# NCIN
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# Your cancer – Your choice?

**Dr Mick Peake**

Clinical Lead

National Cancer Intelligence Network

**The National Cancer Intelligence Network is now operated by Public Health England**

NCRI

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**If you or a member of your family had cancer, how would you decide where to go for treatment?:**

- …take the advice of your GP?
- …simply go to your local hospital because it was convenient?
- …"Google" information on the quality and outcomes of the services anywhere in the country and choose the best?
- …phone a friend?

## Would you……

- …play a cricket match without keeping score?
- …run in a Grand Prix race without recording the times?
- …get on a train a 90% safety record?
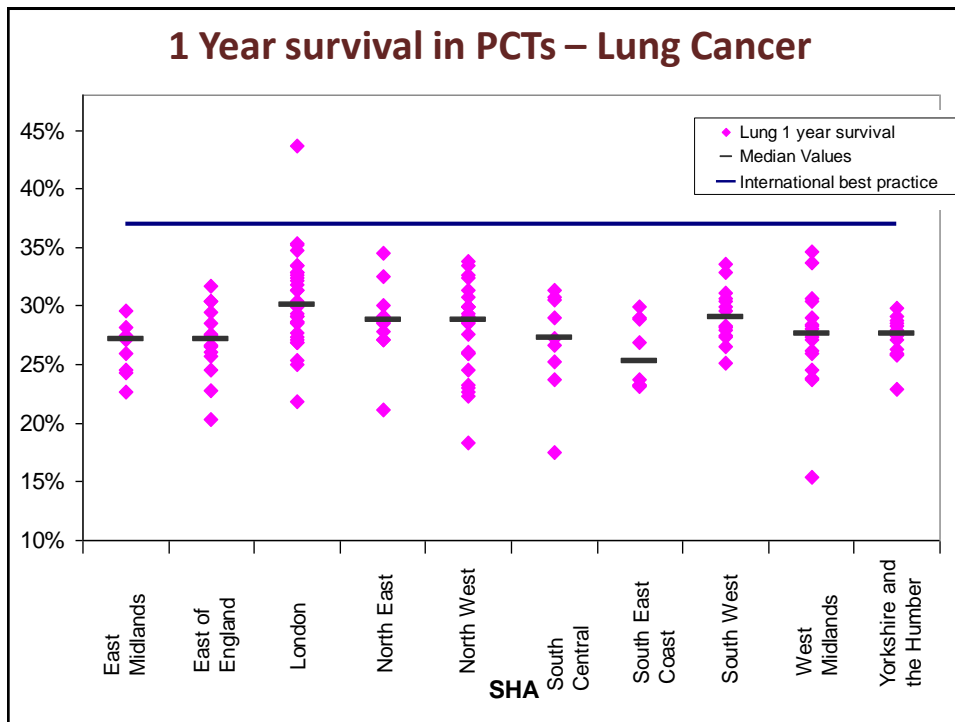- …fly with an airline that didn't keep a maintenance record?

## So……

- …why would you choose to be treated by a cancer service that had no knowledge of its performance or outcomes?

# Well……

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- …maybe it's not that simple!

# Problems

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1. Who is responsible for any outcome indicator?

**1 Year survival in PCTs – Lung Cancer**

# Factors that might affect 1 year survival

- Stage at diagnosis
  - Public awareness of symptoms & attitudes to health
  - Quality of and access to primary care and diagnostics
  - Rates of uptake of screening
- Rates of co-morbidities
- Quality of specialist services
  - Diagnosis and assessment
  - Access to specialist treatments (and patient choice!)
  - Technical expertise of individual clinicians & teams

