



Medical management of EC fistulae

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Enterocutaneous fistulae

Medical & surgical challenge

Significant health care costs

High mortality

45%

1940's

5-20%

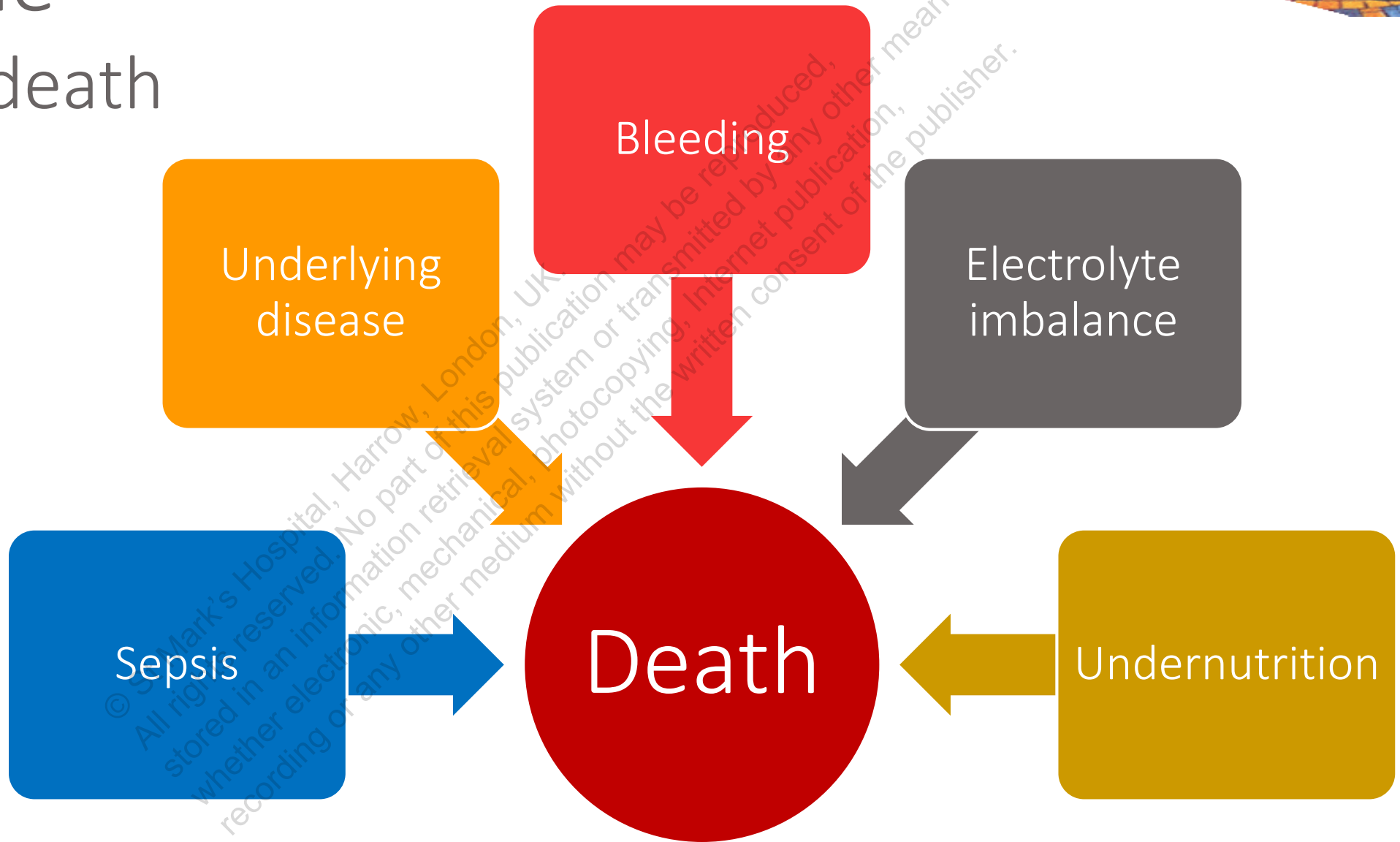
Since 1960's

Sepsis is the main cause of death

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EC fistulae

Causes of death



What is a high output fistula?

