# Day-case and short-stay neurosurgery for brain tumours

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# Background

- Length of stay is highly variable
- Length of stay a surrogate marker of safety & quality
- Length of stay an indicator of efficiency
- Definitions
  - Day-case – admission, surgery, discharge on same day (6 hours)
  - Short-stay – single night in hospital (<24 hours)

# Optimising LOS

- Patient benefits
  - Improved patient experience
  - Reduce cancellations
  - Reduce waiting times
  - Reduce nosocomial infections
  - Reduce VTE
- Provider benefits
  - Better patient satisfaction scores, less complaints
  - Increased efficiency/profitability
  - Meet cancer targets
- NHS benefits
  - Reduce costs

# Incidence & timing of ICH

- Biggest fear is deterioration from post-op ICH, however:

- Taylor *et al*, JNS, 1998
  - 2305 patients
  - 50 post-op ICH (2.2%)
    - 44 within 6 hours
    - 6 delayed after 24 hours

- Presumption that most delayed deterioration due to oedema around formed haematoma
  - So, all our patients have 4 hour post-op CT to rule out occult ICH

# What about secondary ICH?

- Very rare
- Usually not catastrophic
- Often managed conservatively
- Peak 10-14 days
  - Beyond “normal” discharge times

# How to achieve low LOS

- It's all in the head!
  - Set expectations
  - All staff, all of the time
- DOSA facility
  - Maximise DOSA rates
  - Maximise use of elective pathways
- Pre-admission clinic
  - Use routinely (nurse led with support)
  - Optimise health before admission
  - Arrange all tests before admission
- Hospital stay
  - Use day-case surgery and unit
  - Avoid prolonged starvation & lack of fluids
  - Walk to theatre & early mobilisation and post-op imaging
- Post discharge phase
  - Information
  - Support

# Day-case surgery

- Choose your cases wisely e.g. biopsy & some awake craniotomy
- Increase use of LA/sedation techniques
- Operate 1st on list / in morning to allow 6 hours observation before discharge
- CT (or MRI) at 4 hours to rule out ICH before discharge – book it before admission
- Manage through a day-case unit if possible
- Get dressed, mobile, eating and drinking as soon as back on day-case unit

# Biopsy modifications to facilitate day-surgery

- GA – LA+sedation
- Frame – frameless
- Pins – pinless
- Intra-op pathology – none
- First cases on list (upto 4)

# Craniotomy modifications to facilitate day-surgery

- Awake vs GA
- First on list
- Navigation limited craniotomy

# Short-stay surgery (<24 hours)

- Most elective craniotomy for tumours
  - supra or infra-tentorial, intrinsic or extrinsic
- Do not admit to ICU/HDU unless high-risk cases
  - e.g. brainstem/4$^{th}$ ventricle
- MRI (or CT) booked before admission for morning after surgery
- Therapists assess patients morning after surgery
- Do not delay discharge for MoCA tests etc.
  - not clinically useful in the early post-operative period
- Aim for short-stay surgery for all cases
  - accept that you won't always achieve it!

# Our day-case results 2006-13 (n=211)

- Biopsy (n=177)
  - 8 admitted from DCU (4.5%)
  - 4 re-admission (2.3%)

- Craniotomy (n=34)
  - 3 admitted from DCU (8.8%)
  - 1 re-admission (2.9%)

Of the patients admitted after surgery as a precaution, all could actually have been safely discharged on day of surgery

# Day-case study complications (n=211)

- No permanent morbidity
- 1 death
  - 11 days post-biopsy sudden death of unknown cause
- 1 delayed ICH
  - 11 days post-op, recurrent oligo, conservative Rx
- No patient suffered adverse outcome due to early discharge

# National datasets

- Neurosurgical National Audit Program (NNAP)
  - SBNS
  - HQIP
  - HES dataset
  - 2012-15

The Society of British Neurological Surgeons
Neurosurgical National Audit Programme