## Active treatment rate for lung cancer by trust (England, 2011)
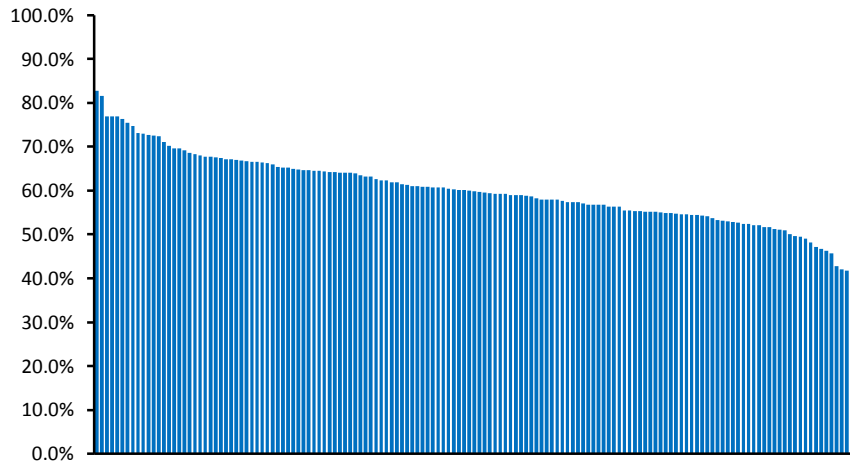


**Source; National Lung Cancer Audit 2012**
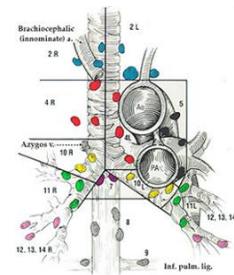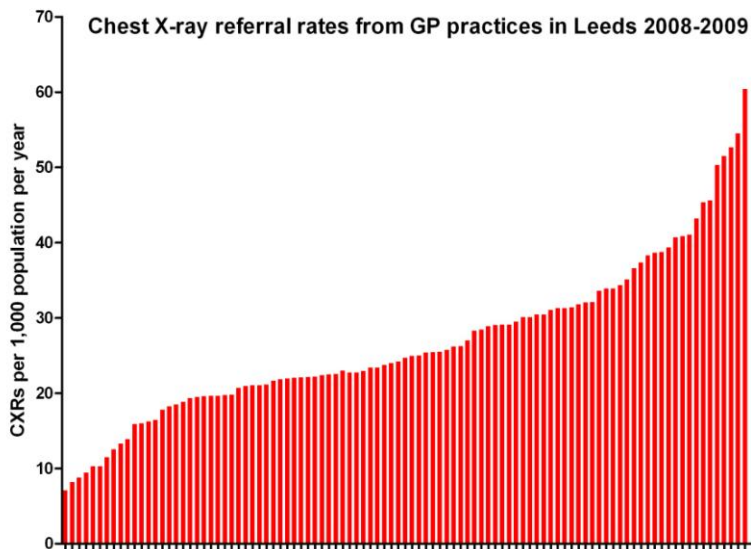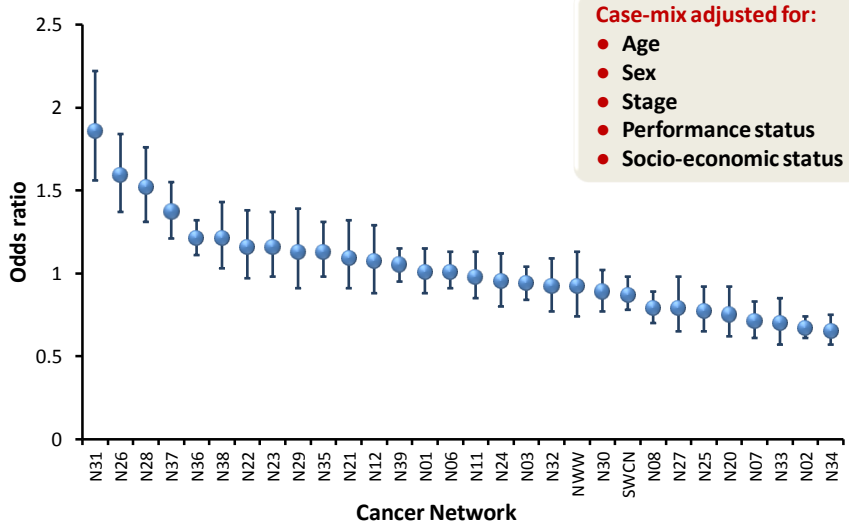
## Case-mix (risk) adjustment



Age

Fitness & Co-morbidity

Social Deprivation

Disease stage

**Lung cancer active treatment rate – case mix adjusted**

Case-mix adjusted for:
- Age
- Sex
- Stage
- Performance status
- Socio-economic status



Chest X-ray referral rates from GP practices in Leeds 2008-2009

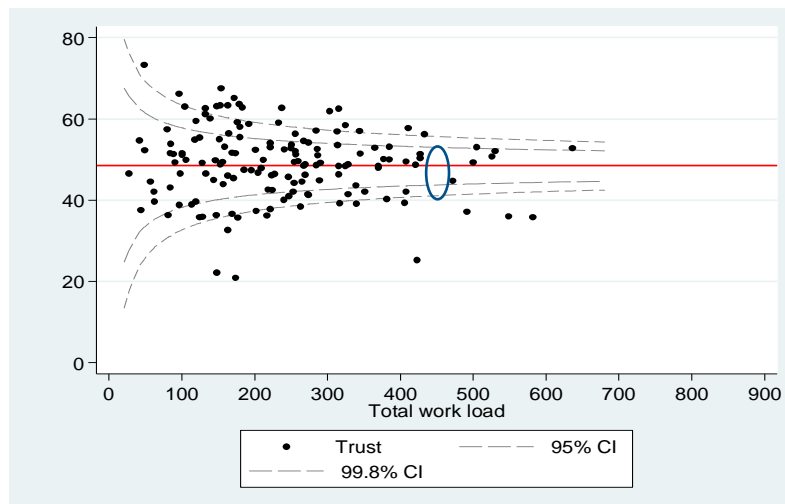**Source: Dr Matthew Callister, Leeds**

# Problems

1. Who is responsible for any outcome indicator?
2. Identifying true outliers

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REVIEWS

## Funnel Plots and Their Emerging Application in Surgery

Erik K. Mayer, BSc (Hons), MRCS (Eng),* Alex Bottle, PhD,† Christopher Rao, BSc,*
Ara W. Darzi, HonFREng, FmedSci,* and Thanos Athanasiou, PhD, FETCS*

