Improving Outcomes in Elective Surgery

SIOG Manchester 2012

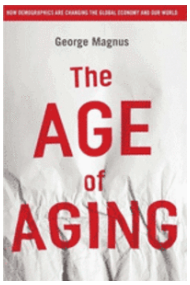
Dr David Shipway
Clinical Fellow, Geriatric Medicine
Guy's and St Thomas' Hospital, London

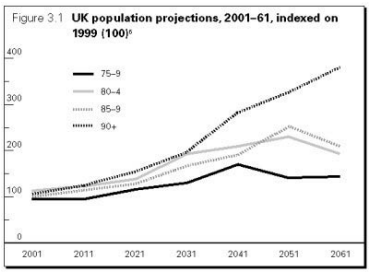
Overview

1. Who's having surgery?
2. What factors affect adverse outcome?
3. What's the nature of the complications?
4. How are we doing?
5. What can we do to improve the situation?

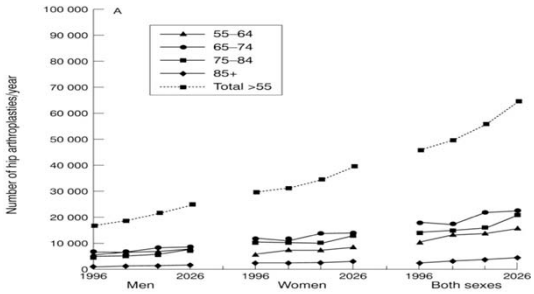
The Ageing Population

20% UK population aged >65



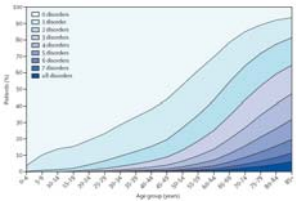


More older people are undergoing surgery

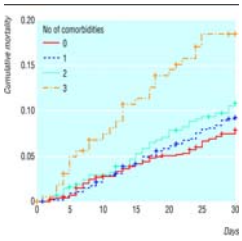


Birrell F et al. Ann Rheum Dis 1999; 58: 569-572

What is the impact of age on co-morbidity?

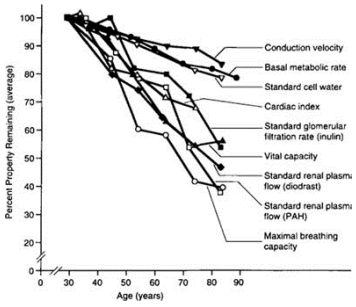


Barnett et al Lancet 2012



Roche J J W et al. BMJ 2005;331:1374

The Physiology of Ageing



Anesthesiol Clin North America 2000;18:74

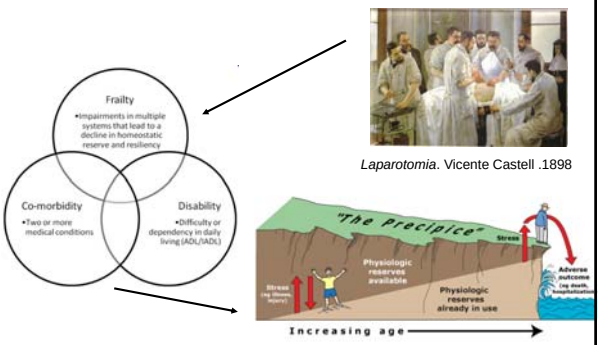
- -Decline in measurable parameters
- -Preservation of organ *function*
- -Reduced physiological reserve
- -Concept of *Homeostenosis*

The emerging role of frailty

- Reduced physiological reserve across *multiple* organ systems
- Varied research definitions
- Scales
  - Edmonton frail scale
- Surrogate markers
  - Grip strength, walking speed

La Vecchia.
Giorgione, c1508

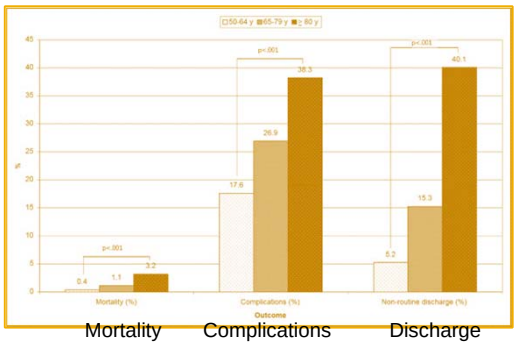
The Surgical *Casserole*



Laparotomia. Vicente Castell .1898

Older people have more postoperative complications

Kuy et al. Am J Surg 2011; 201(6): 789–796



Mortality Complications Discharge

What kind of complications and why do they matter?

Age	Resp	CVS	CNS	T -embo	An leak
<65	5%	0.8%	0.2%	1%	4%
65-74	10%	2%	0.6%	2%	5%
75-84	12%	4%	1%	2%	4%
>85	15%	4%	1%	2%	3%
p	<0.0001	<0.0001	<0.0001	0.0004	0.2607

Patel et al. *Lancet 2000; 356: 968–974.*

	30day mortality		1 year mortality		5year mortality	
	with	without	with	without	with	without
Any complication	13.3%	0.8%	28.1%	6.9%	57.6%	39.5%

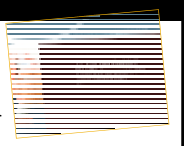
Khuri et al *Ann Surg 2005;242:326-342*

What about outcome in terms of geriatric syndromes?

