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POSSUMS, APACHES and Pow Wows

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Introduction

- **Emergency Laparotomy**
  - Adverse factors
  - Outcomes
  - Decision making
- **Colorectal cancer**
  - Patient selection
  - Outcomes
- **Clinical tips**

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Emergency Laparotomy

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Emergency Laparotomy

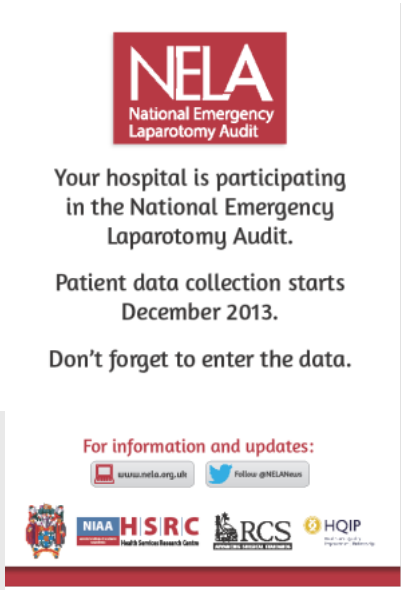
- 35,000/year in the UK
- Incidence 1:1100
- Mortality 14%, 24.5% over 80yo
- 35% of patients require ITU
  - 5 days median stay
- Variation outcomes >70yrs
  - LOS 15 vs 12 days
  - Cost of episode £9660 vs £7460

Variations in mortality after emergency laparotomy: the first report of the UK Emergency Laparotomy Network. 2012

BJA British Journal of Anaesthesia

- 1853 patients, 35 NHS hospitals.
- 30 day mortality
  - 14.9% for all patients
  - 24.4% in patients aged 80 or over.
  - Mortality rates varied from 3.6% to 41.7%.
- National Emergency Laparotomy Audit followed in 2013
- Surgical and anaesthetic factors collected
- Aim:
  - identify factors which predict outcome
  - Identify areas which improve or adversely affect outcome

2.11	a. Was sepsis suspected on admission?	Yes	No	Unknown
	b. Was sepsis suspected at the time the decision for surgery was made?	Yes	No	Unknown
2.12	Was the patient assessed by a specialist from Elderly Medicine in the pre-operative period? (Can include physician or nurse specialist)	Yes	No	Unknown



Indication for Laparotomy and Associated Mortality

Distribution of acute abdominal event/mechanism and corresponding mortality

Surgical event	Number	30-day mortality
Perforation	353 (29.6%)	57 (16.1%)
Obstruction	301 (25.2%)	32 (10.6%)
Ischaemia/necrosis	137 (11.5%)	51 (37.2%)
Haemorrhage	81 (6.8%)	15 (18.5%)
Incarceration	79 (6.6%)	12 (15.2%)
Abscess/collection	78 (6.5%)	5 (6.4%)
Anastomotic leak	51 (4.3%)	7 (13.7%)
Toxic colitis	38 (3.2%)	3 (7.9%)
Phlegmon	32 (2.7%)	0 (0%)
Negative laparotomy	16 (1.3%)	6 (37.5%)
Fistulation	13 (1.1%)	0 (0%)
Total patients with data	**1,193 (100%)**	**189 (15.8%)**

Pathology and Outcome

- Malignancy 24% mortality 15%
- Adhesions 13% mortality 12%
- Hernia 8% mortality 17%
- Ischaemia 7% mortality 42%

