UniversityHospital Heidelberg

Source Control: How important is it in the treatment of intra-abdominal infection?

C. M. Seiler

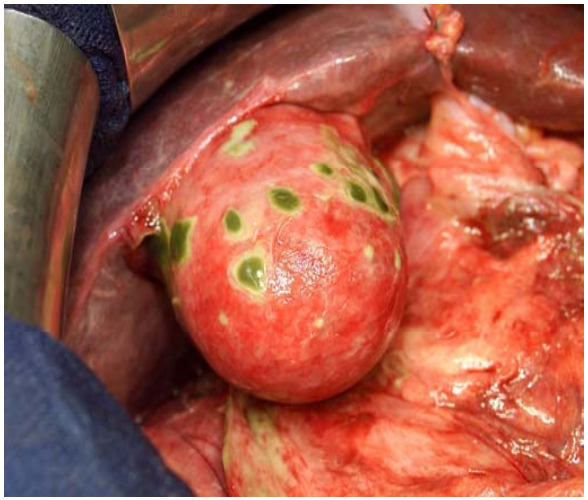
Department of Surgery

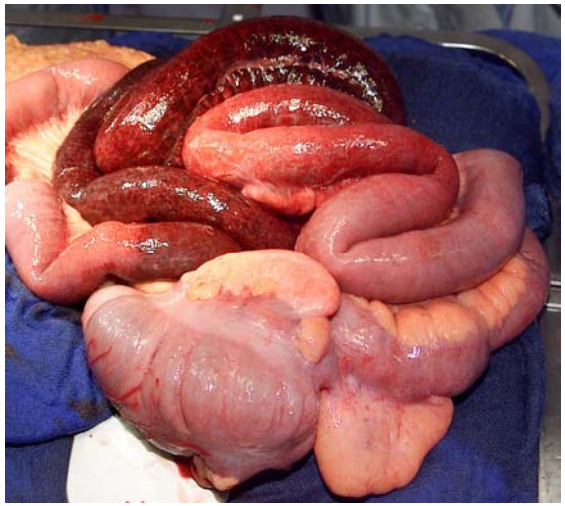
Mikulicz 1889

Early operation

Elimination of focus

Lavage





Mikulicz J. :
Weitere Erfahrungen über die operative Behandlung der Perforationperitonitis.

Definitions

- Abscess: Localized focus of infection with a capsule
- Secondary Peritonitis: Generalized infection
  - Perforation
  - Postoperative
  - Posttraumatic

Need for Source Control?

History

Physical Exam

Radiology

Lab

Patient orientated approach!

Marshall J C et al.
Source control in the management of severe sepsis and septic shock: an evidence-based review

Source Control – Key Strategies

- Abscess
- Gallbladder/Appendix
- Stomach/Duodenum
- Small and large bowel

➢ Drainage
➢ Resection
➢ Debridement and Suture
➢ Debridement and Anastomosis
  – Stoma
- (Removal of Devices)

