonei (?????)
- “Moses and the mountain”
 - Simon Ambrose (Leeds) came to AUH
 - A lot of fun
- CRS for pseudomyxoma peritonei
 - 2001- May 2006, n = 24
 - WE NEED HIPEC
- May 2006, on-visit in Amsterdam, all staff
 - Franz Zoetmulder and Vic Verwaal
 - FZ visited Aarhus-a lot of fun
- June 2006
 - 1st CRS and HIPEC at AUH by PCR and SL

British Journal of Surgery 1998, 85, 1332–1339

Review

Pseudomyxoma peritonei

F. L. HINSON and N. S. AMBROSE

Department of General Surgery, St James's University Hospital, Beckett Street, Leeds LS9 7TF, UK
Correspondence to: Mr N. S. Ambrose

Annals of Surgical Oncology, 11(4):375–379
DOI: 10.1245/ASO.2004.08.014

Recurrences after Peritoneal Carcinomatosis of Colorectal Origin Treated by Cytoreduction and Hyperthermic Intraperitoneal Chemotherapy: Location, Treatment, and Outcome

Vic J. Verwaal, MD, Henk Boot, MD, PhD, Berthe M. P. Aleman, MD,
Harm van Tinteren, MSc, and Frans A. N. Zoetmulder, MD, PhD

Historical view cont

■ Dedicated team

- Surgeons (PCR, SL, LI, MØ, VV)
 - Anesthesiologists and nurses
 - OR nurses
 - Ward nurses
 - Radiologist
-
- Recommended by the National Cancer Steering Group 2007
 - National guidelines (DCCG) 2009, 2012, rev 2015
 - Prospective and continuous monitoring and auditing from day 1

Indications for CRS+HIPEC - Aarhus

- Limited and resectable PC from colorectal cancer and small bowel adenocarcinoma
- Pseudomyxoma peritonei
- Limited and resectable PC from appendix cancer
 - Incl. goblet cell carcinoid
- Malignant peritoneal mesothelioma

Criteria for exclusion - Aarhus

- Physiologic age >70-75 years
- ASA \geq III, performance \geq 2
- Distant metastases
 - \geq 4 hepatic metastases
 - >3 cm hepatic metastases
 - >2 lung metastases
 - Other distant metastases (excl wound)
- Diffuse involvement of the small bowel or its mesentery