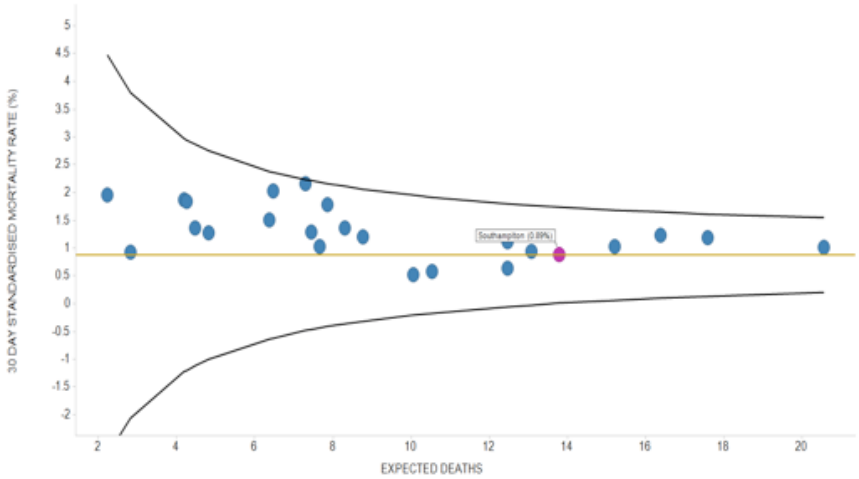
- Getting It Right First Time (GIRFT)
  - DoH
  - NHS Improvement
  - HES dataset
  - 2014/15

GIRFT
GETTING IT RIGHT FIRST TIME

# NNAP data - Wessex

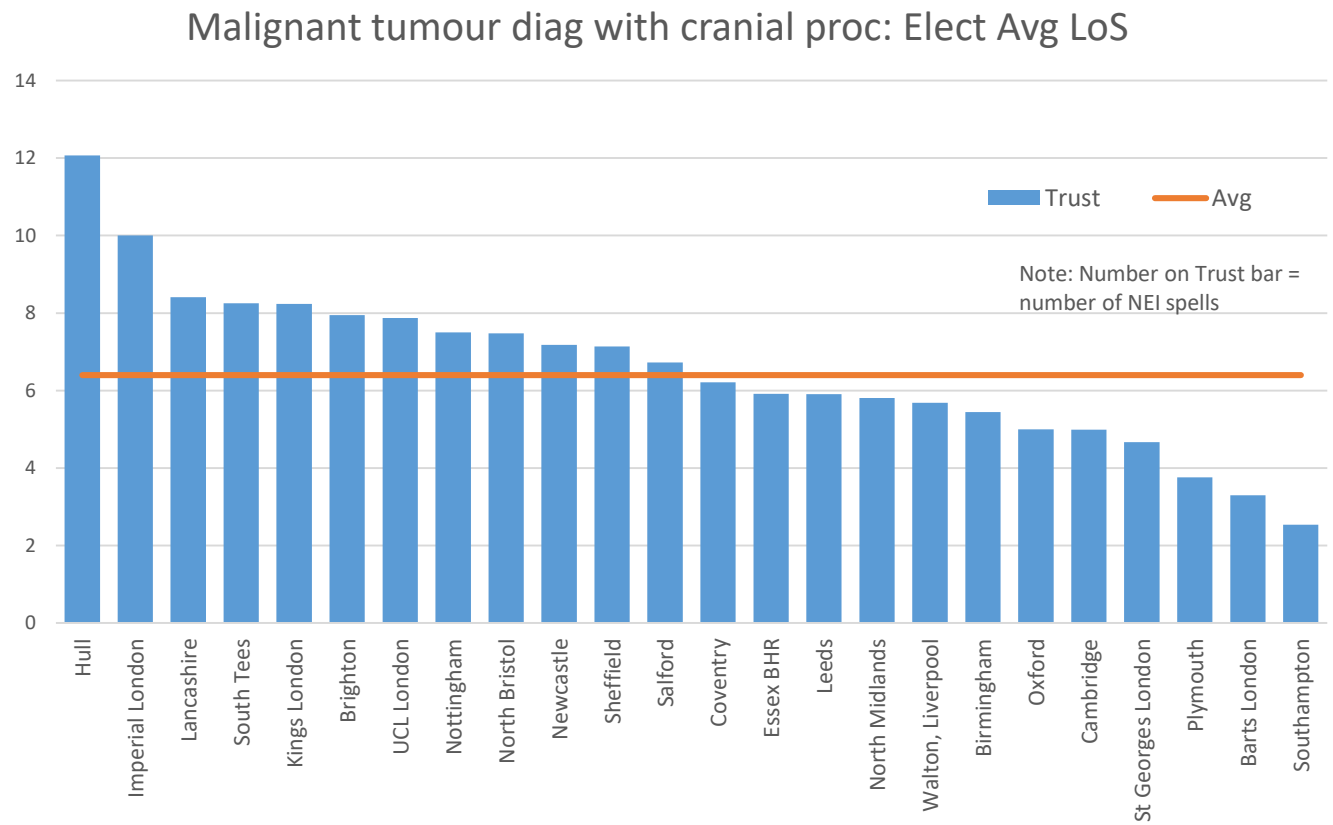
- Craniotomy LOS median
  - Intrinsic tumour – 1 day (vs 6 national)
  - Meningioma 4 days (vs 7)