- So who do we operate on…..
- 2017 at the Royal Free patients >75

n	Age	Length Stay/Days (Median)	Mortality
20	>75	20	25%

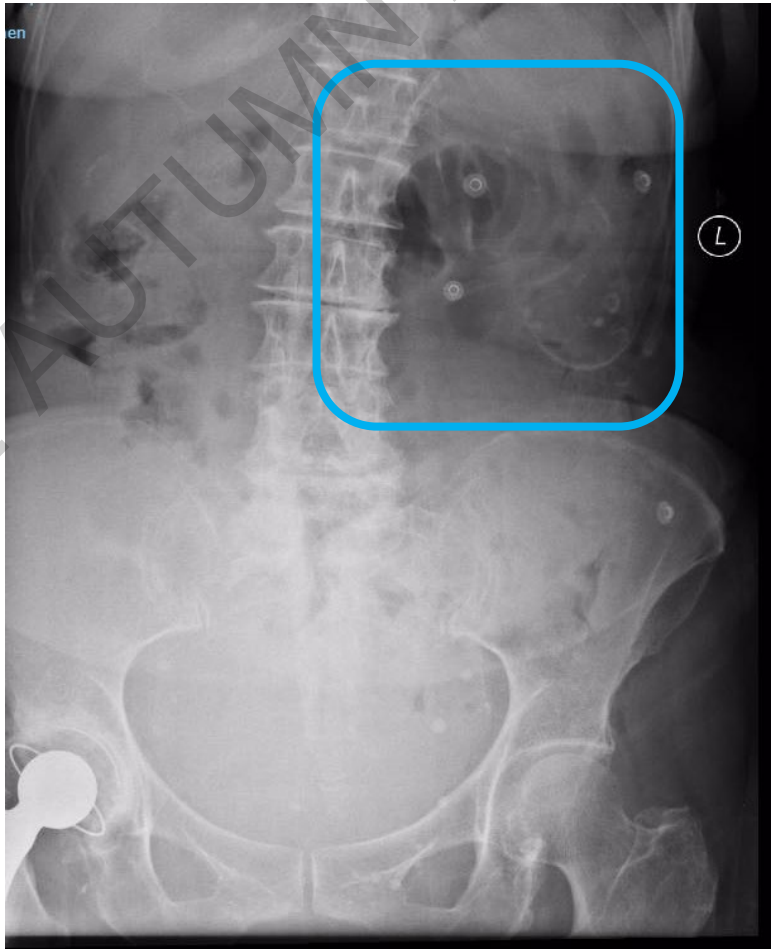
2017 Emergency Laparotomies at Royal Free

LOS	Age	Operation	Discharge Diagnosis
2	79	Division of congenital band adhesion	Adhesional band
4	82	Umbilical Hernia repair	Obstructed umbilical hernia
4	93	Laparoscopic division band	Adhesional band
10	76	Laparotomy division of band and small bowel resection	Adhesional band
12	86	Laparotomy right hemicolectomy	Adhesional band
13	78	Laparotomy and Hartmann's	Post EVAR ischaemia
15	86	Inguinal Hernia and Caecum repair, Debridement of Scrotom	Inguinal hernia with caecal perforation
17	92	Laparotomy umbilical hernia small bowel resection	Obstructed umbilical hernia
19	77	Laparoscopic adhesiolysis	Multiple adhesions
20	88	Epigastric hernia and transverse colectomy	Epigastric hernia with perforated colon
20	89	Laparotomy and adhesiolysis	Abdominal adhesions
22	86	Laparotomy division band adhesion	Adhesional band
23	81	Incisional hernia repair	Perforated obstructed transverse colon
26	87	Hartmann's procedure	Perforated diverticular disease
31	87	Laparotomy oversew duodenal ulcer	Perf DU
44	89	Laparotomy and small bowel resection	Small bowel microperforation and abscess
52	85	Laparotomy colonic resection	Perforated colon ? cause
54	85	Laparotomy small bowel resection ileostomy	Small bowel perforation
56	79	Open right hemicolectomy	Caecal cancer
154	77	Open right hemicolectomy	Ascending colon cancer