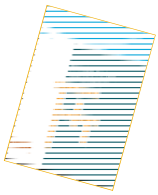
- Functional impairment/disability
  - Deterioration in function persisting up to 6months post colorectal surgery
  - Lawrence et al J Am Coll Surg 2004; 199:762-772
- Postoperative cognitive disorders
  - Delirium: x20 more common than PE
  - POCD

The Night Wanderer.
Edvard Munch, 1923

How are we doing looking after older *surgical* patients?



An Age Old Problem 2010
Explore remediable factors in processes of care in patients aged 80 yrs or older who died within 30 days of surgery



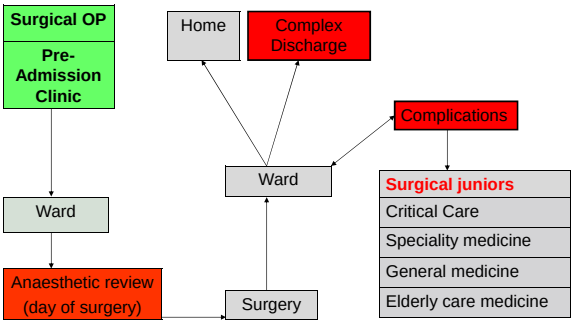
Knowing the risk 2011
Prospective review of peri-operative care of ***all*** *in-patient surgery*

NCEPOD: where were the problems?

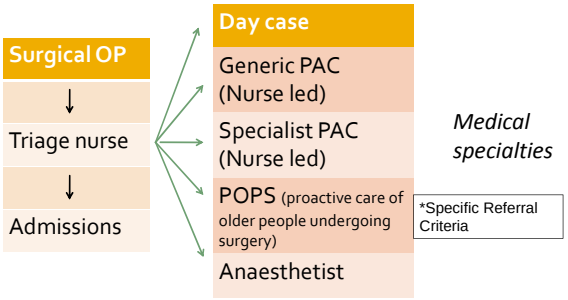
- Pre-op
  - 1 in 5 not pre-assessed
  - No PAC in 1 in 6 hospitals
  - Failure to optimise the patient
  - delays to theatre 20%
- Intra-operative
  - Substandard monitoring
- Post-operative
  - Inadequate monitoring, outreach and access to critical care (34%)
  - Inadequate MDT and Geriatrician input

Dr Pavlov in the operating theatre.
Ilya Repin 1888

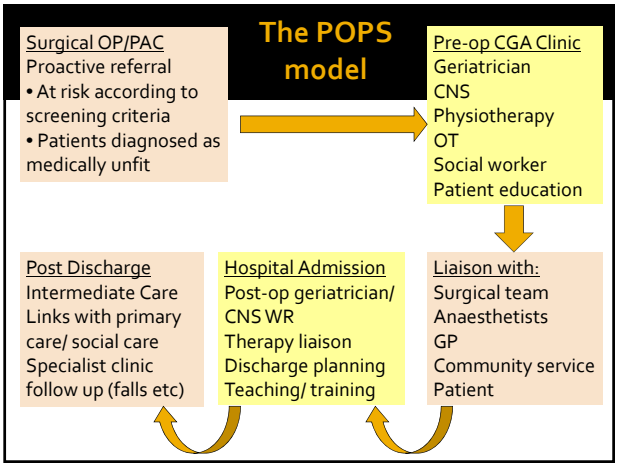
Prevalent surgical model of care



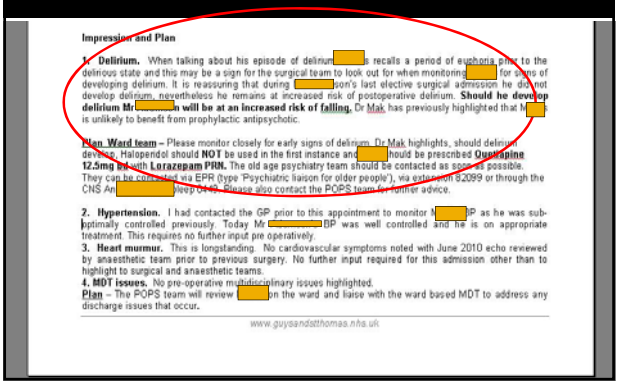
What is the benefit of an alternative model?



The POPS model



CGA: how does it work in practice?