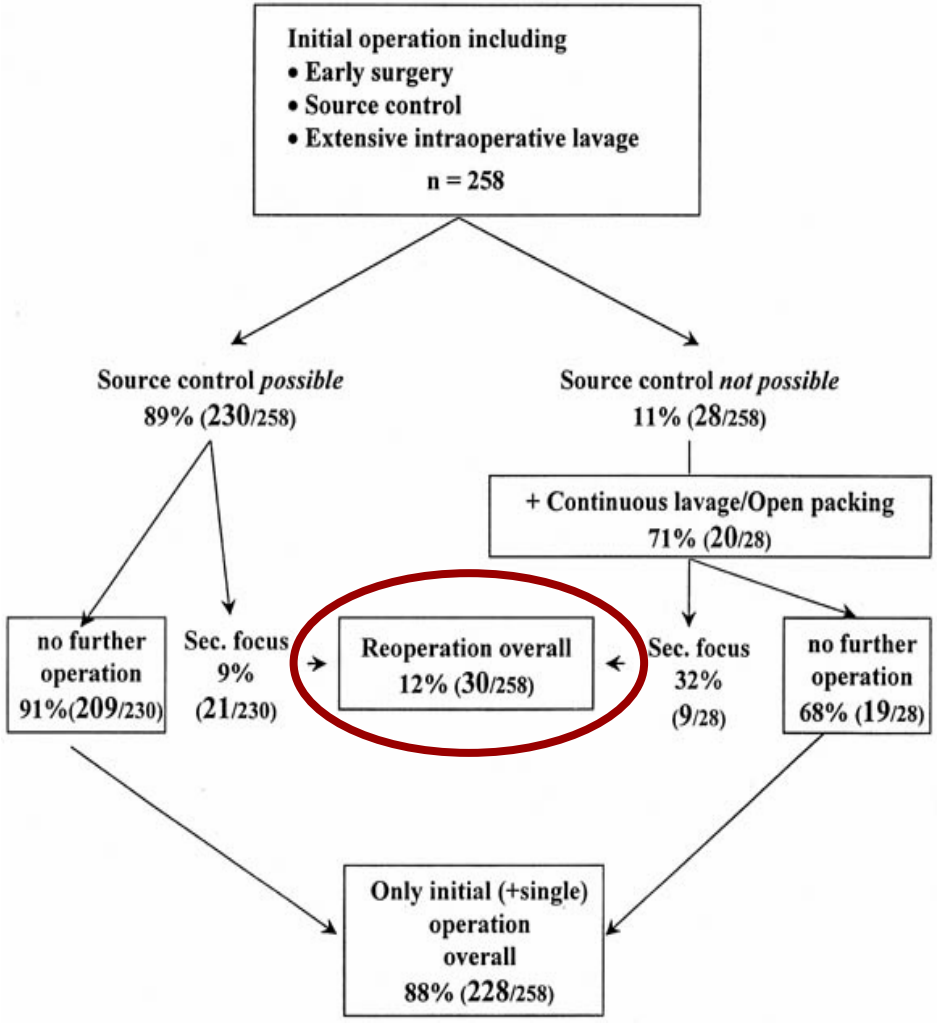
Marshall J C et al.
Source control in the management of severe sepsis and septic shock: an evidence-based review

How important is it?

- 258 patients with diffuse peritonitis
- Source control not possible
  - 28/258 patients 11 %
- Mortality
  - Source control **not** possible: 27 %
  - Source control possible : 13 % (p<0,05)

Seiler C.A. et al.
Conservative surgical treatment of diffuse peritonitis

Conservative treatment of diffuse peritonitis



Seiler C.A. et al.
Conservative surgical treatment of diffuse peritonitis

Peritonitis treatment in Heidelberg

- 100 patients/year with secondary peritonitis (22% perf. Colonic diverticulitis)
- Multidisciplinary team
- Evidence-based treatment through participation in randomized trials (50 patients since 01.12.2002)
- Published standards of treatment algorithms

Seiler C M et al.
Center for Clinical Studies in a Surgical Department – An Approach for more Evidence-Based Medicine.

How should we control the source?

Multicentre, randomized clinical trial of primary *versus* secondary sigmoid resection in generalized peritonitis complicating sigmoid diverticulitis

G. Zeitoun, A. Laurent, F. Rouffet*, J.-M. Hay, A. Fingerhut†, J.-C. Paquet‡, C. Peillon§ and the French Associations for Surgical Research

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Correspondence to: Dr G. Zeitoun, Service de Chirurgie Digestive, Hôpital Louis Mourier (AP-HP), 178 Rue des Renouillers, 92701 Colombes Cedex, France

British Journal of Surgery 2000 (87) 1366-1374

Postoperative Peritonitis

source control 1 out of 55

no source control 10 out of 48

$p < 0.01$

Resection is a must during first operation !