## REVIEWS

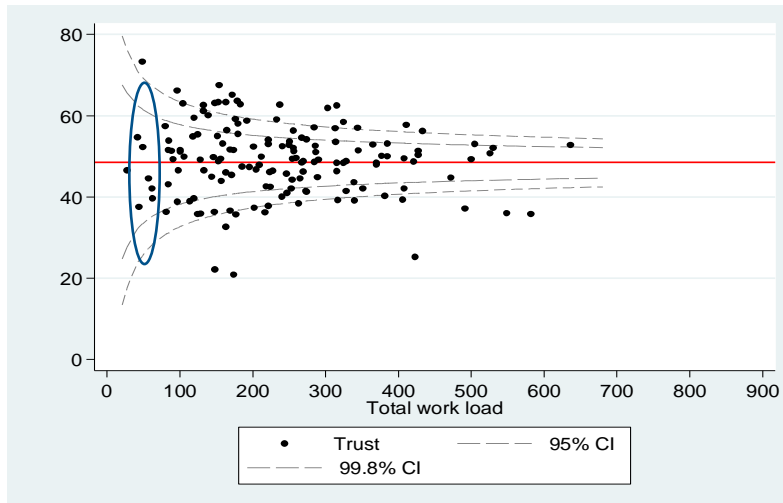# Funnel Plots and Their Emerging Application in Surgery

Erik K. Mayer, BSc (Hons), MRCS (Eng),* Alex Bottle, PhD,† Christopher Rao, BSc,*
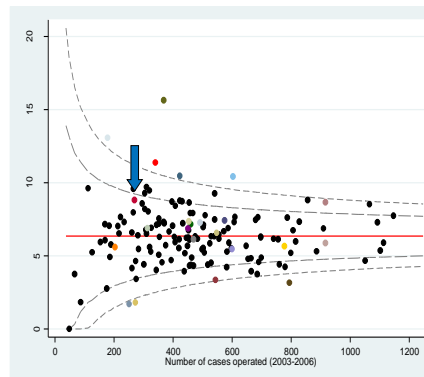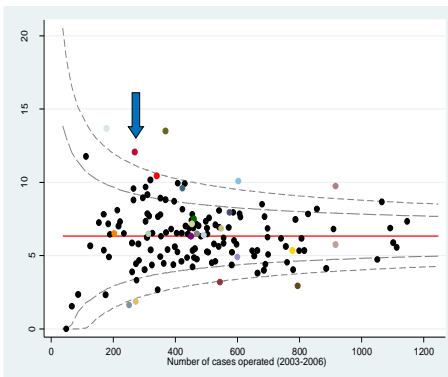Ara W. Darzi, HonFREng, FmedSci,* and Thanos Athanasiou, PhD, FETCS*



# Effect of Risk Adjustment



NCIN 2013

## Risk Adjustment
### (30-day post-operative mortality colo-rectal cancer 2008-2010)
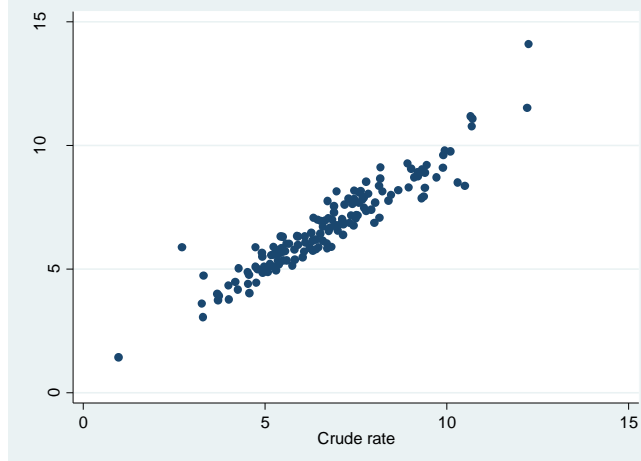
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NCIN/NCDR 2013

## Problems

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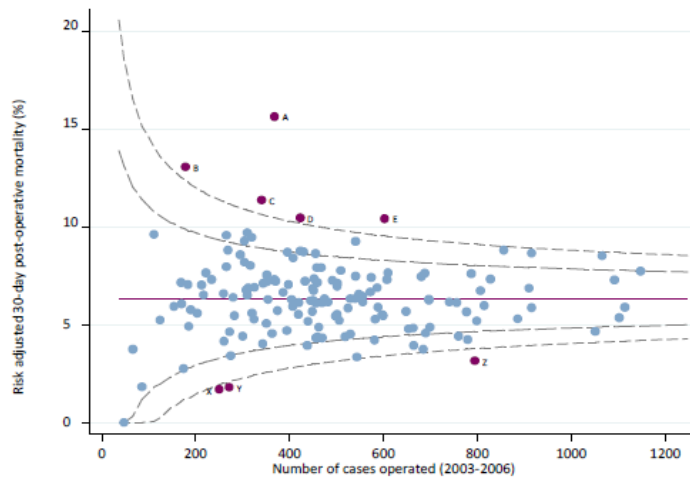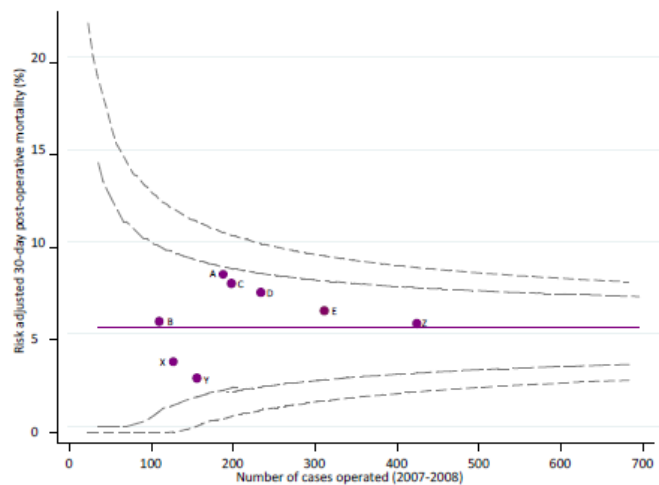
1. Who is responsible for any outcome indicator?
2. Identifying true outliers
3. Changes over time