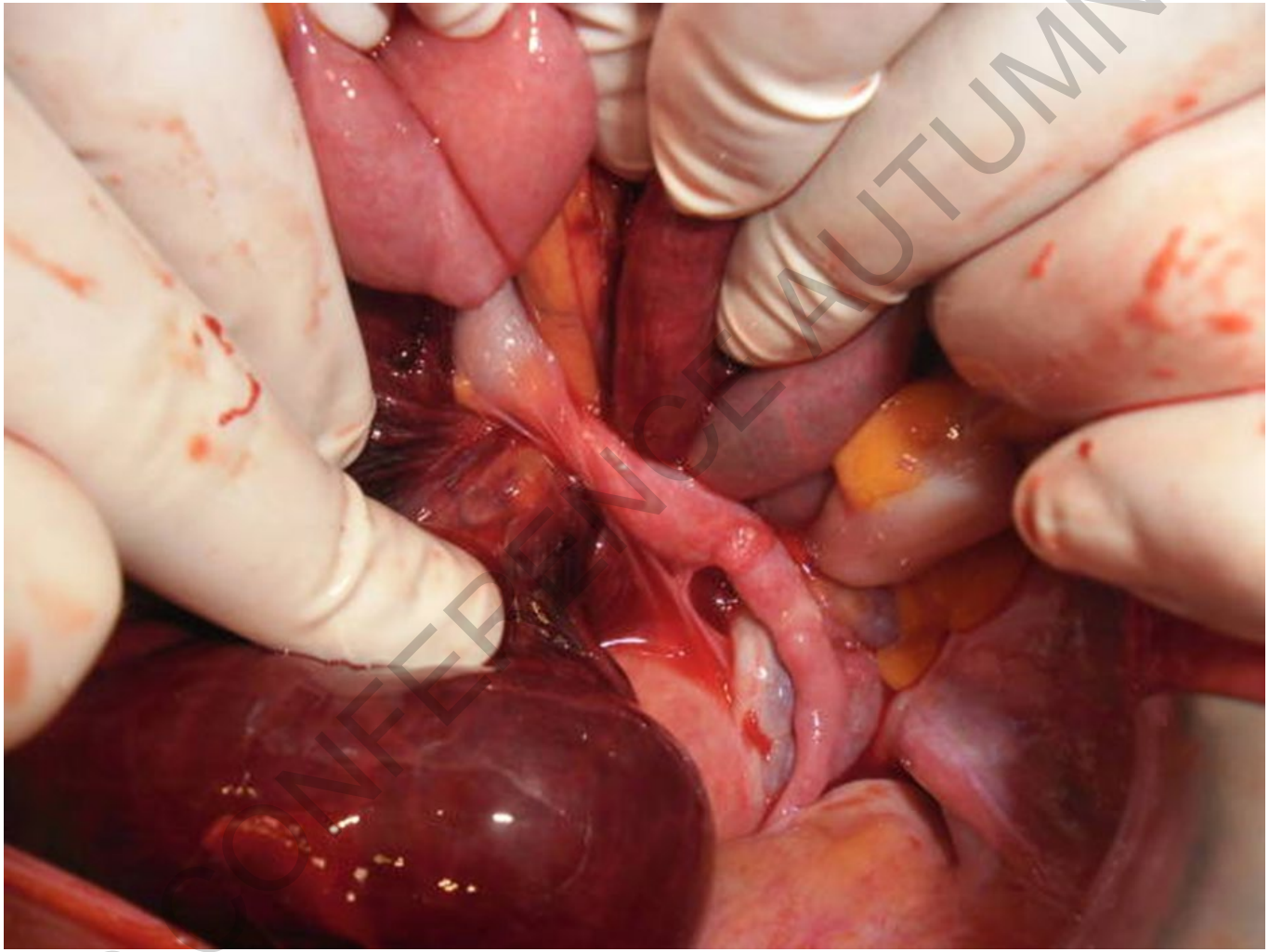
Clinical Case

- 93 yo Admitted via A+E
  - 2 days copious vomiting and abdominal pain
  - ? Haematemesis altered blood
- PMH
  - Hytn
  - No previous abdo surgery
  - THR
- Lives alone independent, mobilises 1 stick
- O/E
  - Well, dehydrated, ‘spritely’
  - Soft abdomen, PR empty rectum
- AXR: normal

- Admitted under HSEP
  - ?haematemesis
- Rehydrated
- Ryles tube inserted large volumes ?altered blood
- Surgical review requested
- Surgical registrar
  - Get a CT and I will come and see
- CT shows high grade mechanical small bowel obstruction



Adhesive Band



Band adhesions and Femoral Hernias

- AXR may be useful but sensitivity is 80%
- CT Abdomen is more sensitive/rule out cancer
- Even with bowel resection outcomes are good
- Laparoscopic if possible

LOS	Age	Operation	Discharge Diagnosis
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22	86	Laparotomy division band adhesion	Adhesional band

Stop Your Surgeons from Operating if…….