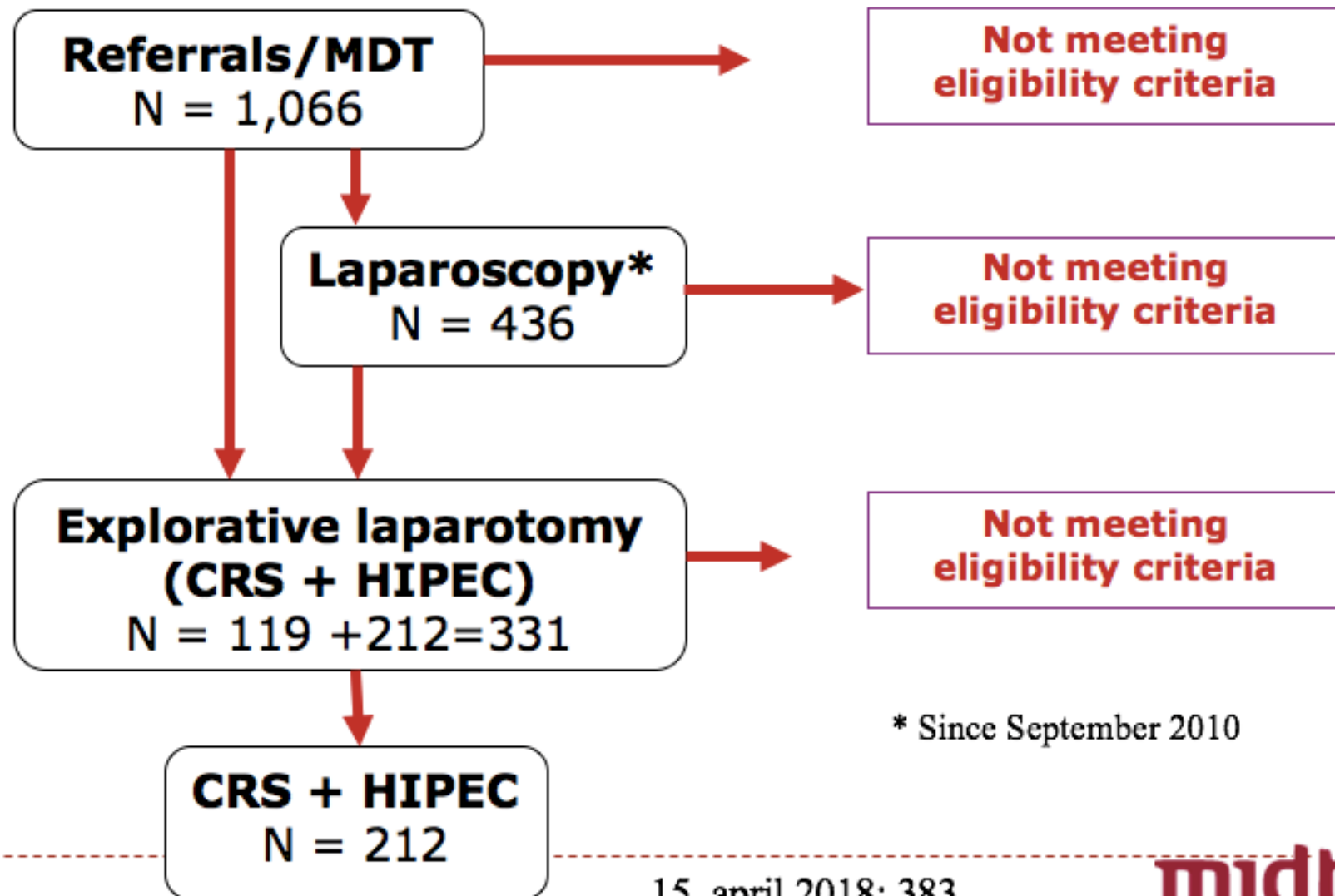


Criteria for exclusion ct. - Aarhus

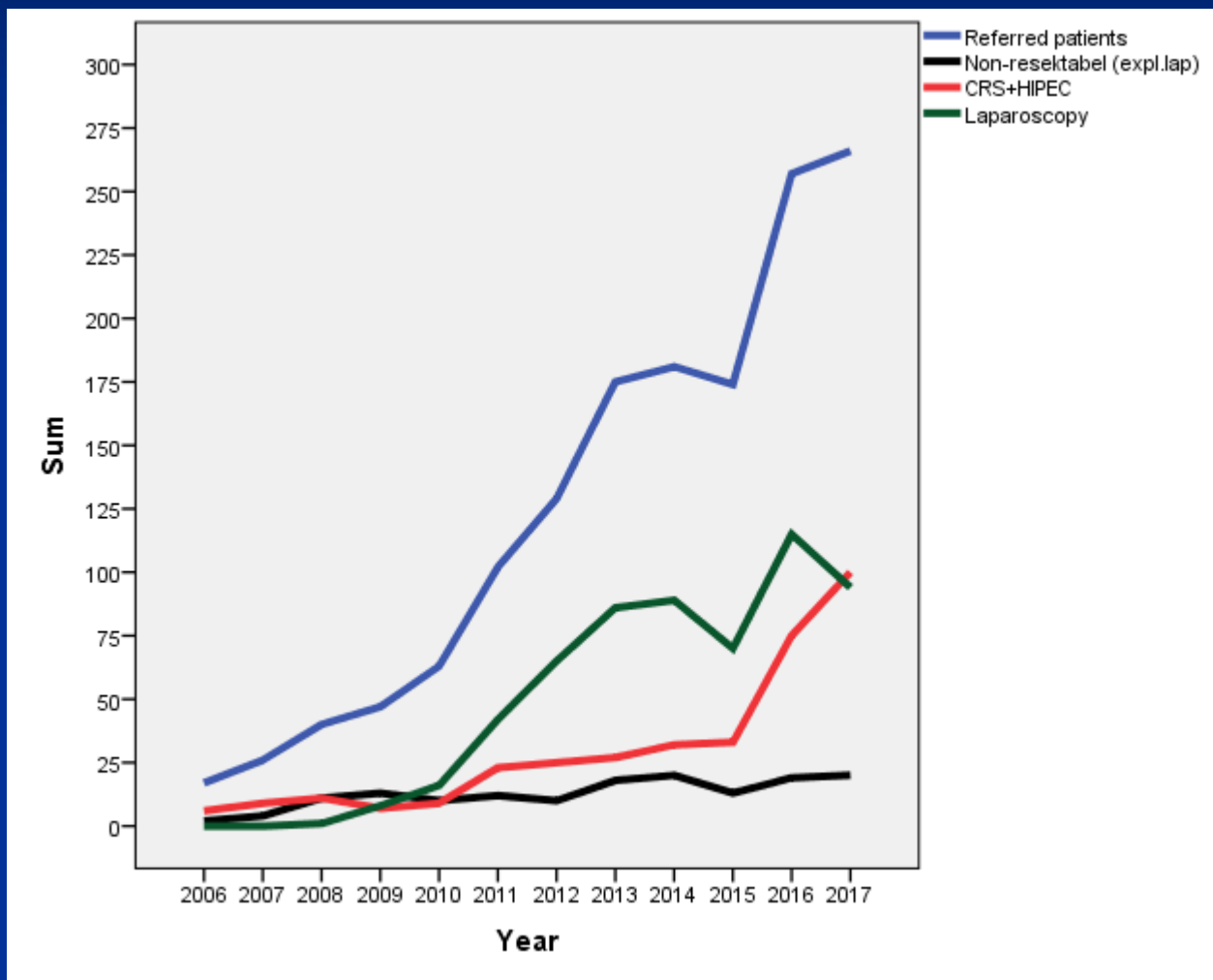
- Non-resectable PC
 - Portal vein – biliary obstruction
 - Pancreas (caput (corpus))
- For PC from CRC and appendix cancer
 - PCI >15 (17) (≥ 12 if liver metastases)
 - PC extent in ≥ 6 of 7 regions (Dutch 7 Region Count Score)