>200ml/day

>500ml/day

>1L/day

>1.5L/day

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Causes of enterocutaneous fistulae

Surgical

- Anastomotic leak
 - (20%, range 1-30)
- Abdominal closure
- Serosal tear
- Distal obstruction
 - stricture
 - adhesions

Peri-operative management

- Saline excess: ↓ albumin
- Bowel prep & antibiotics
- Abdominal sepsis
- Smoking
- Poor glucose control

Disease

- Crohn's
- Malignancy
- Diverticulae
- Irradiation damage

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Mortality & EC fistulae

Poor prognostic factors

Altomare et al, 1990

- ↑ APACHE score
- ↓ albumin

Campos et al, 1999

- High output
- Presence of complications

Maudsley et al, 2008

- High output
- ↑ age

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Fistula related mortality

Multivariate analysis for patients managed conservatively

277 patients with ECF: 10.8% fistula related mortality

Variable	Group	OR (95%CI)	P value
Age		1.7 (1.3, 2.4)	0.001
Fistula output	Low (<500ml/day)	1	0.003
	High (>500ml/day)	4.7 (1.7, 13.3)	



Acute IF management: EC fistula

Immediate	Fluid balance
	Sepsis
	Wound management
	Pain control
Early	Fluid balance (maintenance)
	Nutrition (refeeding risks)
	Psychosocial, mobility
Late	Anatomy (site of fistula, drainage)
	Planned procedure (not days 10 – 100)

EC fistula: standard or usual care

6 weeks TPN



nil by mouth



Parenteral nutrition



EC fistulae

What do you do at your hospital?

6 weeks TPN (\pm octreotide)

Allow to eat

Allow to drink (\pm IV nutrition)

Allow to eat & drink (\pm IV nutrition)

Other

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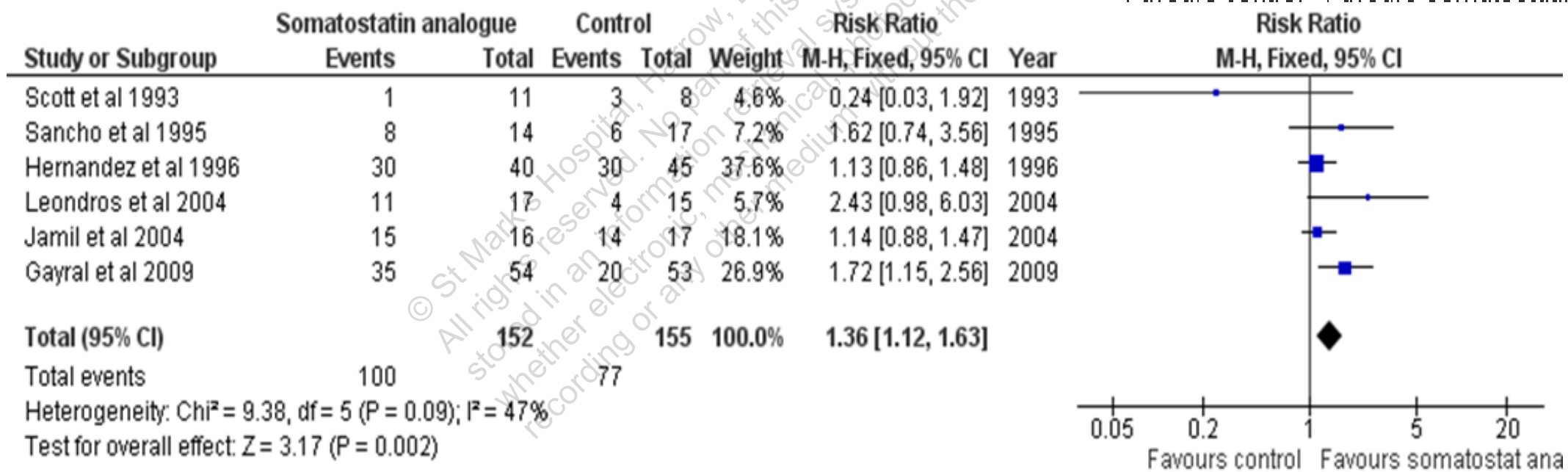
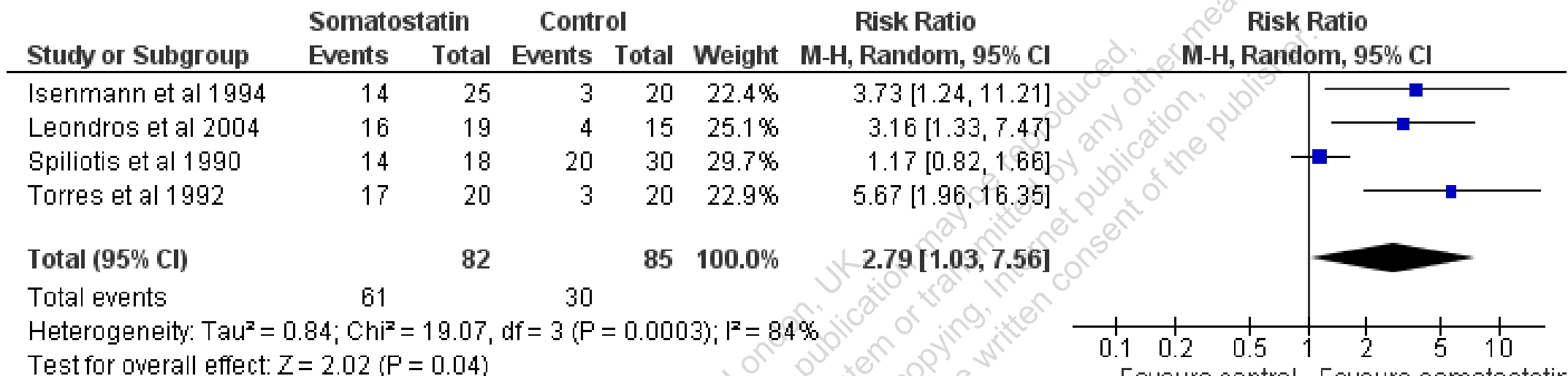
Somatostatin Receptor Subtypes

