Revisiting Nightingale´s vision to assess the outcomes of hospital treatment

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LSE THE LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE

LSE

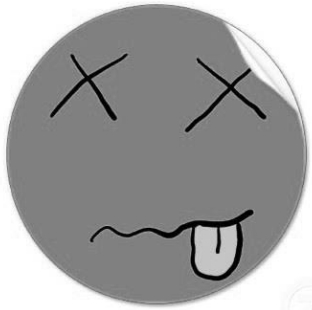
Florence NIGHTINGALE MUSEUM

Florence Nightingale and hospital management

Superintendent of Institute for the Care of Sick Gentlewomen, Harley Street 1853-1854

Established standardised data collection of hospital statistics – “Model Forms”

Including health outcomes



Florence Nightingale's Model Forms

NUMERICAL ANALYSIS *of the* PATIENTS *treated in* GUY'S HOSPITAL *for the last Seven Years, from* 1854 *to* 1861. *By* JOHN CHARLES STEELE, M.D., *Superintendent of Guy's Hospital.*

[Read before the Statistical Society of London, 18th June, 1861.]

Florence Nightingale's Model Forms

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[Read before the Statistical Society of London, 18th June, 1861.]

TABLE XI.—*The following Table gives the Causes of the Accidents, with the Sexes and Mortality.*

Causes of Accidents.	Total Cases.	Cured or Relieved.		Died.	
		Male.	Female.	Male.	Female.
1. Accidents on the river, in barges, and shipboard	90	78	3	9	—
2. Assaults	173	102	56	14	1
3. Accidental poisoning	37	15	14	5	3
4. Attempts at suicide	87	36	35	11	5
5. Burns from clothes taking fire	213	34	60	37	82
6. ,, heated fluids	177	90	46	26	15
7. ,, explosion of gas	12	11	1	—	—
8. ,, gunpowder	23	16	2	3	2
9. Collisions between opposing forces	108	90	14	4	—
10. ,, with street vehicles	416	299	55	54	8
11. Cuts and blows from sharp instruments	175	138	28	8	1
12. Falls down stairs	155	69	78	4	4
13. ,, from a height, scaffolding, &c.	832	679	83	62	8
14. ,, from curb stones and on the ground	553	417	116	18	2
15. Fall of heavy weights on patients	427	364	17	45	1
16. Gunshot wounds	16	14	—	2	—
17. Machinery accidents	233	216	2	15	—
18. Railway ,,	84	51	4	28	1
19. Sudden torsions of the body	64	60	4	—	—
20. Foreign bodies lodged in natural passages	22	15	3	1	3
21. Bites of animals, 7 dogs, 2 adders, monkey, horse, rat, elephant, and a woman	14	13	1	—	—
22. Causes of accident not ascertained	9	3	5	—	1
Total	3,920	2,810	627	346	137