Flow chart - Aarhus experience

June 2006 – June 2016

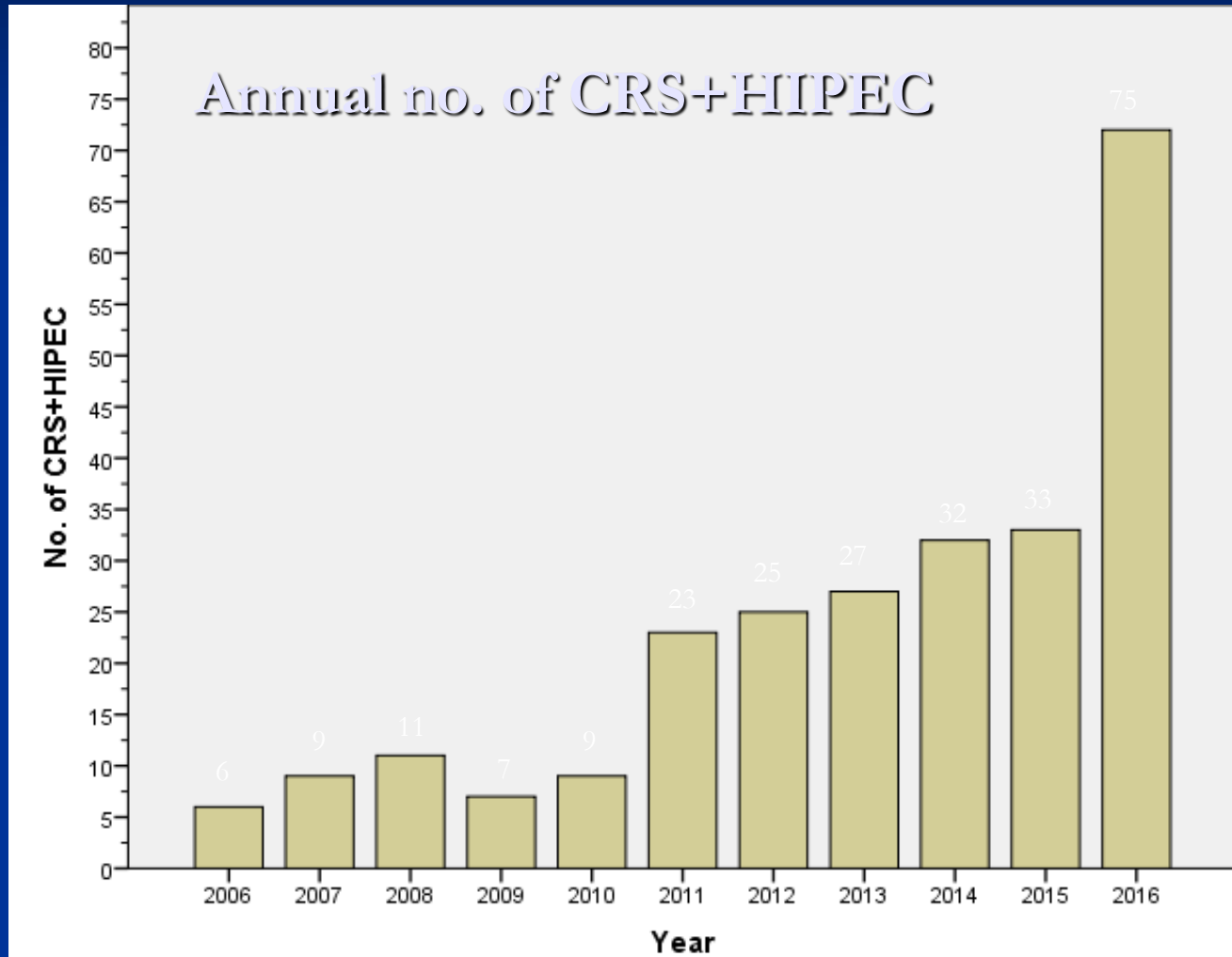


Patient flow over time - Aarhus



10 yrs. to
implement new
treatment ?

Annual number of performed CRS+HIPEC - Aarhus



No. of surgeons:
(2) – 3

No of CRS+HIPEC
in 2017:
98

STATUS 01.06.2006 - 31.08.2017 - DK

- 320 cases (~1500 evaluted AUH)

PC-CRC	Pseudo-myxom	PC-Appendix	MPM	PC-small intestine	total
177 (55%)	80 (25%)	48 (15%)	14 (4%)	1 (<1%)	320

Extent of surgery - Aarhus experience

- Operations – complete cytoreduction is achieved in all
 - $n = 127$ (60%) had ≥ 1 peritonectomy procedure
 - $n = 138$ (65%) had ≥ 1 colo-rectal resection
 - $n = 59$ (28%) got a stoma
 - $n = 31$ (15%) had a splenectomy
 - $n = 86$ (63%) had (hystero)-salpingo-oophorectomy
- Duration of surgery*
 - 330 (240 – 1,000) min ~ almost 6 hours
- Intraoperative blood loss*
 - 350 (0 – 12,600) ml



* Median (range)

Mortality:CRS+HIPEC

- 30-days: 0.3% (1/320)
- 90-days: 0.7% (2/305)

Morbidity - Aarhus experience

■ Postoperative complications (in-hospital)

Until June 2016

■ Surgical

■ Wound dehiscence (re-operation):	8	(2 after 6 wks)
■ Intraabdominal abscess	6	
■ Bleeding (re-operation):	4	
■ Secretion by vagina/rectal stump	4	(2 after discharge)
■ Anastomotic leak	3	(2 re-operation)
■ Bleeding ulcer	3	
■ Hepatic haematoma	2	
■ Intestinal fistula	1	
■ Diaphragmatic rupture (after resec)	1	
■ Pancreatic fistula	1	
■ Leak from aberrant bile duct	1	
■ Tamponade of the bladder	1	
■ Wound infection	1	
■ Ileus (re-operation)	1	(after discharge)

Morbidity - Aarhus experience

■ Postoperative complications (in-hospital)