Impression and Plan

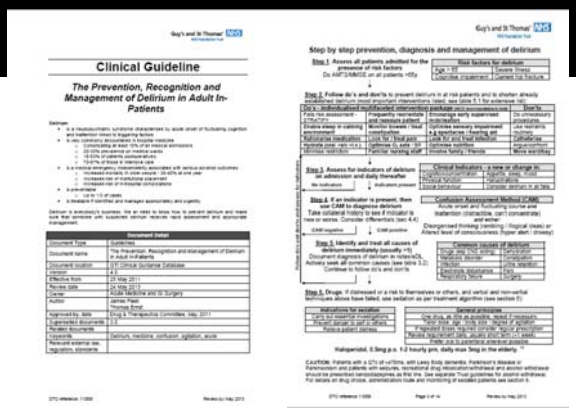
1. **Delirium.** When talking about his episode of delirium [redacted] recalls a period of euphoria prior to the delirious state and this may be a sign for the surgical team to look out for when monitoring [redacted] for signs of developing delirium. It is reassuring that during [redacted]son's last elective surgical admission he did not develop delirium, nevertheless he remains at increased risk of postoperative delirium. **Should he develop delirium Mr [redacted]n will be at an increased risk of falling.** Dr Mak has previously highlighted that M[redacted] is unlikely to benefit from prophylactic antipsychotic.

Plan Ward team – Please monitor closely for early signs of delirium. Dr Mak highlights, should delirium develop, Haloperidol should **NOT** be used in the first instance and [redacted] should be prescribed **Quetiapine 12.5mg bd** with **Lorazepam PRN.** The old age psychiatry team should be contacted as soon as possible. They can be contacted via EPR (type 'Psychiatric liaison for older people'), via extension 82099 or through the CNS An[redacted]Neep 0149. Please also contact the POPS team for further advice.

2. **Hypertension.** I had contacted the GP prior to this appointment to monitor M[redacted]BP as he was sub-optimally controlled previously. Today Mr [redacted]BP was well controlled and he is on appropriate treatment. This requires no further input pre operatively.
3. **Heart murmur.** This is longstanding. No cardiovascular symptoms noted with June 2010 echo reviewed by anaesthetic team prior to previous surgery. No further input required for this admission other than to highlight to surgical and anaesthetic teams.
4. **MDT Issues.** No pre-operative multidisciplinary issues highlighted.

Plan – The POPS team will review [redacted]on the ward and liaise with the ward based MDT to address any discharge issues that occur.

www.guysandstthomas.nhs.uk

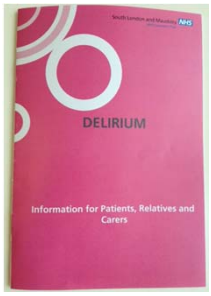


Clinical Guideline

The Prevention, Recognition and Management of Delirium in Adult In-Patients

Step by step prevention, diagnosis and management of delirium

Practicalities



Why does this model make sense?

1. Risk assessment
   - Recognition of known comorbidity
   - Identification of unrecognised disease, disability, frailty
   - Capacity
2. Optimisation and risk reduction (pre-post)
   - Medical, functional, psychological and social
   - Prediction of post operative complications
     - Early identification of complications
     - Standardised management complications
3. Prediction of support required on discharge
4. Comprehensive documentation

What is the evidence the service works?

	Pre-POPS n=54	Post-POPS n=54
Age	75.075.0±6.1	74.1± 6.2
Cardiac	33% (18)	55% (27)
Diabetes	13% (7)	20.4% (11)
Renal	3.7% (2)	22.2% (12)
Hypertension	51.9% (28)	80% (43)
Delirium	*18.5% (10)*	*5.6% (3)**
Pneumonia	*20% (11)*	*4% (2)**
ACS	*7.4% (4)*	*3.7% (2*
Arrhythmia	*13% (7)*	*7.4% (4)*
Heart failure	*3.7% (2)*	*0*
Thrombosis	*11% (6)*	*2% (1)*

Harari et al, *Age Ageing 2007;* **36: 190–96.**

Postoperative multidisciplinary issues

	Pre-POPS	Post-POPS
Uncontrolled pain	29.6 (16)	1.9 (1)*
NBM >4days	9.3 (5)	0*
Catheter>4/7	20.4 (11)	7.4 (4)*
Dependent transfers	14.8 (8)	0*
Bedridden >3days	27.8 (15)	9.3 (5)*
Pressure sores	18.5 (10)	3.7 (2)*
Length of stay	**15.8±13.2**	**11.5± 5.2 ***
Delayed discharge	70.4% (38)	24.1% (13)*
- medical problems	37% (20)	13% (7)
- slow rehabn.	13% (7)	7.4% (4)
- wait for OT/equipment	20.4% (11)	3.7% (2)

Can these results be reproduced and improved upon?

- Teaching hospital
- DGH

- 2010 Length of Stay Hip Surgery
- National Average 10.3

	Age	Mean LOS	No POPS Median LOS	POPS Median LOS
Primary Hip Replacement	<65	5.2	4	-
	>65	9.5	7	6
Revision Surgery	<65	6.5	5	-
	>65	10.5	8	4.5

In Summary...

- Current system: multiple opportunities for improvement
- Optimisation is possible
- Growing need for better collaborative work across disciplines
- Need for further research
  - Multiple specific unanswered questions
- Translation of evidence into widespread clinical practice

A Surgical Operation. Reginald Brill. 1934