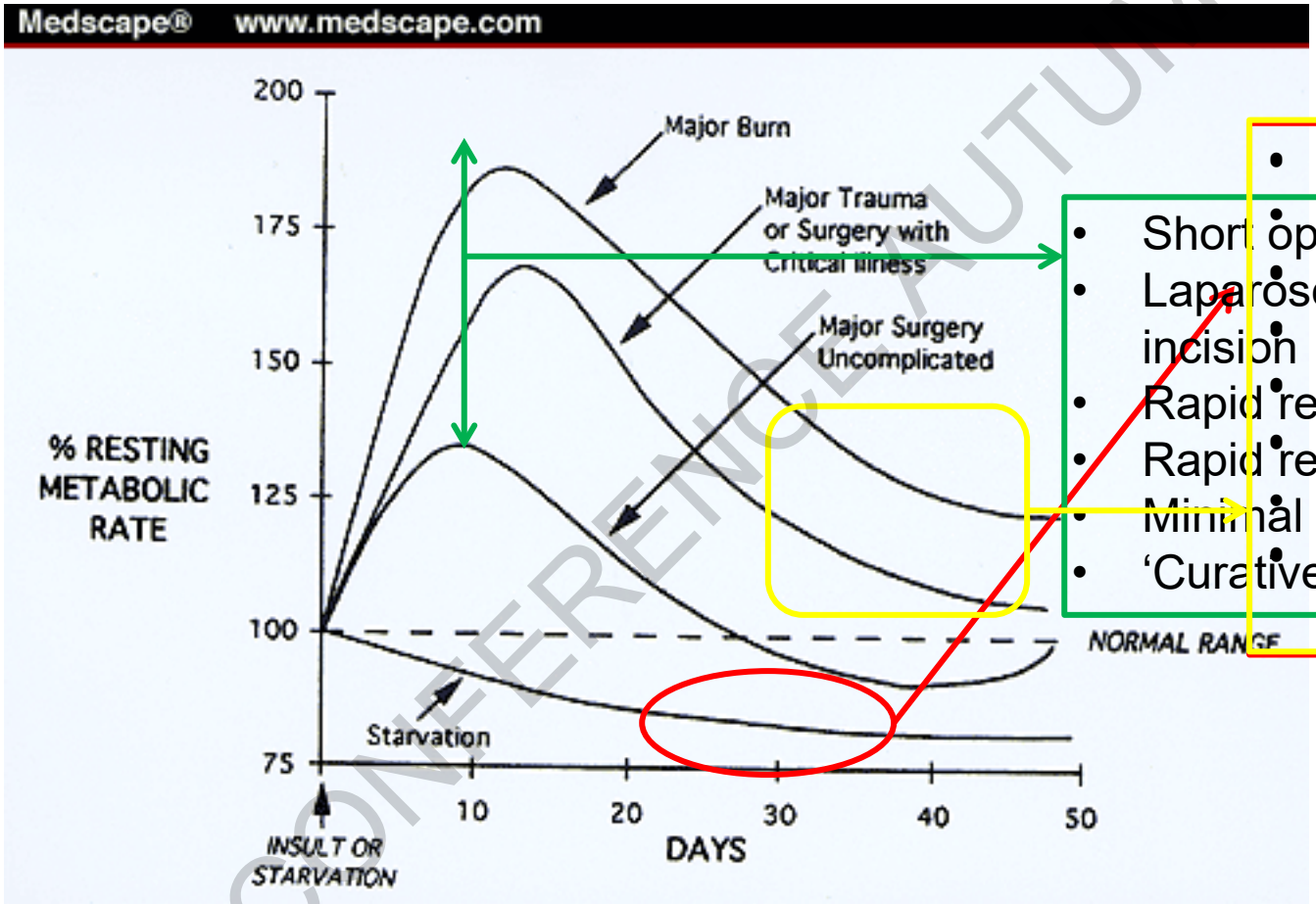
- Age >90
- ASA V
- Septic shock
- Dependent functional status
- abnormal white blood cell count

- <10% survival
- US cohort study 37,500 pts emergency laparotomy

When is death inevitable after emergency laparotomy? Analysis of the American College of Surgeons National Surgical Quality Improvement Program database.

J Am Coll Surg 2012 Al-Temimi, M; Griffee, M et al.