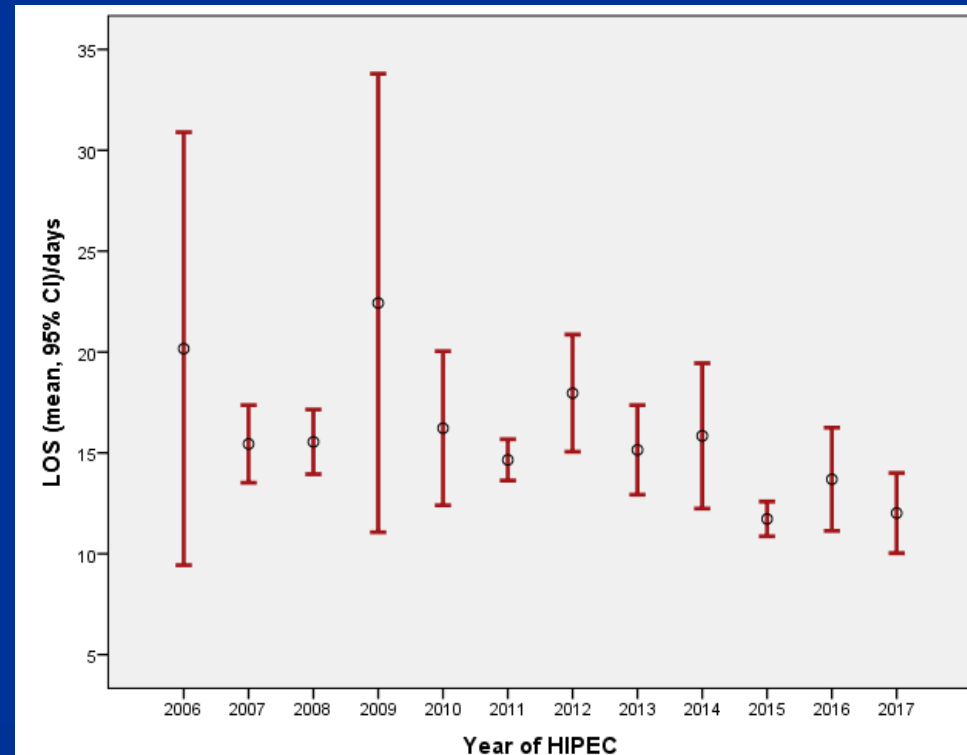
Until june 2016

■ Medical

■ UTI	19	(2 upper UTI)
■ Pneumonia	18	
■ Febrilia e cause	18	
■ Pleural effusion (drainage)	18	
■ LE	6	(1 after 8 wks.)
■ AFLI	4	
■ AV-block (pacemaker, institio cordis)	2	
■ Elevated liver enzymes (transient)	2	(after discharge)
■ Nadir (Neutropen)	1	
■ Thrombosis v. mes inf	1	
■ Dialysis (transient)	1	