## Risk-adjusted postoperative mortality, colo-rectal cancer (2003-6)



## Risk-adjusted postoperative mortality, colo-rectal cancer (2007-8)

# Problems

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1. Who is responsible for any outcome indicator?
2. Identifying true outliers
3. Changes over time
4. Public & press misinterpretation

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# Understanding/Misinterpreting Data

Unacceptable variation in abdominoperineal excision rates for rectal cancer: time to intervene?

E Morris,[1,2] P Quirke,[2] J D Thomas,[1,2] L Fairley,[3] B Cottier,[4] D Forman[1,3]

**Gut – June 5th, 2008 10:05am**

Low Graphics | Accessibility help

B B C

[Search] [Explore the BBC]

NEWS  ▶ LIVE  BBC NEWS CHANNEL

| | |
|---|---|
| News Front Page | Page last updated at 00:03 GMT, Thursday, 5 June 2008 01:03 UK |
| World | ✉ E-mail this to a friend        🖶 Printable version |
| UK | **Rectal surgeons using 'wrong op'** |
| England | |
| Northern Ireland | Claims that many rectal cancer patients receive an "inappropriate" operation have been rejected by surgeons. |
| Scotland | |
| Wales | |
| Business | |
| Politics | Leeds University researchers said hospital data showed the APE operation, which leaves patients with a permanent colostomy, was being used too often. |
| Health | |
| Medical notes | |
| Education | |
| Science/Nature | In the journal Gut, they said introducing official targets would cut it further. |
| Technology | |
| Entertainment | |
| Also in the news | |

SEE ALSO
▸ Why is the UK lagging on cancer?
  21 Aug 07 | Health
▸ Fat hormone 'boosts colon cancer'
  07 Apr 07 | Health
▸ Trial slashes bowel cancer risk
  09 Oct 06 | Health

RELATED INTERNET LINKS
▸ Gut
▸ Association of Coloproctology of Gr and Ireland
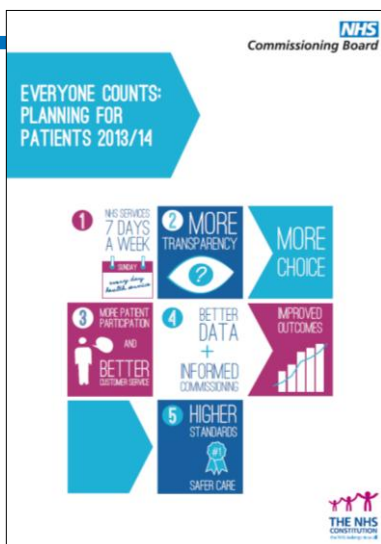▸ Cancer Research UK

Surgery can leave a patient needing a colostomy

**BBC News
June 5th, 2008
(6 minutes later)**

# Problems



1. Who is responsible for any outcome indicator?
2. Identifying true outliers
3. Changes over time
4. Public & press misinterpretation
5. Ability to demonstrate performance quality in individual clinicians

# Surgeon-level reporting: *'Everyone counts'*



Dec 2012

- Outcomes to be reported for every consultant practising in 10 specialties

- Includes colorectal surgery

- Data will come from clinical audits

- Results published end June 2013

## Surgeon (& trust)-level reporting

*Why do outcomes vary?*

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**Play of chance** → often taken too lightly

**Case-mix** → adjustment always incomplete

Impact of **data quality** → often underestimated

} *noise*

**Care factors** → quality of services ⟶ *signal*

Beware of poor "signal-to-noise ratio"

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## Surgeon-level reporting:

### Wider issues

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**Adjustment for case mix**
Always incomplete