It'll get worse before it gets better



- Short operative time
- Laparoscopic or small incision
- Rapid return to mobility
- Rapid return to nutrition
- Minimal lines
- 'Curative' surgery

- Respiratory
- Cardiac
- Renal
- Liver
- Stroke
- Malnutrition
- Sarcopaenia
- Functional dependance

Putting it into Numbers

- Scoring systems give an idea of risks
  - P-POSSUM is routinely used
  - 30 day mortality
  - If 100pts had an operation with the same
    - Physiological factors
    - Operative factors
  - No functional adjustment
  - Inaccurate at either end of scale
  - It is a clinical tool

BJS

POSSUM: A scoring system for surgical audit
Mr G. P. Copeland, D. Jones,M. Walt 1991

Turning the numbers to care

- All of the assessment leads to one decision
  - Surgery
  - No surgery
- Avoid confusion
  - Decide before discussing with family/patient
  - Decide before discussion with anaesthetist
- Consultant to consultant invaluable
- Document clearly ‘for the coroner’

Managing Surgeons

- Surgeons live in permanent fear
- Wrapped in a brittle veneer usually:
  - Cheerfulness, confidence, arrogance, anger
- Dominant fears
  - Being unable to perform the operation
  - Surgical complications
  - Talking about death/'failure'
  - Unable to 'fix' the patient

So what…… does it matter

- These factors influence surgical decisions very strongly
- Underestimate
  - Medical and functional factors
- Overestimate
  - surgical factors
- Avoid difficult or emotional family meetings
- Underuse palliative care
- Geriatricians on the other hand balance these factors to perfection

PLEASE HELP YOUR LOCAL SURGEON

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Colorectal Cancer in the older population

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Access all ages

Assessing the impact of age on access to surgical treatment

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The Impact of Functional Dependency on Outcomes After Complex General and Vascular Surgery.

Procedure	30-d Mortality Functional Status		30-d Major Morbidity Functional Status	
	Independent	Dependent	Independent	Dependent
Open	1.6%	11.5%	16.0%	38.0%
Laparoscopic	0.6%	6.0%	8.3%	24.6%

All values P<0.001

ANNALS OF SURGERY
A MONTHLY REVIEW OF SURGICAL SCIENCE SINCE 1885

Scarborough, John E. MD; Bennett, Kyla M. MD. 2015

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Colorectal Cancer Surgery at RFH

- 35 pts older 75
  - 76-80=14, 80-85=11, 85-90=8, 90>=2
- Median age 81 (76-92)
- LOS Median 7 days (3-45)
  - 80% laparoscopy, 9% conversion
- Mortality 3%, 89yo post op MI day 2
- Morbidity 26%
  - 5 minor 14% (fall, UTI, PE, wound infection)
  - 4 major 11% (2x early adhesion re-laparoscopy; 2x pelvic collection/anastamotic leak)

What happened to them next?

- 2 metastatic disease at surgery
  - 1x synchronous liver resection
- 5 stomas
  - 3 permanent and 2 reversed
- 8 high risk 7 offered chemo
  - 3 declined
  - 4 agreed 50% completed treatment
- 1 perioperative death
- 1 death early metastases at 11months
- 33 alive

What happens if you miss the cut?

Age	Site	Reason surgery declined	Months survival following decision
83	Caecal	9/17 frail scale, aortic stenosis, asthma	26
91	Caecal	ESRF, obese, poor functional status	26
87	Sigmoid	Nursing home, dementia	25
83	Caecal	Dementia, LVF, MGUS,COPD	19
86	Caecal	Dementia, poor mobility	11
89	Caecal	ESRF, DM2, decomp CF	7
95	Caecal	Tachy-brady, frailty, immobility	5
85	Caecal	Falls, IHD. GP referred another hospital	5
88	Caecal	Malnutrition, dementia, falls	1
95	Sigmoid	Lost to F/U	?

* Patients in yellow RIP

Considerations in Elective Surgery

Slow functional recovery

- Functional recovery
  - 6 months vs 3 months
  - resource intensive in-patient and community
- Slow wound healing and chronic wound infections

Unrecoverable Functional Decline

- Renal impairment-ESRF
- Drop in functional status
- Permanent stoma
  - Blind
  - Joint disease
  - Isolated
- Diarrhoea and urgency

Clinical Tips

- CT virtual colonoscopy is less invasive and better tolerated in older patients
- Endoscopy is not necessary if imaging suggestive and patient is unfit for treatment
- CRC MDT is not holistic ask for a friendly specialist
- 25% of benign colonic polyps are hot on PET
- Polyps <1cm less 1% malignancy risk

Summary

- Emergency laparotomy is risky
- Have open minded discussion with surgical colleagues
- Make decisions rapidly together
- Discuss clear recommendation with patient/family

- Colorectal cancer treatment in older patients has good outcomes
- Colorectal cancer left untreated has good outcomes

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Thank you

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