Length of stay

- Median (range) : 13 days (5-84)
- Referred to local hosp: 27,8%

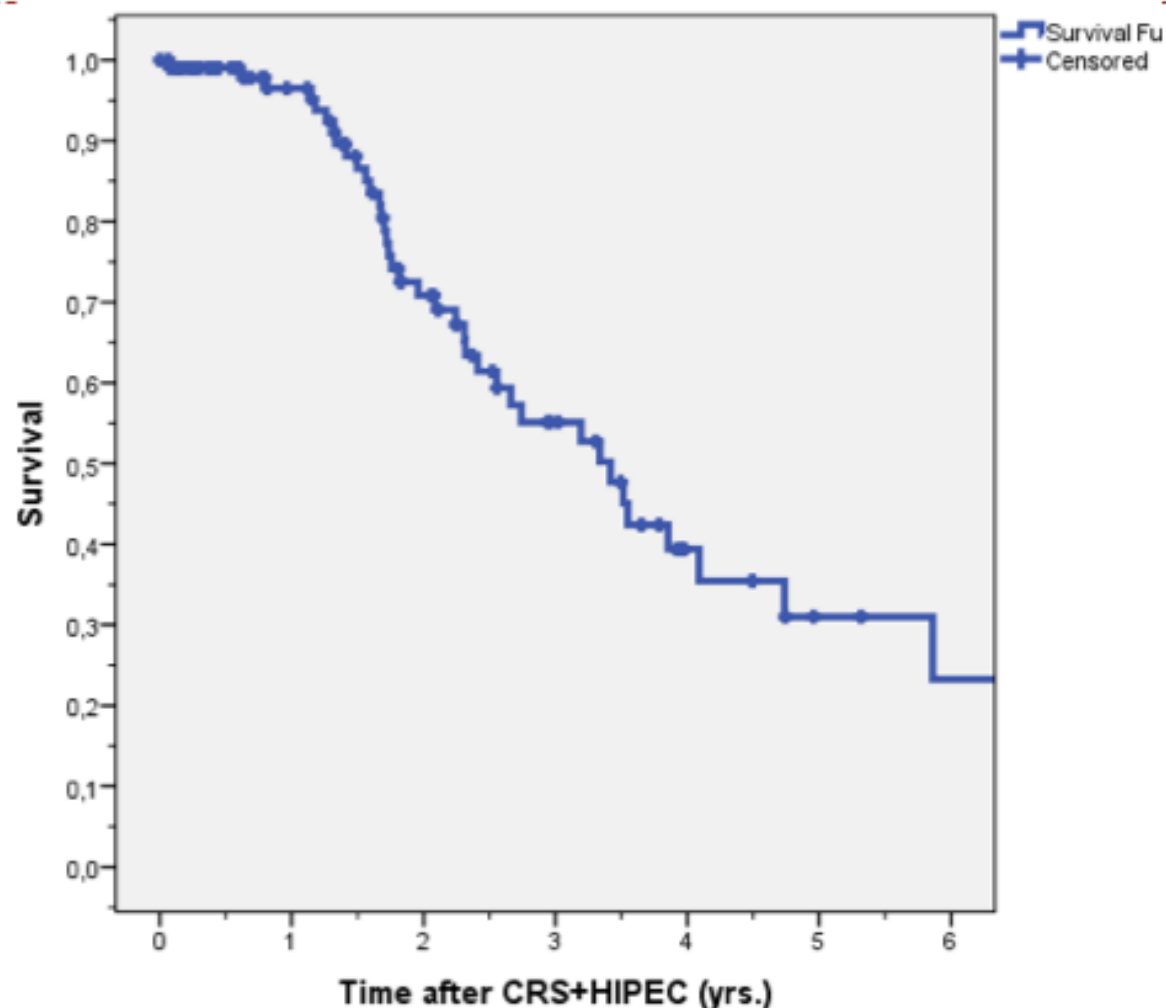


Survival CRC, Aarhus

N = 107

June 2016:

Median FU:
2.2 (1.6-2.9) yr



Median survival:
3.4 (2.6-4.3) yr.