Acute Colonic Diverticulitis

- Sytematic Review and Meta-Analysis
- 15 retrospective studies with 963 patients

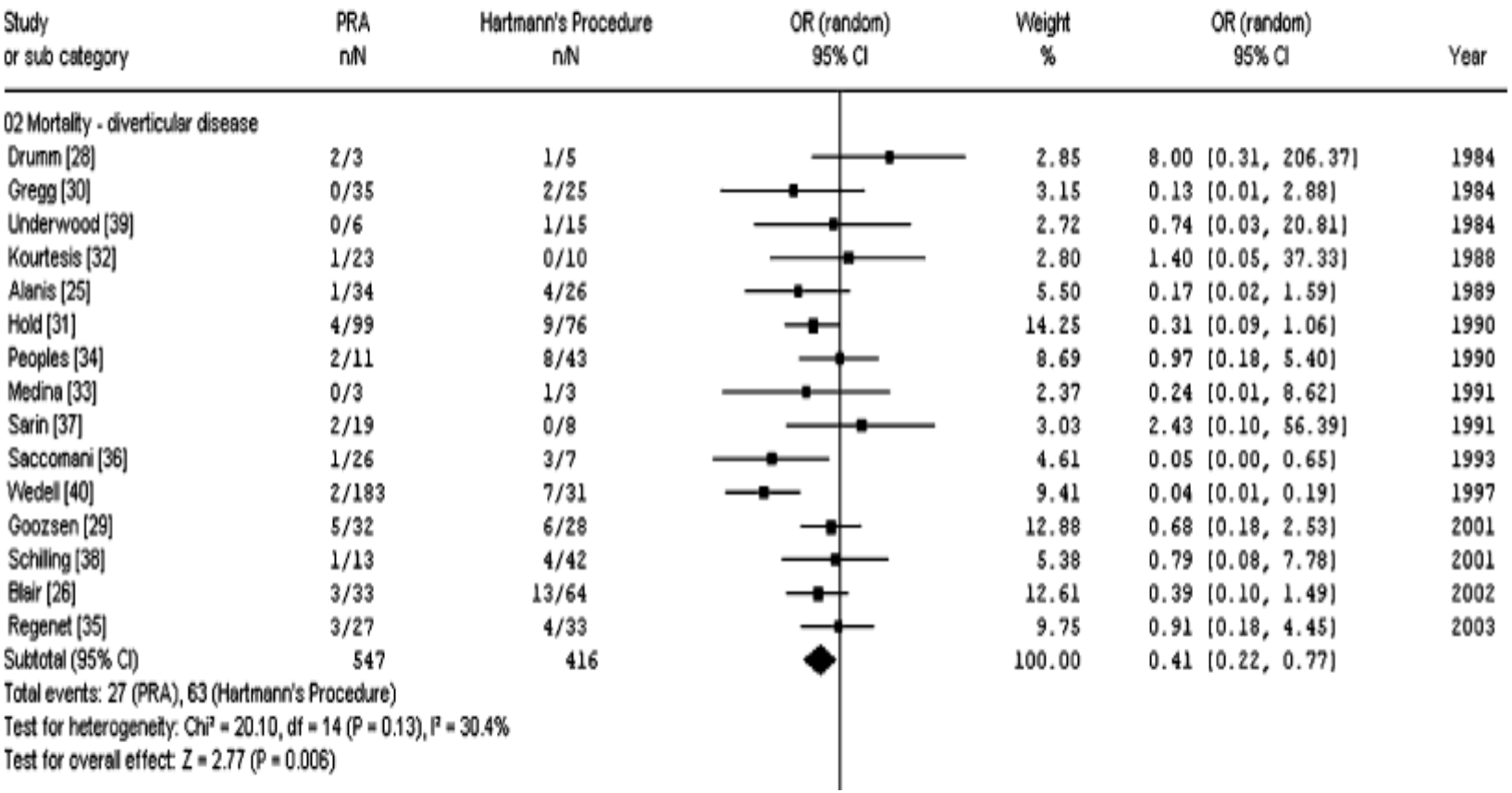
Primary Resection with Anastomosis

versus

Hartmann´s Procedure

Constantinides VA et al.
Primary resection with anastomosis vs. Hartmann's procedure in nonelective surgery for acute colonic diverticulitis: a systematic review.