21. Bites of animals, 7 dogs, 2 adders, monkey, horse, rat, elephant, and a woman .....

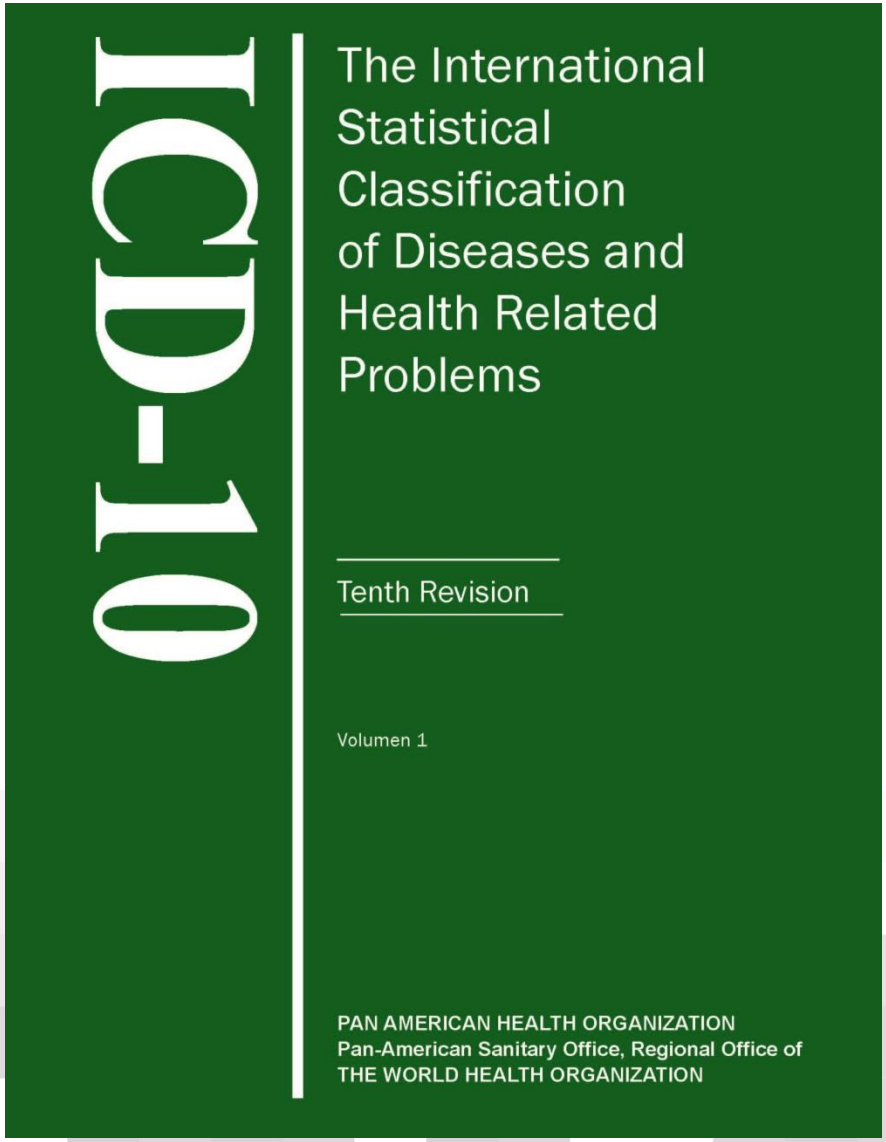
21. Bites of animals

7 dogs, 2 adders,

Monkey, horse, rat, elephant,

and a

Woman



16,000 codes

T01.9 Multiple open wounds, unspecified

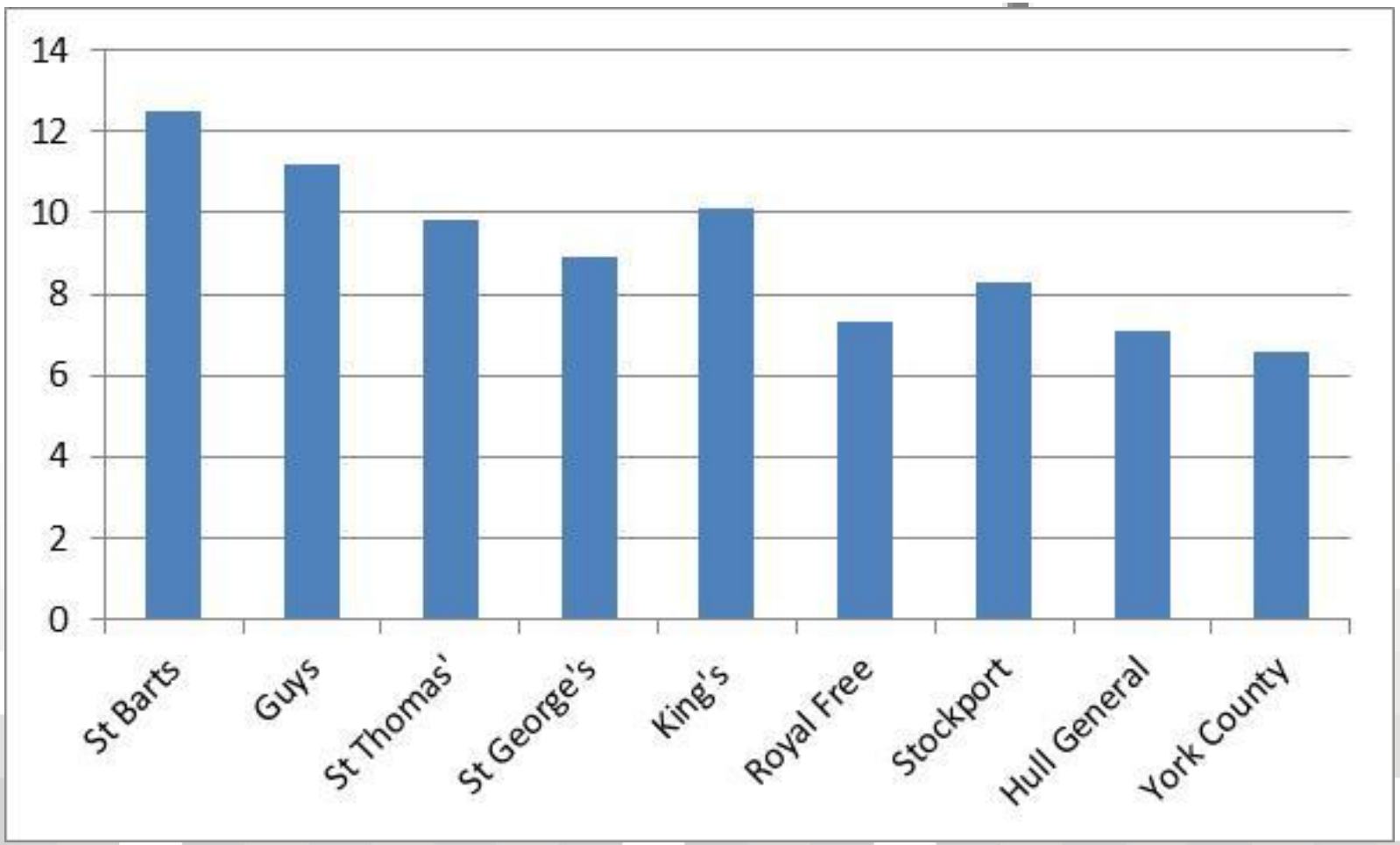
Multiple:

- animal bites
- cuts
- lacerations
- puncture wounds

STATISTICS *of the* GENERAL HOSPITALS *of* LONDON, 1861.

STATISTICS *of* METROPOLITAN *and* PROVINCIAL GENERAL HOSPITALS *for* 1862.

Rate of Mortality in the General Wards



STATISTICS *of the* GENERAL HOSPITALS *of* LONDON, 1861.

STATISTICS *of* METROPOLITAN *and* PROVINCIAL GENERAL HOSPITALS *for* 1862.

...

STATISTICS *of* METROPOLITAN *and* PROVINCIAL GENERAL HOSPITALS *for* 1865.

The Royal College of Surgeons of England

HALL OF THE ROYAL COLLEGE OF SURGEONS.

The Royal College of Surgeons referred the subject to a Committee, which reported adversely upon Miss Nightingale's Forms

The costliness of the work of compilation,

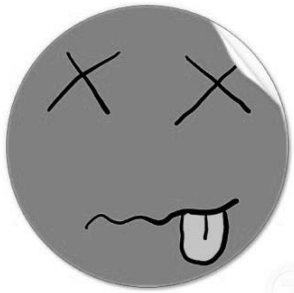
the difficulty of securing actual, as well as apparent, uniformity …

… are among the causes which have defeated Miss Nightingale's scheme (Cook 1913)