**Impact of data quality**
Often underestimated

**Identifying the responsible surgeon**
Not always straightforward

**Meaningful level for reporting outcomes**
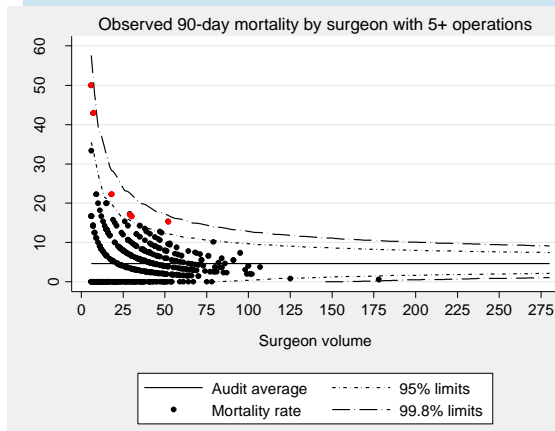Team working (role of peri-operative care)

**Surgeon consent**

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# The Package of Care



**High Dependency Unit**



**Surgical Team**

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# Surgeon-level reporting

*What proportion of outliers have poor performance?*

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Observed 90-day mortality by surgeon with 5+ operations



Surgeon volume

| | |
|---|---|
| —— Audit average | · · · · · 95% limits |
| • Mortality rate | —·—· 99.8% limits |

Not all of these surgeons will have poor performance

Depends on
- Significance level used
- Surgeon volume
- Prevalence of poor performance

**Courtesy: Dr Kate Walker & colleagues, Royal College of Surgeons**

## Surgeon-level reporting:

*What surgeon volume is required?*

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**Statistical power**: chance that surgeon with doubling of mortality will be detected as significantly worse than average at a 5% significance level

| Procedure | Postoperative mortality (%) | Median annual surgeon volume | Volume required to achieve: | | |
|---|---|---|---|---|---|
| | | | 60% power | 70% power | 80% power |
| Hip fracture surgery | 8.4 | 31 | 56 | 75 | 102 |
| Gastrectomy/oesophagectomy | 6.1 | 11 | 79 | 109 | 148 |
| **Bowel cancer resection** | **5.1** | **9** | **95** | **132** | **179** |
| Cardiac surgery | 2.7 | 128 | 192 | 256 | 352 |

**Median annual *trust* volume bowel cancer resection: 100**

**Courtesy: Dr Kate Walker & colleagues, Royal College of Surgeons**

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## Surgeon-level reporting

*Are surgeon volumes sufficient?*

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| Reporting period/ Procedure | 60% power | 70% power | 80% power |
|---|---|---|---|
| **One year** | | | |
| Hip fracture surgery | 4% | 1% | 0 |
| Oesophagectomy/gastrectomy | 0 | 0 | 0 |
| **Bowel resection** | **0** | **0** | **0** |
| Cardiac surgery | 16% | 1% | 0 |
| **Three years** | | | |
| Hip fracture surgery | 73% | 62% | 42% |
| Oesophagectomy/gastrectomy | 9% | 0 | 0 |
| **Bowel resection** | **17%** | **4%** | **0** |
| Cardiac surgery | 75% | 69% | 56% |
| **Five years** | | | |
| Hip fracture surgery | 84% | 79% | 70% |
| Oesophagectomy/gastrectomy | 34% | 17% | 5% |
| **Bowel resection** | **37%** | **24%** | **11%** |
| Cardiac surgery | 80% | 77% | 72% |

## Surgeon-level reporting

*Are surgeon volumes sufficient?*

**Compare this to *trust* volumes for bowel cancer resection**
90-day mortality

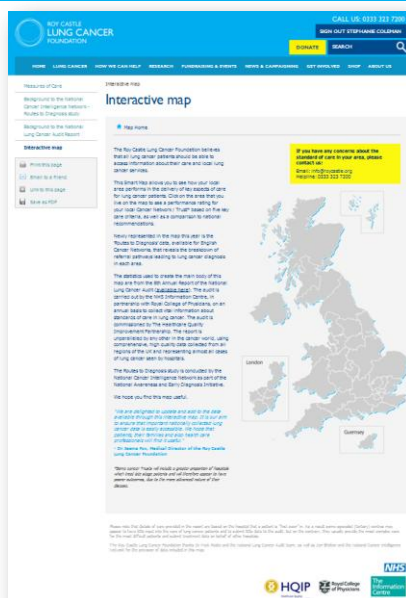| Reporting period/ Procedure | 60% power | 70% power | 80% power |
|---|---|---|---|
| **One year** | | | |
| **Bowel resection** | 55% | 27% | 11% |

## Problems

1. Who is responsible for any outcome indicator?
2. Identifying true outliers
3. Changes over time
4. Public & press misinterpretation
5. Ability to demonstrate performance quality in individual clinicians
6. How to get the data 'out there'

# Current sources of information

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- NHS Choices
- Friends & Family Test
- National Cancer Audits
- Service & GP Profiles
- Cancer Patient Experience Survey
- Cancer Peer Review ('My Cancer Treatment')
- Your GP?