- Mortality 0.87 (national 0.94)
  - Appears safe

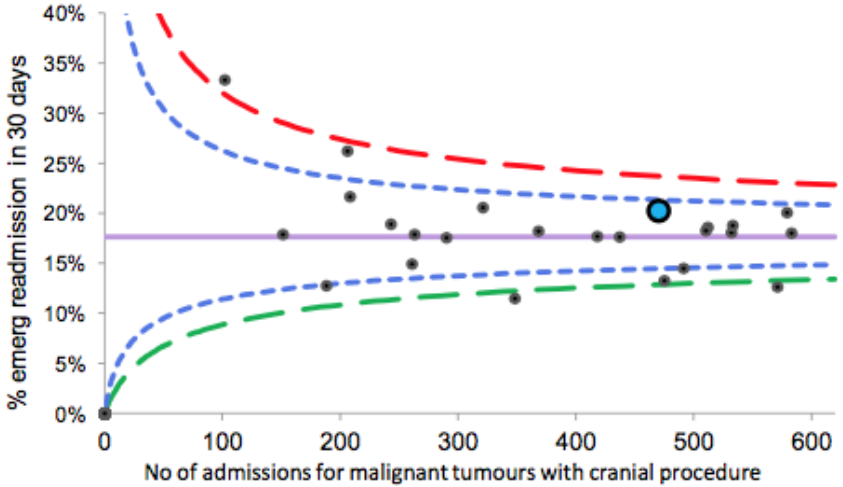


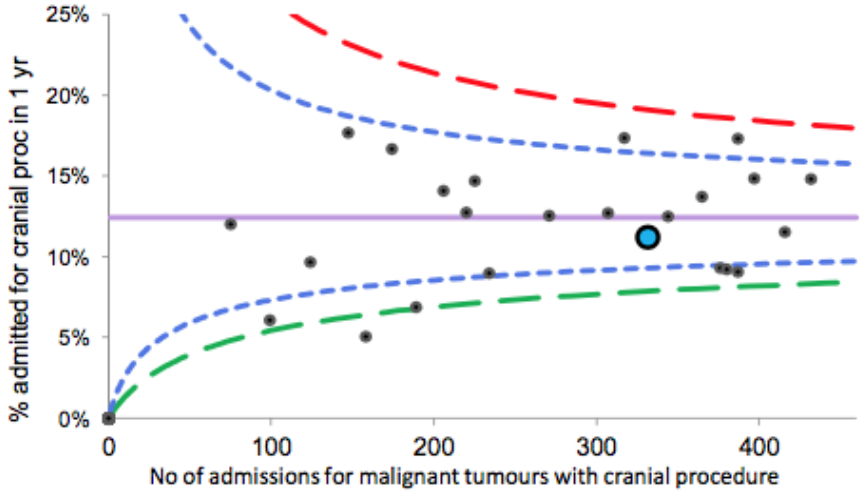
# Length of stay: GIRFT data - Wessex

- Primary malignant tumours
  - Elective mean LOS 2.5 days (1st; national 6.4 days)
- Secondary malignant tumours
  - Elective mean LOS 2.9 days (1st; national 6.5 days)
- Benign tumours
  - Elective mean LOS 4.7 days (1st; national 9.2 days)