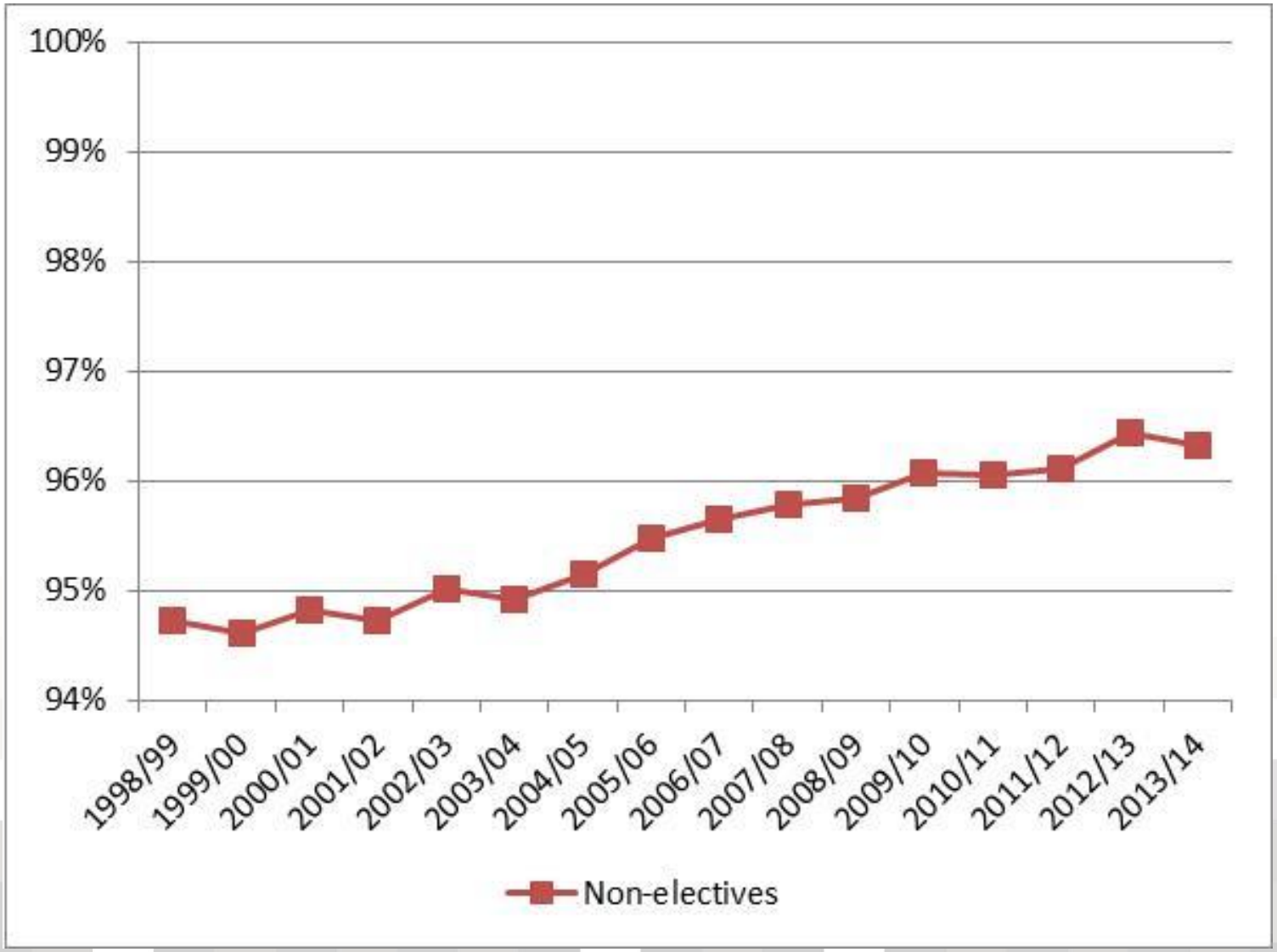
Mrs Körner review of NHS data

Re-established standardised data collection of hospital statistics

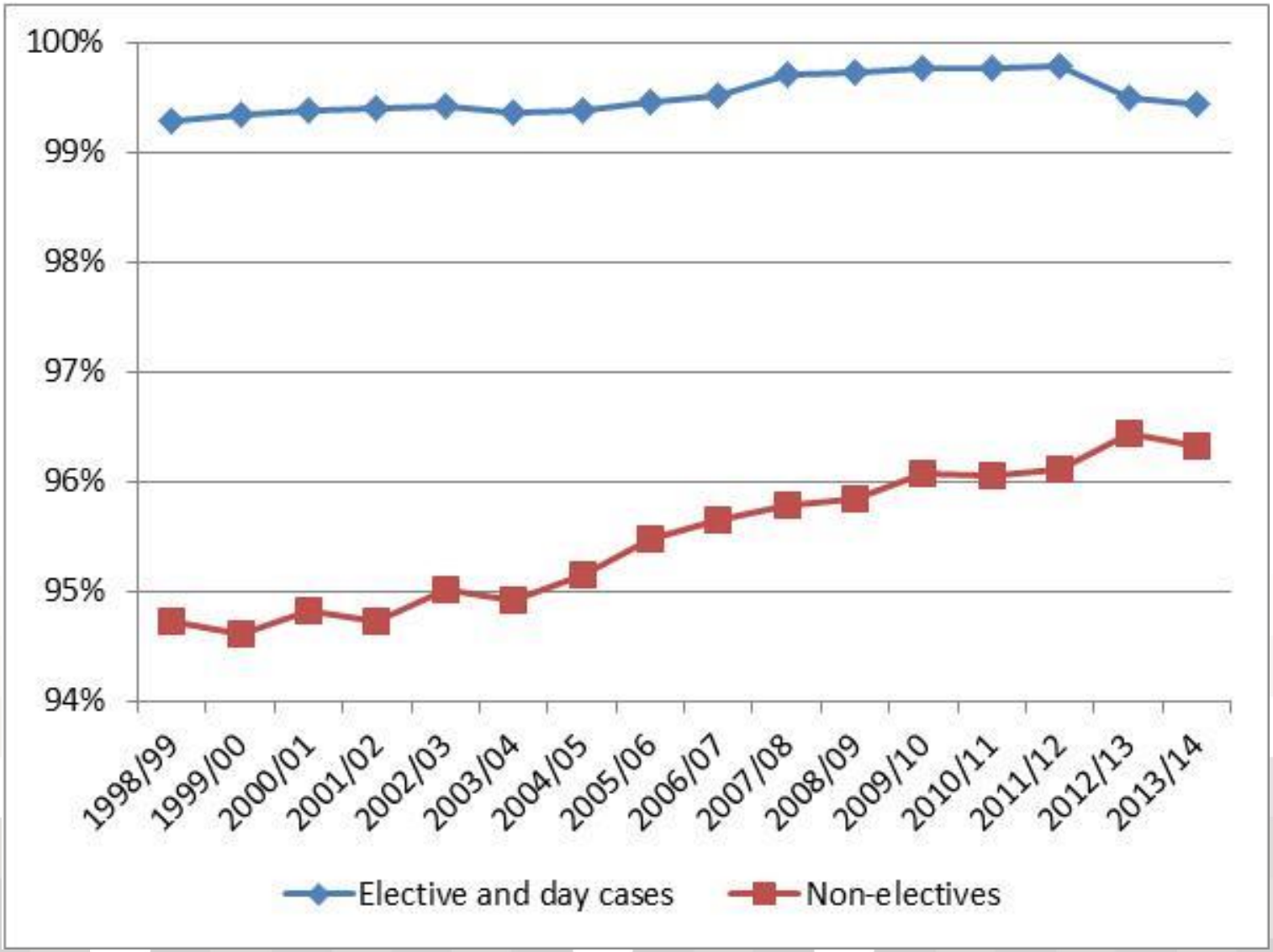
Including health outcomes



30-day post-discharge survival rate



30-day post-discharge survival rate



Inquiry into paediatric open heart surgery at Bristol Royal Infirmary

Between 1991 to 1995, between 30 - 35 more children under 12 months died after open heart surgery than expected.