Binding affinities

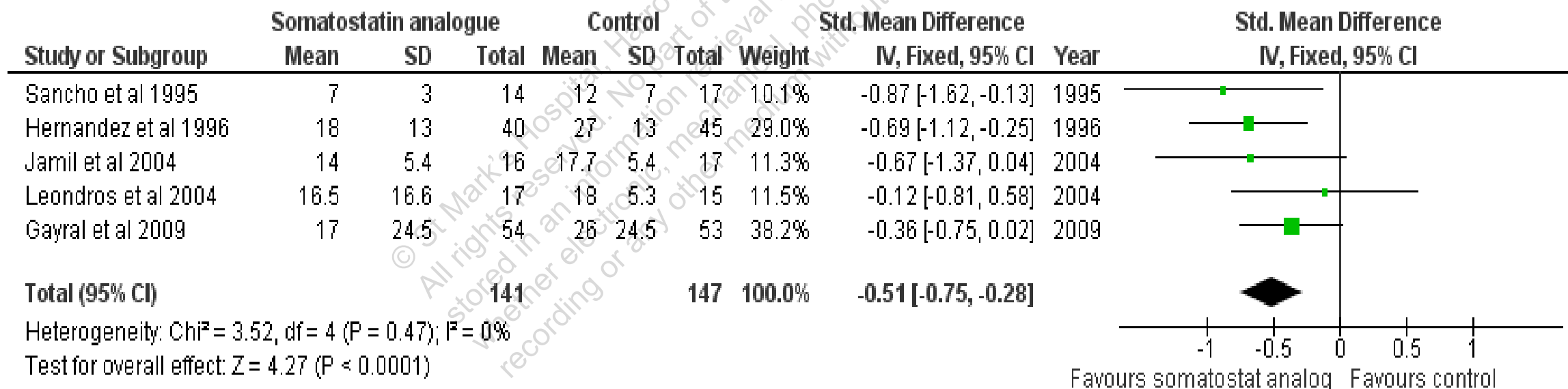
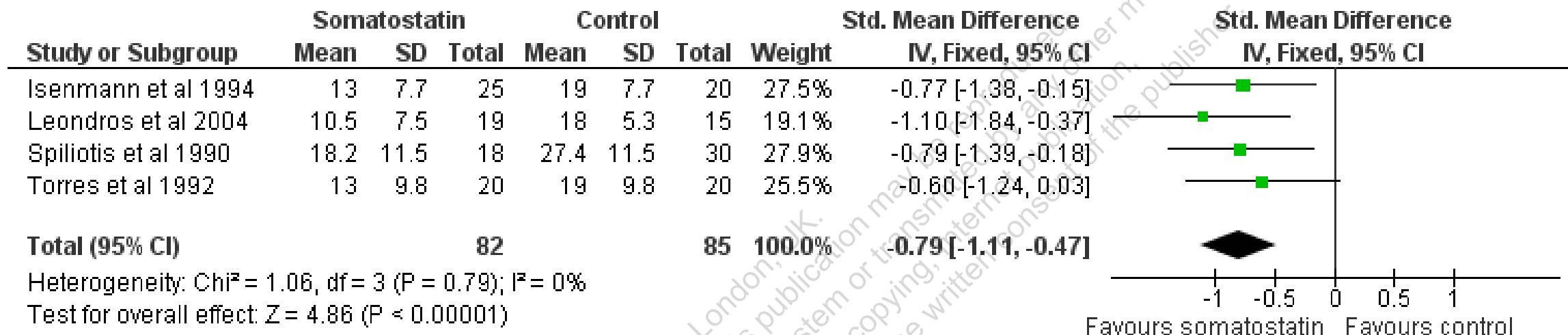
	Receptor subtype				
	SSTR 1	SSTR 2	SSTR 3	SSTR 4	SSTR 5
Somatostatin-14	++	++	++	++	++
Octreotide	—	++	+	—	++
++ , high affinity; + , moderate affinity; — , does not bind					