Mortality

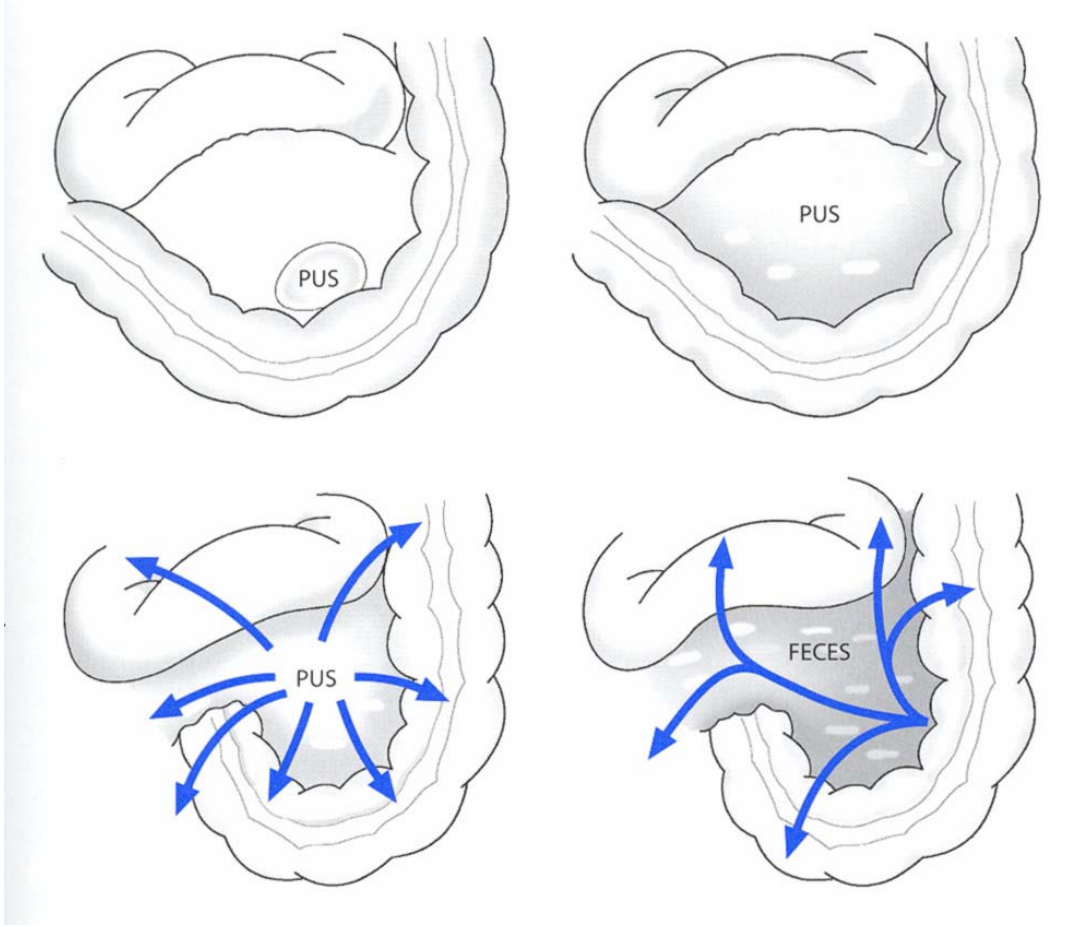


Study or sub category	PRA n/N	Hartmann's Procedure n/N	OR (random) 95% CI	Weight %	OR (random) 95% CI	Year
02 Mortality - diverticular disease						
Drumm [28]	2/3	1/5		2.85	8.00 [0.31, 206.37]	1984
Gregg [30]	0/35	2/25		3.15	0.13 [0.01, 2.88]	1984
Underwood [39]	0/6	1/15		2.72	0.74 [0.03, 20.81]	1984
Kourtesis [32]	1/23	0/10		2.80	1.40 [0.05, 37.33]	1988
Alanis [25]	1/34	4/26		5.50	0.17 [0.02, 1.59]	1989
Hold [31]	4/99	9/76		14.25	0.31 [0.09, 1.06]	1990
Peoples [34]	2/11	8/43		8.69	0.97 [0.18, 5.40]	1990
Medina [33]	0/3	1/3		2.37	0.24 [0.01, 8.62]	1991
Sarin [37]	2/19	0/8		3.03	2.43 [0.10, 56.39]	1991
Saccomani [36]	1/26	3/7		4.61	0.05 [0.00, 0.65]	1993
Wedell [40]	2/183	7/31		9.41	0.04 [0.01, 0.19]	1997
Goozsen [29]	5/32	6/28		12.88	0.68 [0.18, 2.53]	2001