In 1998 Frank Dobson announced that NHS would publish hospital mortality rates and rates by named surgeon

Street (2002) JHSRP

US publication of surgeon outcomes

The New York Times

Death-Rate Rankings Shake New York Cardiac Surgeons

Report Cards for cardiac surgery led to

- Fewer deaths but
- Selection of low risk patients

Dranove et al (2003) Journal of Political Economy

UK publication of surgeon outcomes

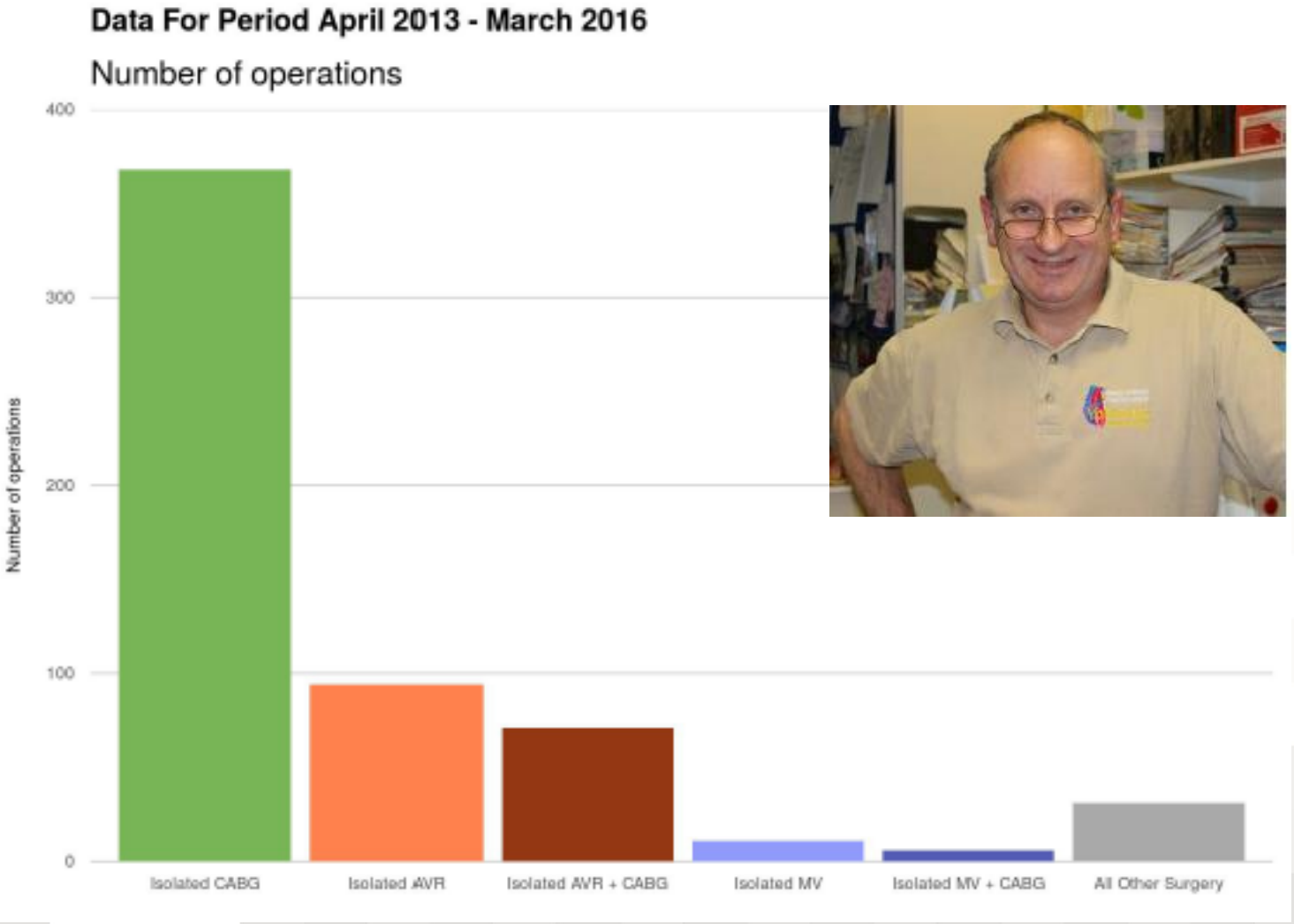
SCTS
Society for Cardiothoracic Surgery
in Great Britain and Ireland