All 5 receptor subtypes are expressed in the GI tract (esp SSTR 3)

Fistula closure: meta analysis



Time to fistula closure

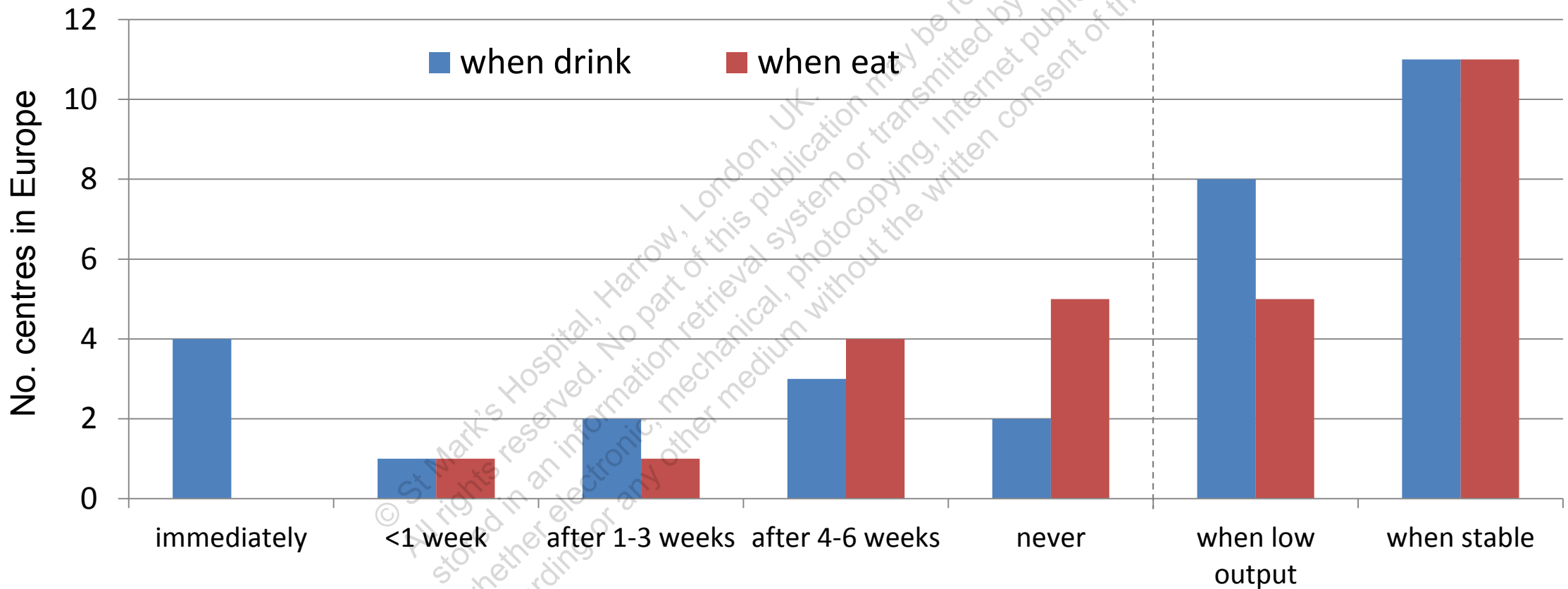


EC fistula management

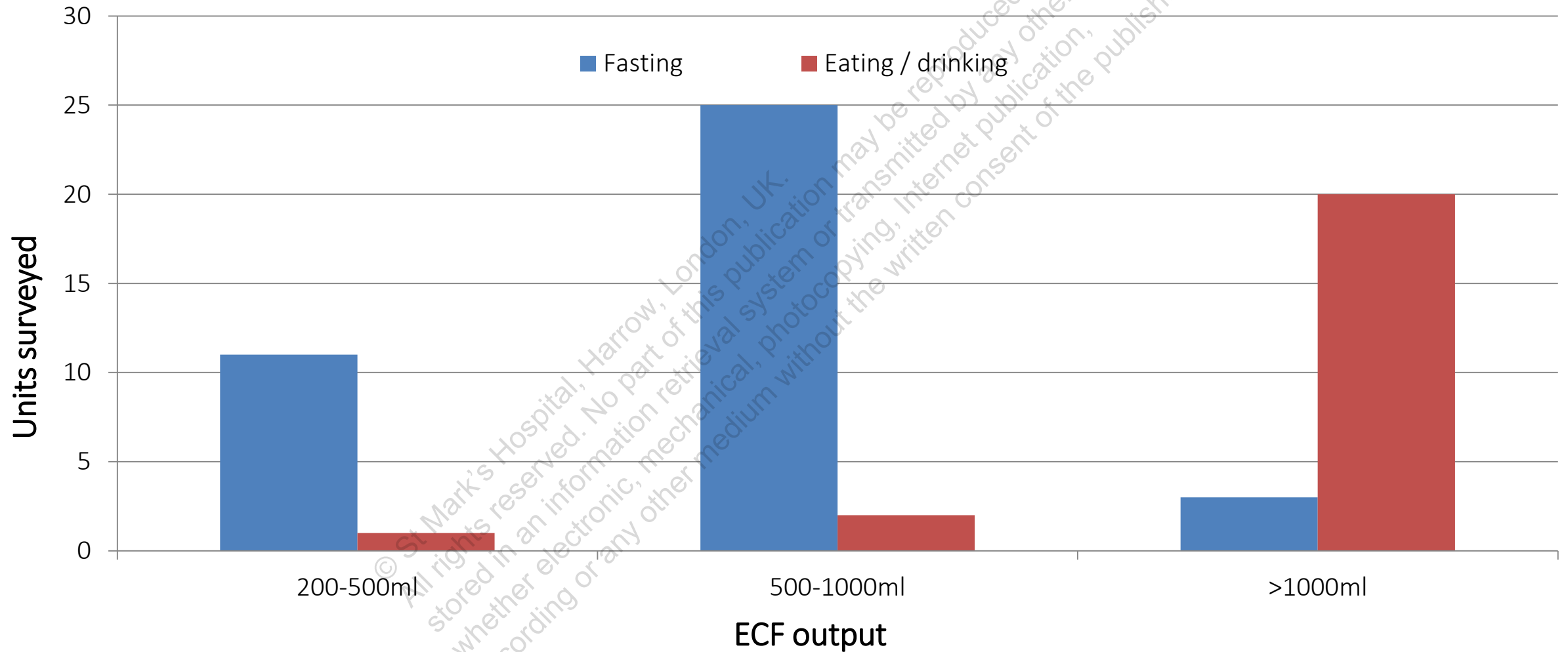
European survey: 41 hospitals in 12 different countries

ECF management	%	Note
Acid suppression	100	
Opiates	82	
Octreotide	78	
Oral rehydration solution	65	
Enteroclysis (ever performed)	74	Av 3 in past year (range 1-7)
Fistuloclysis (ever performed)	54	Av 3 in past year (range 1-7)

When do you allow a patient with a new EC fistula to eat & drink?



What is a high output ECF?



Reducing fistula output

Increasing importance



Restrict hypo-osmolar fluids

Use an oral rehydration solution

Antimotility agents

Loperamide

Codeine

Antisecretory agents

PPIs

Somatostatin-14 / octreotide?