Schilling [38]	1/13	4/42		5.38	0.79 [0.08, 7.78]	2001
Blair [26]	3/33	13/64		12.61	0.39 [0.10, 1.49]	2002
Regenet [35]	3/27	4/33		9.75	0.91 [0.18, 4.45]	2003
Subtotal (95% CI)	547	416		100.00	0.41 [0.22, 0.77]	
Total events: 27 (PRA), 63 (Hartmann's Procedure)						
Test for heterogeneity: $Chi^2 = 20.10$, df = 14 (P = 0.13), $I^2 = 30.4\%$						
Test for overall effect: Z = 2.77 (P = 0.006)						

4.9% versus 15.1% (Odds ratio 0.41) in favour of primary resection with anastomosis

Constantinides VA et al.

Hinchey Classification



Stage I

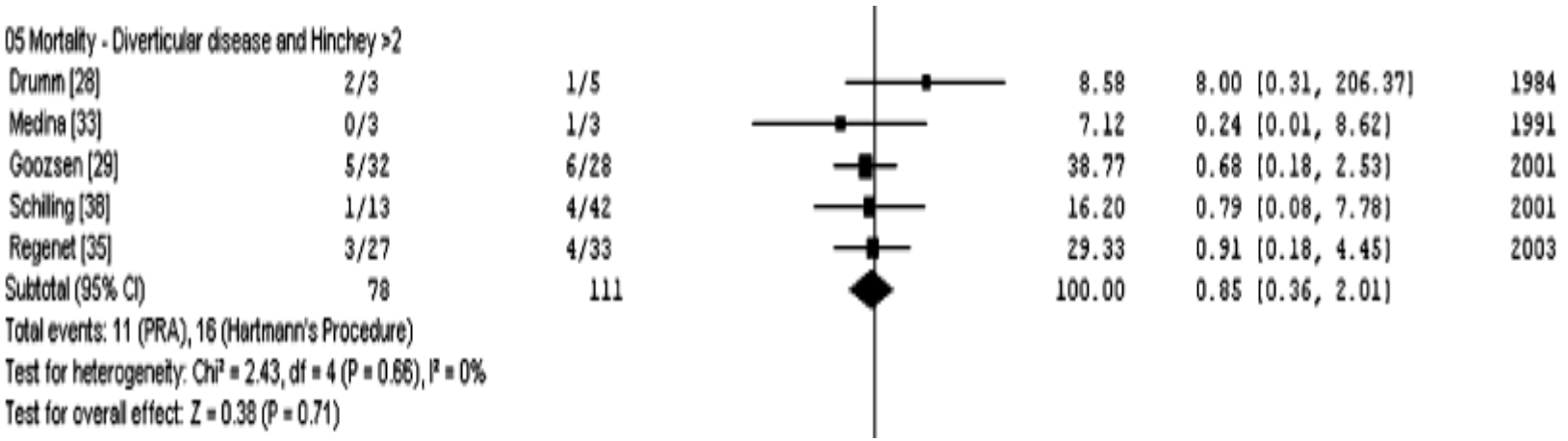
Stage II

Stage III

Stage IV

Hinchey E J et al.
Treatment of perforated diverticular disease of the colon

Mortality and Hinchey >2



14.1% versus 14.4% (Odds ratio 0.85) no difference?