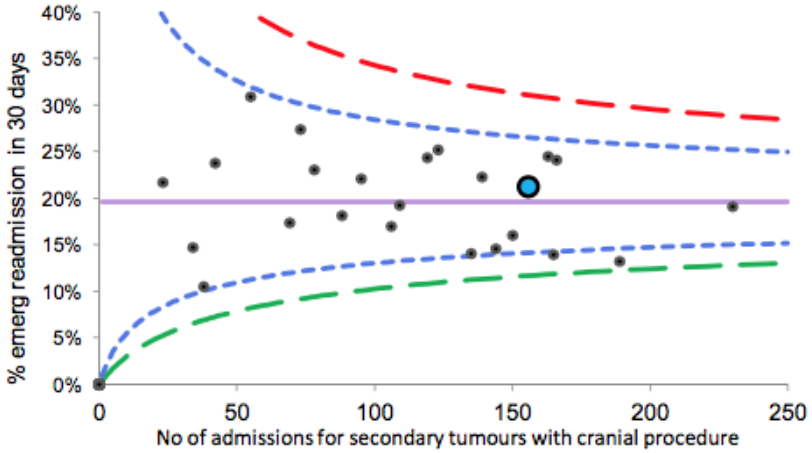

Malignant tumour diag with cranial proc: Elect Avg LoS
14
12
10
8
6
4
2
0
Trust
Avg
Note: Number on Trust bar = number of NEI spells
Hull
Imperial London
Lancashire
South Tees
Kings London
Brighton
UCL London
Nottingham
North Bristol
Newcastle
Sheffield
Salford
Coventry
Essex BHR
Leeds
North Midlands
Walton, Liverpool
Birmingham
Oxford
Cambridge
St Georges London
Plymouth
Barts London
Southampton

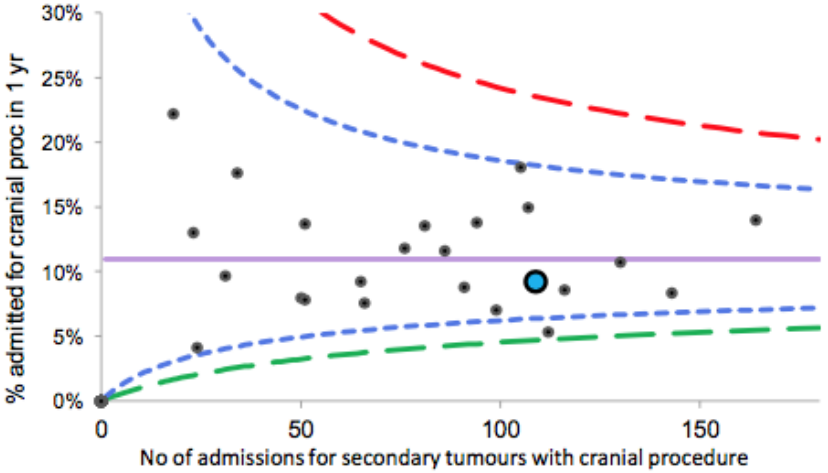
# Does early discharge increase readmissions?