2-yr survival:
71%

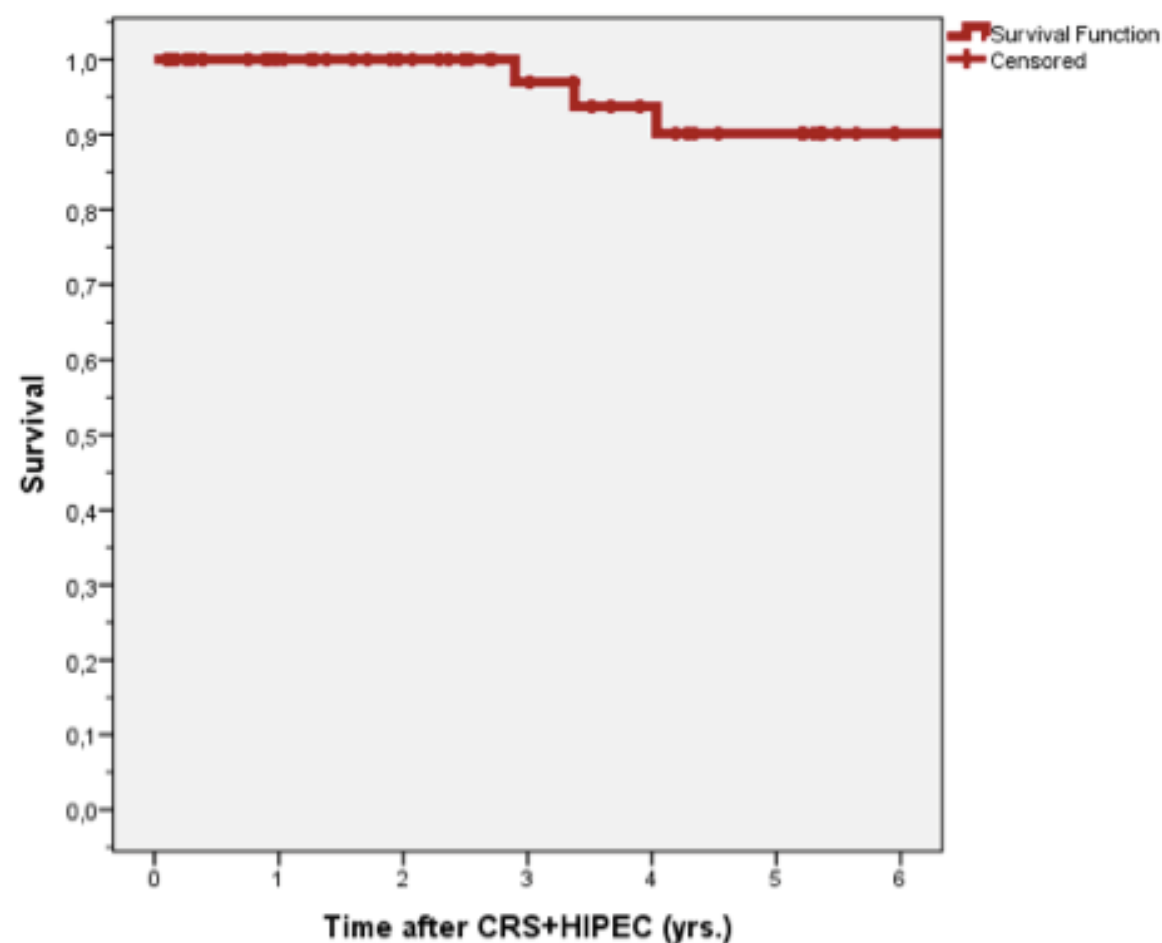
3-yr survival:
55%

Numbers at risk 106 72 42 24 10 5 3

Survival PMP, Aarhus

N = 59 June 2016

Median FU: 3.5 (1.8-5.3) yr.