Constantinides VA et al.

Challenge

Power Calculation for the Primary Outcome of Interest

The overall incidence of postoperative mortality between studies in the HP group was 63 of 416 (approximately 15 percent). To rule out a 30 percent relative risk reduction (from 15 to 10.5 percent) with a 5 percent significance level and 80 percent power, a traditional randomized, controlled trial would require 906 patients in each arm.

Constantinides VA et al.

Conclusions

- Source control
  - needs to be patient and organ orientated
  - is essential for the outcome of abdominal infections
  - needs a multidisciplinary team with the surgeon as one key person
  - Principles are in most cases not validated through randomized controlled trials

Study Centre of the German Surgical Society

Langenbecks Arch Surg (2005) 390: 171–177
DOI 10.1007/s00423-005-0547-6

NEW SURGICAL HORIZONS

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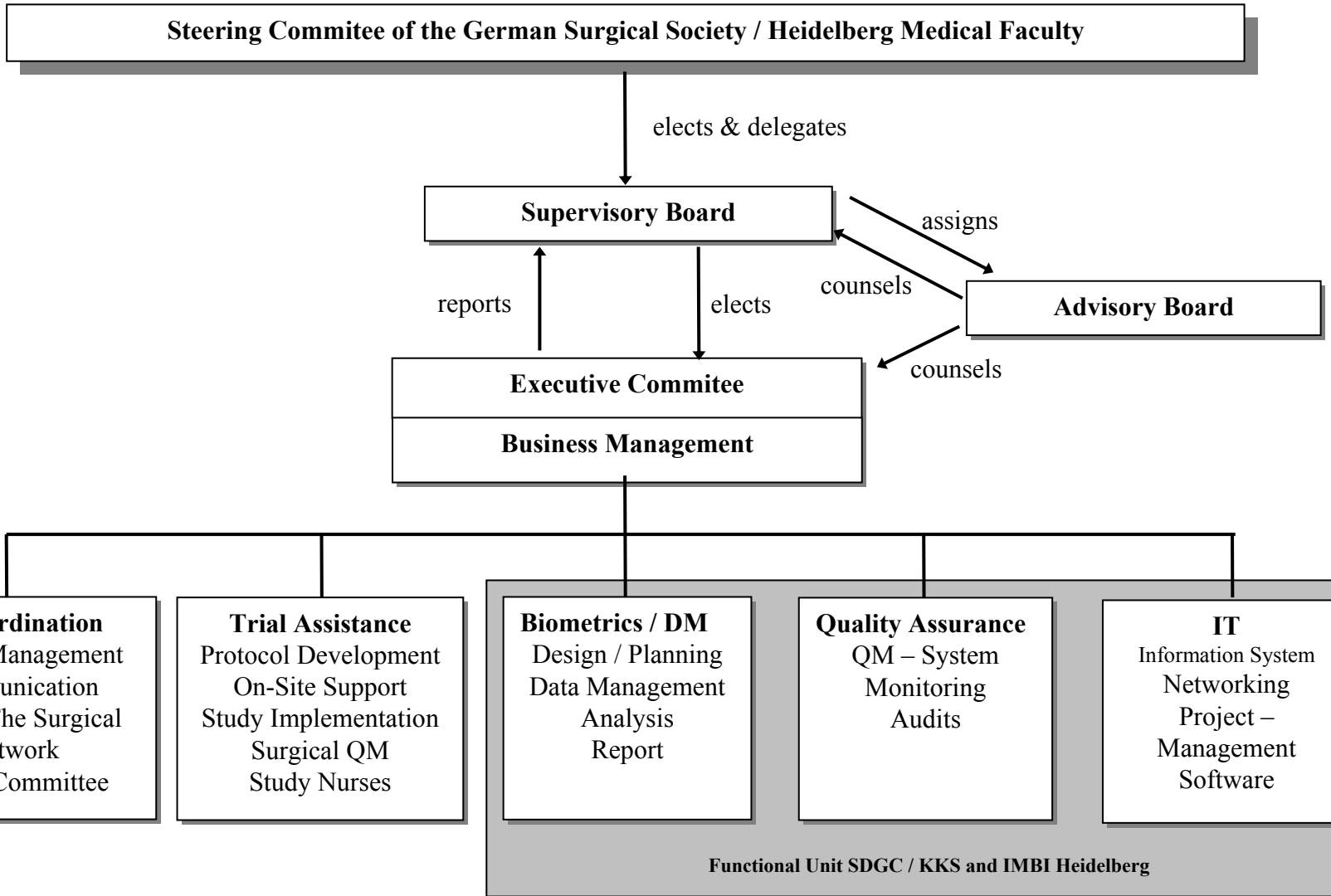
Matthias Rothmund
Christoph M. Seiler