## Lung Cancer Interactive Map



**Source: Roy Castle
Lung Cancer Foundation**

# Lung Cancer Interactive Map

# GP Practice profiles

Cancer indicators in Practice 6, ANON PCT (1)

# Patient experience survey

# Cancer Peer Review

| MDT | Score | Colorectal % | Breast % | Lung % | Gynae % | Upper GI % | Urology % | Skin % | Chemo % | AOS % |
|---|---|---|---|---|---|---|---|---|---|---|
| **Top 10** (In top 20% =1 In bottom 20% =-1) | | | | | | | | | | |
| MDT - Northampton General Hospital NHS Trust | 7 | 98% | 91% | 96% | 100% | 91% | 98% | 97% | 95% | 82% |
| MDT - Derby Hospital | 6 | 100% | 100% | 96% | 94% | 97% | 100% | 97% | 76% | 64% |
| MDT - George Eliot | 6 | 95% | 100% | 100% | 90% | 97% | 95% | 97% | 90% | 80% |
| MDT - South Devon | 6 | 100% | 97% | 96% | 97% | 94% | 93% | 87% | 88% | 82% |
| MDT - Chelsea & Westminster | 5 | 93% | | 96% | 100% | 94% | 95% | 91% | 90% | 90% |
| MDT - University Hospital Coventry and Warwickshire NHS | 5 | 95% | 100% | 96% | 97% | 85% | 91% | 88% | 90% | 82% |
| MDT - Watford General Hospital | 5 | 100% | 100% | | 97% | 91% | 97% | | 79% | 80% |
| MDT - West Suffolk | 5 | 95% | 97% | 96% | 97% | 97% | 88% | 97% | 81% | 40% |
| MDT - Barnsley | 4 | 100% | 97% | 96% | | 97% | 88% | 100% | 69% | 44% |
| MDT - Croydon | 4 | 98% | 97% | 96% | 93% | 84% | 90% | 100% | 76% | 60% |
| **Middle** | | | | | | | | | | |
| MDT - PRUH | 1 | 98% | 87% | 86% | | 84% | 98% | 87% | 86% | 50% |
| MDT - QE2 | 1 | 95% | 94% | | | | | | | |
| MDT - QEW | 1 | 91% | 91% | 89% | | 94% | | 90% | 86% | 50% |
| MDT - RMH Sutton | 1 | 88% | 97% | | | | | | 98% | 9% |
| MDT - Royal Berkshire | 1 | 93% | 97% | 86% | 90% | 88% | 93% | 90% | 83% | 73% |
| MDT - Royal Cornwall | 1 | 95% | 94% | 89% | 97% | 84% | 95% | 78% | 88% | 38% |
| MDT - Royal Hampshire County Hospital | 1 | 92% | 97% | 93% | | 91% | 93% | 83% | 88% | 50% |
| MDT - Royal Victoria Infirmary (Newcastle) | 1 | | | | | | | | | 0.82 |
| MDT - Sandwell & West Birmingham | 1 | 90% | 94% | 93% | 94% | 88% | 91% | 100% | 69% | 90% |
| MDT - Southend | 1 | 84% | 97% | | 97% | 94% | 86% | | 76% | 45% |
| MDT - St Albans City Hospital | 1 | | 97% | | | | | | | |
| **Bottom 10** | | | | | | | | | | |
| MDT - St Peters | -4 | 80% | 84% | 93% | 84% | 88% | 89% | 87% | 42% | 73% |
| MDT - The Princess Alexandra Hospital | -4 | 81% | 88% | 93% | 84% | 84% | 86% | 77% | 83% | 91% |
| MDT - Weston | -4 | 90% | 84% | 87% | 88% | 95% | | 79% | | 40% |
| MDT - Morecambe Bay Hospitals | -5 | 83% | 81% | 61% | | 81% | 88% | 9% | 71% | |
| MDT - Worcestershire Acute Hospitals NHS Trust | -5 | 85% | 88% | 87% | 77% | 88% | 95% | 77% | 55% | 70% |
| MDT - Wrightington, Wigan And Leigh | -5 | 87% | | | | | | | | |
| MDT - Hull And East Yorkshire Hospitals | -6 | 81% | 66% | 93% | 58% | | 63% | 81% | 64% | |
| MDT - Mid Cheshire | -6 | 65% | 83% | 71% | | 84% | | 70% | 67% | |
| MDT - Scarborough And North East Yorkshire Health Care | -6 | 79% | | 82% | | 96% | 91% | 57% | 57% | 20% |
| MDT - York | -6 | 74% | 72% | 89% | 97% | 72% | 86% | 77% | 64% | 40% |

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For an informed choice about your NHS cancer services

**www.mycancertreatment.nhs.uk**

Follow three steps to find and compare your cancer treatment

Location   Cancer Team   Hospital

www.mycancertreatment.nhs.uk

My Cancer Treatment
in association with National Cancer Peer Review

Providing you with the knowledge to decide *where* you would like to be treated

Follow three easy steps to find and compare your cancer treatment

Search by **location, cancer team** and **hospital** to locate and compare NHS cancer services, both locally and nationally.

Location   Cancer Team   Hospital

For an informed choice about your cancer service visit **www.mycancertreatment.nhs.uk**

National Peer Review Programme

**Locate and Compare Cancer Services in three easy steps…**

Find Your Treatment

Follow these three easy steps to find your cancer treatment and compare NHS cancer services across England.