Median survival:
Not reached

3-yr survival:
97%

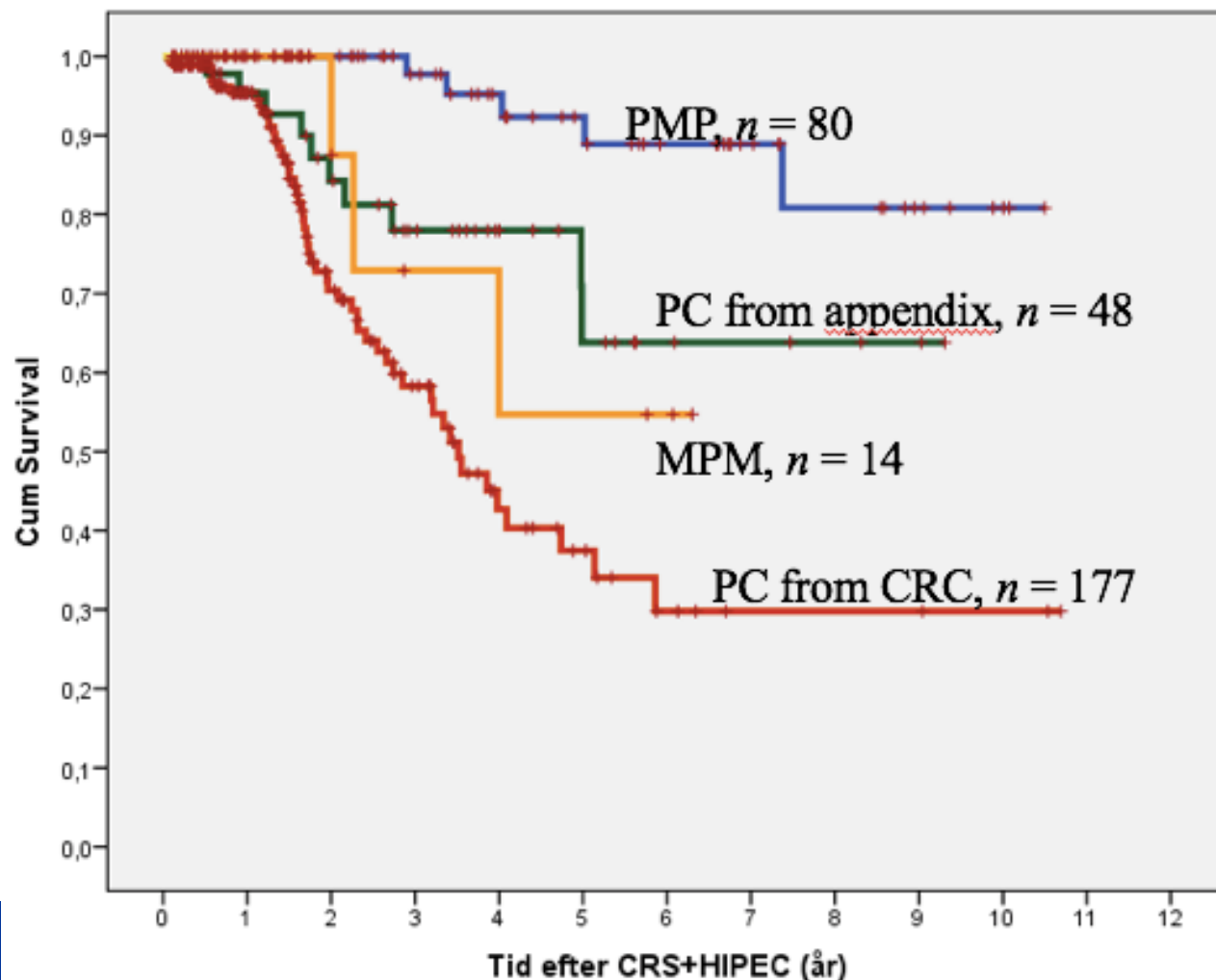
5-yr survival:
90%

Numbers at risk

59 48 40 32 26 21 11

SURVIVAL – Aarhus ($n = 320$)

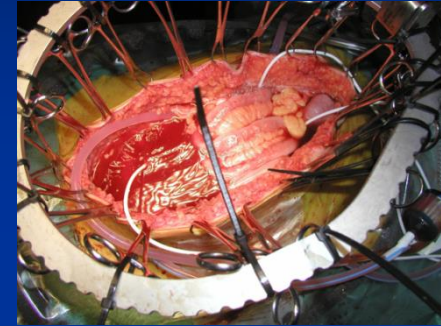
Overlevelse – Aarhus ($n = 320$)



Opgjort okt. 2017

Conclusion

- Implementation of new treatment regimens takes time - ~10 yrs ?
- CRS+HIPEC was associated with
 - Moderate-high morbidity (42%). BUT
 - Low 30-day mortality (0.3%)
- Long-term survival was achieved for patients with PC-CRC:
 - 2-yr survival 71% and 3-yr survival 55%
- CRS+HIPEC for PMP is associated with an excellent outcome
 - 5-yr survival 90%
- An effective and valuable treatment in selected patients

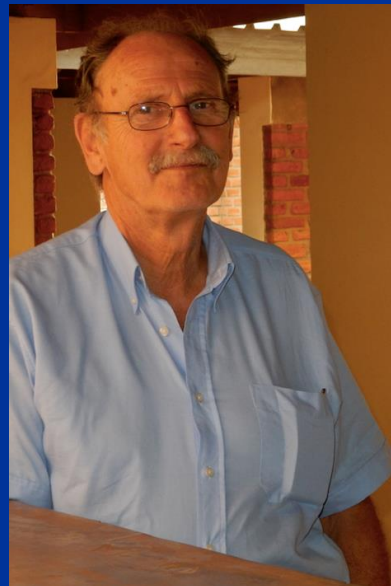


LESSON LEARNED

CRS AND HIPEC

- EXCELLENT OUTCOME in DK
 - Dedicated multidisciplinary team
 - Help from friends

Collaboration



Future ?

- Relaxing the exclusion criteria, thus allowing
 - Hepatic metastases ≤ 3
 - Size of hepatic metastases ≤ 3 cm
 - If intended curative therapy is possible
- Mitomycin C replaced by oxaliplatin ?
- Patient involvement
 - PMP patient Facebook group
 - PhD-studies
- Ovarian cancer ??
 - New area, supporting our gynecologists