The Study Centre of the German Surgical Society—rationale and current status

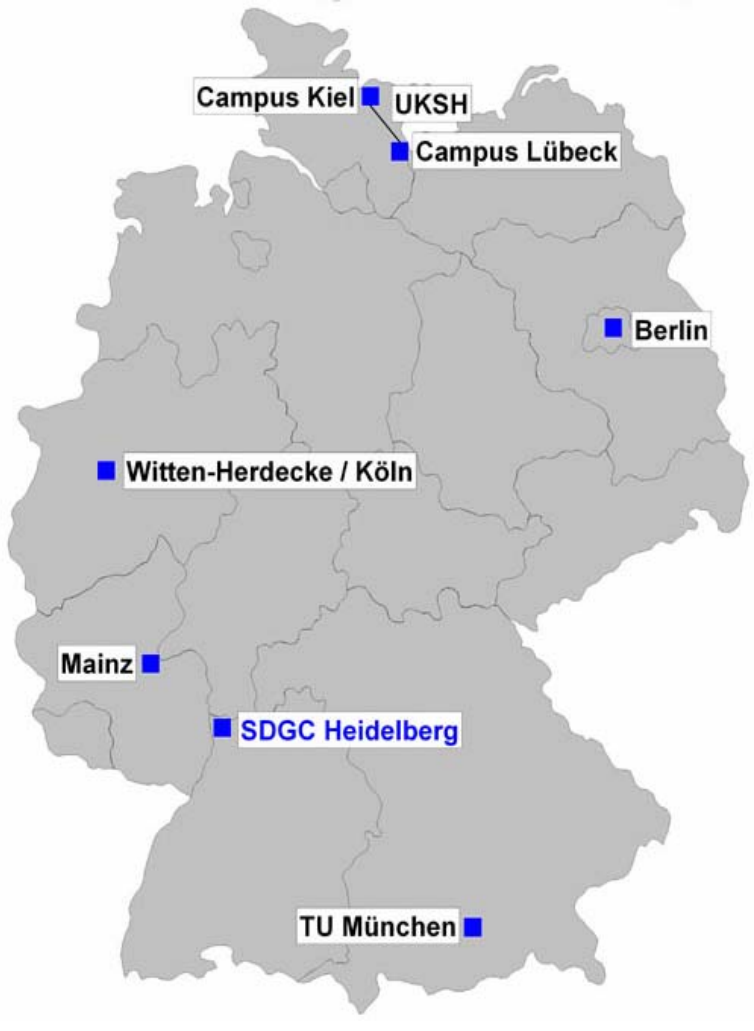
www.sdgc.de

Current Structure



Surgical Network

- Funding
  10/2006 – 09/2009
- 5 Centers
- 1 Coordinating Center (SDGC)
- Collaboration with the Network of Coordinating Centers for Clinical Trials (KKS-Network)



DISKO-PRIMA Trial

Primary Resection with Anastomosis and Loop-Ileostomy

versus

Hartmann´s Procedure

in Hinchey III/IV patients

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