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EC fistulae: when to feed

Acute (new) fistula

- If patient septic / toxic

Treat the sepsis

Drain any collections

Correct fluid & electrolyte imbalances

Avoid parenteral nutrition in the first 48h

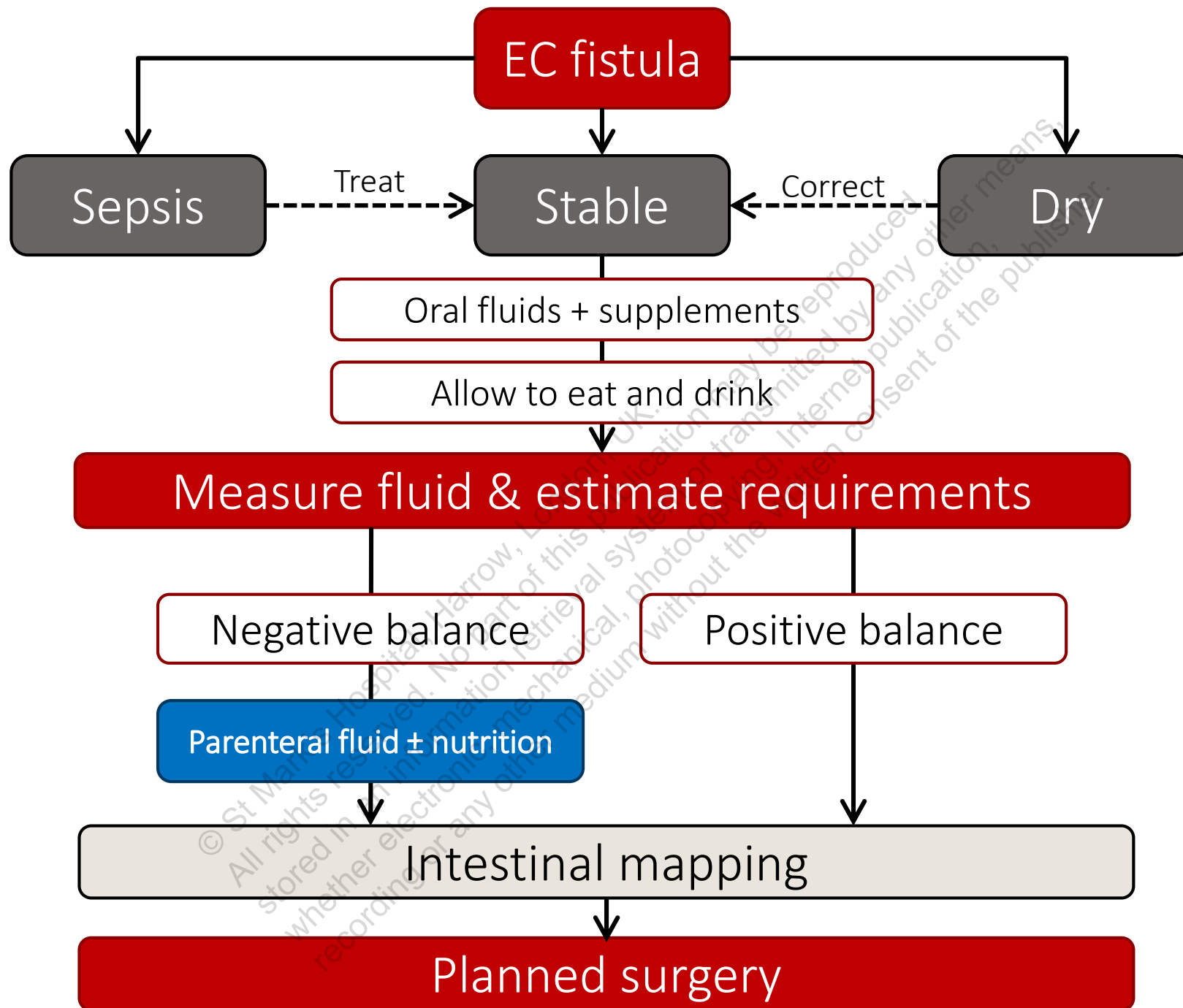
- Once sepsis controlled

PN is reasonable

Established fistula

- 1-2 weeks?

- Can start oral fluids \pm nutrition



EC fistula repair: timing of surgery

	Early	3-12 weeks	6-12 months	>12 months
Mortality	30-100%	7-20%	3-9%	0-3%
ECF recurrence	40-60%	17-31%	10-14%	3%

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Summary: EC fistula management

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