1. Enter your Location
Enter City or Postcode and press return

2. Select your Cancer Service by either:
Affected Area    Treatment    Clinical Team

3. Choose the Hospital
Type or select the Trust or Hospital name from the list

- Aintree University Hospital NHS Foundation Trust
  University Hospital Aintree, Liverpool
- Airedale NHS Foundation Trust
  Airedale General Hospital, Keighley
- Ashford & St Peter's Hospitals NHS Foundation Trust
  St Peter's Hospital, Chertsey
- Barking, Havering & Redbridge University Hospitals NHS Trust
  King George Hospital, Ilford

National Peer Review Programme

NHS

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# Hospital ratings:
# Composite indicators

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Jeremy Hunt announced a review of 'OFSTED-style ratings in Nov 2012

The Nuffield Trust is currently leading a review of aggregate ratings

# The Curate's Egg



Bishop: "I'm afraid you've got a bad egg, Mr Jones"; Curate: "Oh, no, my Lord, I assure you that parts of it are excellent!"
"True Humility" by George du Maurier, originally published in *Punch*, 1895.

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# Hypothesis

1. Most hospitals are like the proverbial Curate's egg: good in parts, or – "An indeterminate mix of good and bad" (Oxford dictionaries)

2. Individual services may also have both "good" and "less good" aspects e.g.
   - Low 30 day mortality (= "good")
   - But ... Poor patient experience (= "less good")

## Applying this to hospital services

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- What information do we have?
- Is it reliable and complete?
- Does it truly reflect the service delivered by a specific team – or are others involved (e.g. Primary care, tertiary care or social care?)
- What structure/process measures can be used as **proxies** for outcomes
- How do we combine information on the five domains of the NHS Outcomes Framework?

## The NHS Outcomes Framework (made simple)

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If you were seriously unwell, what would you be likely to want?
- To have your life saved
- To have a good quality of life thereafter
- To recover quickly
- To have a good experience of care from the NHS
- To be treated safely

**Q: What is the most important factor when choosing a hospital for an operation for an unspecified condition**

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| Factor | Percentage |
| --- | --- |
| Don't know | 4% |
| None of these | 1% |
| Operations cancelled at short notice | 1% |
| Recent written complaints | 3% |
| Sharing with opposite sex | 3% |
| Patients said they were harmed | 7% |
| Patients said they got better after… | 7% |
| Staff would recommend the hospital | 9% |
| Patient involvement | 11% |
| Infection rates | 12% |
| Operation waiting times | 20% |
| Good patient experience | 23% |

Source: MHP Health Mandate

**Q: What is the most important factor when choosing a hospital for _lung cancer_ treatment?**

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| Factor | Percentage |
| --- | --- |
| Don't know | 3% |
| None of these | 1% |
| Written treatment plan | 1% |
| Team meets national standards | 2% |
| Emotional support | 2% |
| Effective pain control | 2% |
| Specialist lung cancer nurse | 2% |
| Choice of treatment | 2% |
| Single team for all treatment | 6% |
| Care rated 'excellent'/'very good' | 6% |
| Start treatment in a month | 17% |
| Most effective treatment | 57% |

Source: MHP Health Mandate

# Composite measures

Acknowledgments to Di Riley & Mike Richards

The National Cancer Intelligence Network will be hosted by Public Health England from 1st April 2013

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**Cancer Service Profiles for Breast Cancer**

- Does the Specialist Team have full membership?
- Proportion of Peer Review indicators met?
- Peer Review: are there immediate risks?
- Peer Review: are there serious concerns?
- % treated within 62 days of urgent GP referral for suspected cancer?
- How many surgical patients receive a mastectomy?
- How many mastectomy patients receive an immediate reconstruction?
- % of patients surveyed report being treated with respect and dignity?
- % of survey questions scoring red or green?

# MDT Scores per Indicator

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| Indicator No: | Indicator | Criteria for Inclusion | Nos MDTs achieving criteria | Total Nos MDTs | % MDTs achieving criteria |
|---|---|---|---|---|---|
| 11 | The specialist team has full membership | = YES | 120 | 155 | 77% |
| 12 | Proportion of peer review indicators met | >=80% | 101 | 155 | 65% |
| 13 | Peer review: are there immediate risks? | = NO | 143 | 155 | 92% |
| 14 | Peer review: are there serious concerns? | = NO | 103 | 155 | 66% |
| 23 | Treatment within 62 days of urgent GP referral for suspected cancer % | >=95% | 126 | 155 | 81% |
| 30 | Provider undertaking immediate reconstruction* | >0% | 141 | 155 | 91% |
| 32 | Surgical patients receiving mastectomies % | < value of 75th percentile | 116 | 155 | 75% |
| 38 | % reporting always being treated with respect & dignity | >80% | 73 | 148 | 49% |
| 40 | Cancer patient experience survey questions scored as "green" % | >12% | 85 | 149 | 57% |

# Composite 'Indicator'

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| Total No. of Criteria Achieved* | Number of MDTs | % of MDTs |
|---|---|---|
| 9 | 19 | 12% |
| 8 | 29 | 19% |
| 7 | 41 | 26% |
| 6 | 23 | 15% |
| 5 | 24 | 15% |
| 4 | 13 | 8% |
| 3 | 5 | 3% |
| 2 | 1 | 1% |
| 1 | 0 | 0% |
| 0 | 0 | 0% |
| Grand Total | 155 | |

# Looking beyond healthcare

- How do others present information to the public?
  - Ofsted
  - Universities
  - Restaurants

# Ofsted

## Modbury Primary School

Inspection report

| | |
|---|---|
| **Unique reference number** | 113335 |
| **Local authority** | Devon |
| **Inspection number** | 395365 |
| **Inspection dates** | 24–25 April 2012 |
| **Lead inspector** | Mark Lindfield HMI |

This inspection of the school was carried out under section 5 of the Education Act 2005.