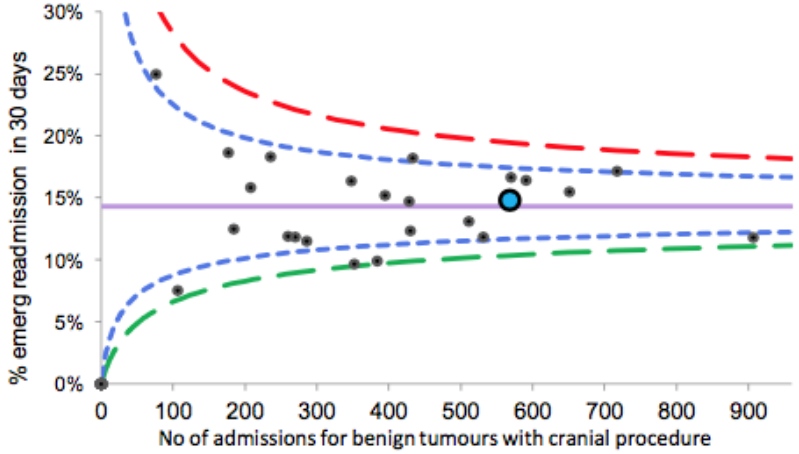



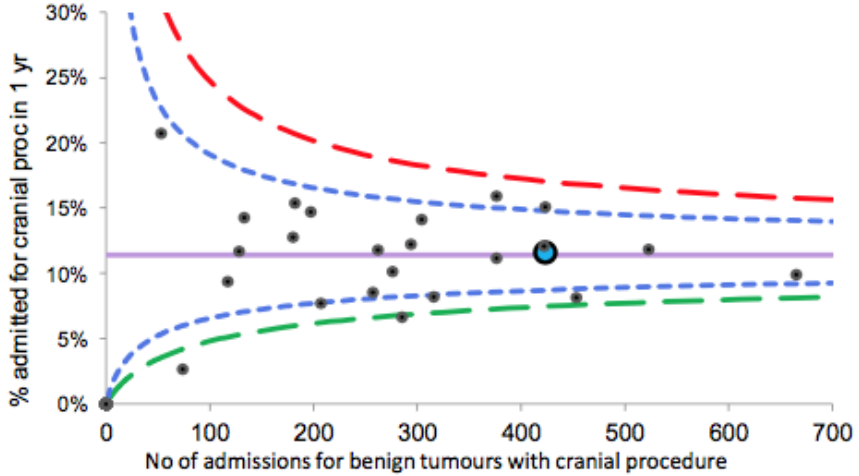
# Readmissions after surgery for metastases



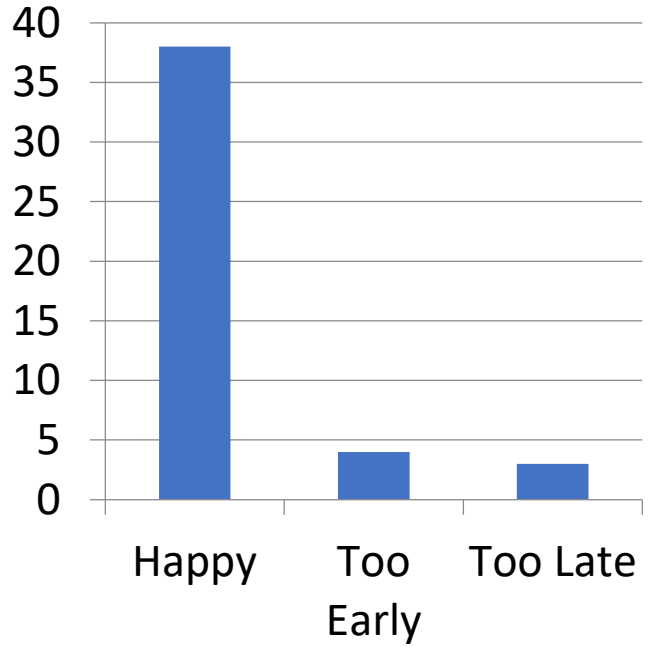
# Readmissions of benign tumours



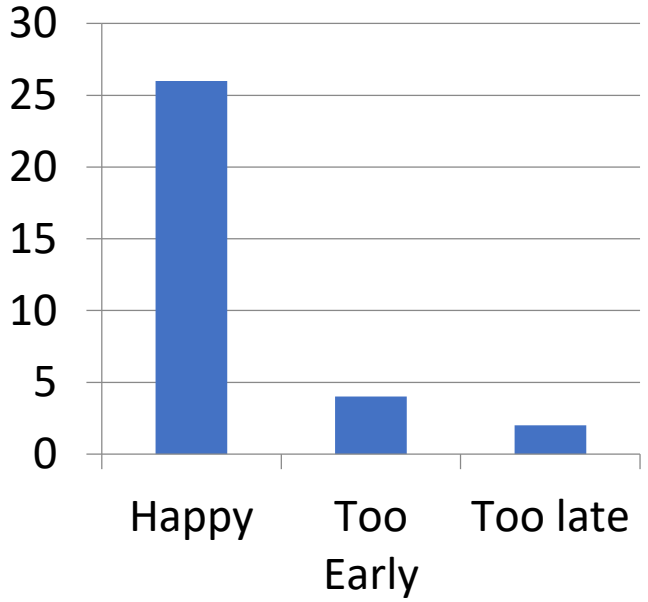



# Timing of Discharge: day-cases

**Survey 2007-8**




**Survey 2015-16**



# Summary

- Day-case and short-stay brain tumour surgery is safe and feasible
- There are advantages for patients and healthcare providers