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Inspection report:  Modbury Primary School, 24–25 April 2012                    **4 of 12**

Inspection grades: 1 is outstanding, 2 is good, 3 is satisfactory, and 4 is inadequate
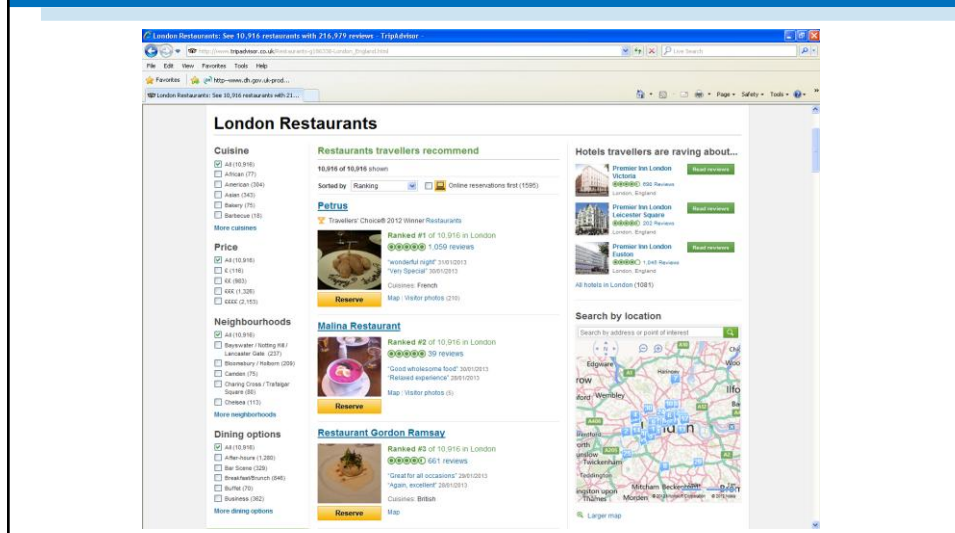Please turn to the glossary for a description of the grades and inspection terms

## Inspection judgements

| | |
|---|---|
| **Overall effectiveness** | **3** |

| | |
|---|---|
| **Achievement of pupils** | **3** |
| **Quality of teaching** | **3** |
| **Behaviour and safety of pupils** | **2** |
| **Leadership and management** | **3** |

# University ratings

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| CUG Rank 2013 | 2012 | University Name | Entry Standards | | Student Satisfaction | | Research Assessment | | Graduate Prospects | | Overall Score | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | Cambridge | 593 | | 4.2 | | 2.98 | | 84.4 | | 1000 | |
| 2 | 4 | London School of Economics | 526 | | 4.0 | | 2.96 | | 87.8 | | 996 | |
| 3 | 2 | Oxford | 572 | | 4.2 | | 2.96 | | 79.8 | | 995 | |
| 4 | 3 | Imperial College London | 553 | | 3.9 | | 2.94 | | 87.1 | | 959 | |
| 5 | 5 | Durham | 501 | | 4.1 | | 2.72 | | 78.5 | | 912 | |
| 6 | 6 | St Andrews | 515 | | 4.2 | | 2.72 | | 74.1 | | 855 | |
| 6 | 8 | Warwick | 496 | | 4.0 | | 2.80 | | 77.6 | | 855 | |
| 8 | 7 | University College London | 495 | | 4.0 | | 2.84 | | 79.9 | | 847 | |
| 9 | 9 | Lancaster | 409 | | 4.0 | | 2.71 | | 73.6 | | 841 | |
| 10 | 10 | Bath | 457 | | 4.1 | | 2.71 | | 79.1 | | 824 | |

## London restaurants:
## Trip Advisor

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## Final thoughts

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national cancer
intelligence network
*Using information to improve quality & choice*

- However good the data, it will never be perfect!
- The balance between 'perfect then publish' and 'publish then perfect' has moved towards publication and the subsequent improvement in data quality
- The wider public (and the government) needs to be educated about the interpretation of data
- We need research into which quality issues which matter most to people, but recognise that the priorities of patients may differ to the general public
- There is much more that could be done to better present and communicate information on service quality

**What would any 'consumer' want of cancer data?**

NCIN
national **cancer**
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### That it is:

- Timely
- Local
- Meaningful
- Accessible
- Understandable

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### That it is:

- Timely
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*"Take me to a specialist"*