SCTS produced risk-adjusted mortality for CABG patients treated by 30 surgeons, published from 2001

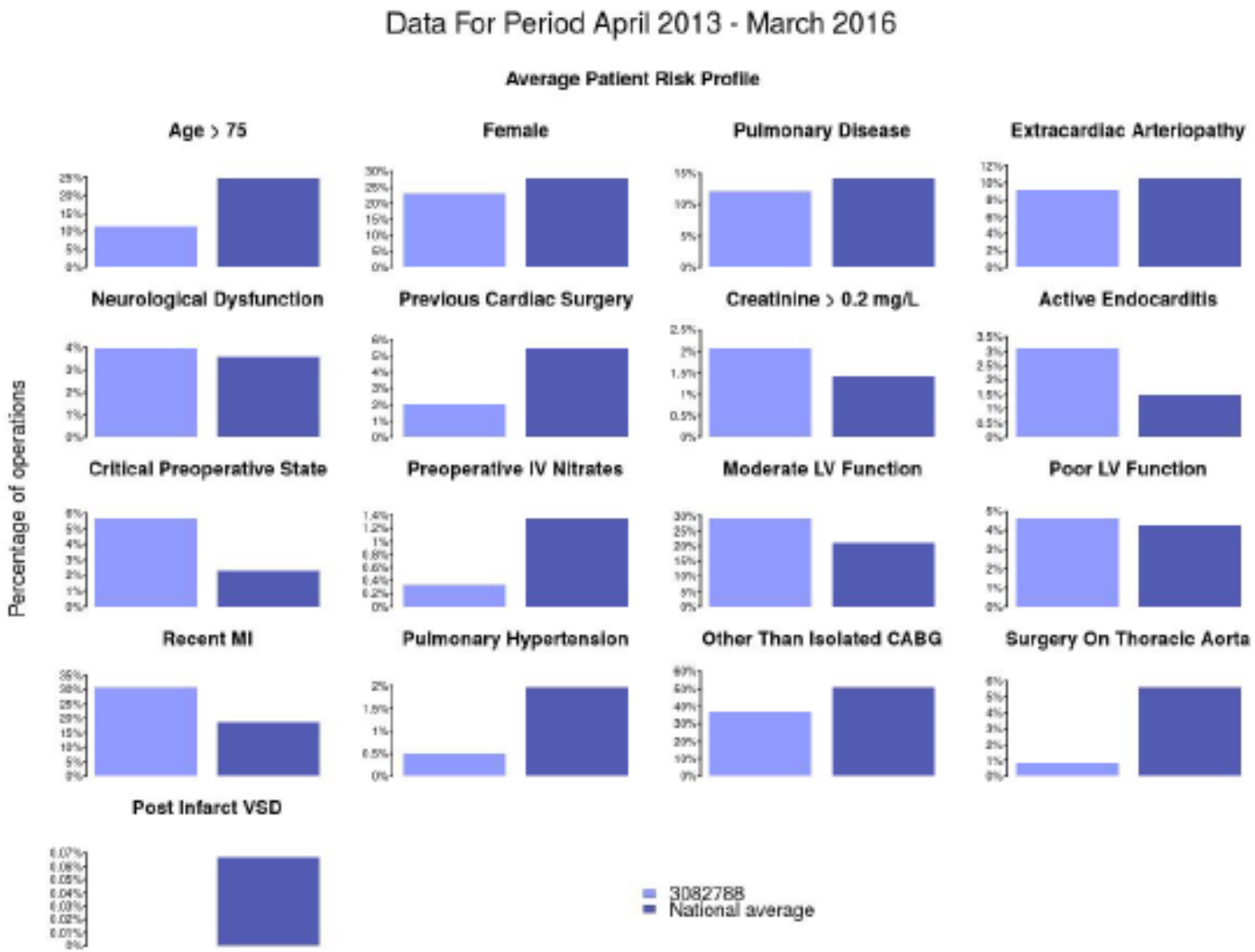
- Fewer deaths and
- No risk selection

Bridgewater et al (2007) Heart 93: 744-748

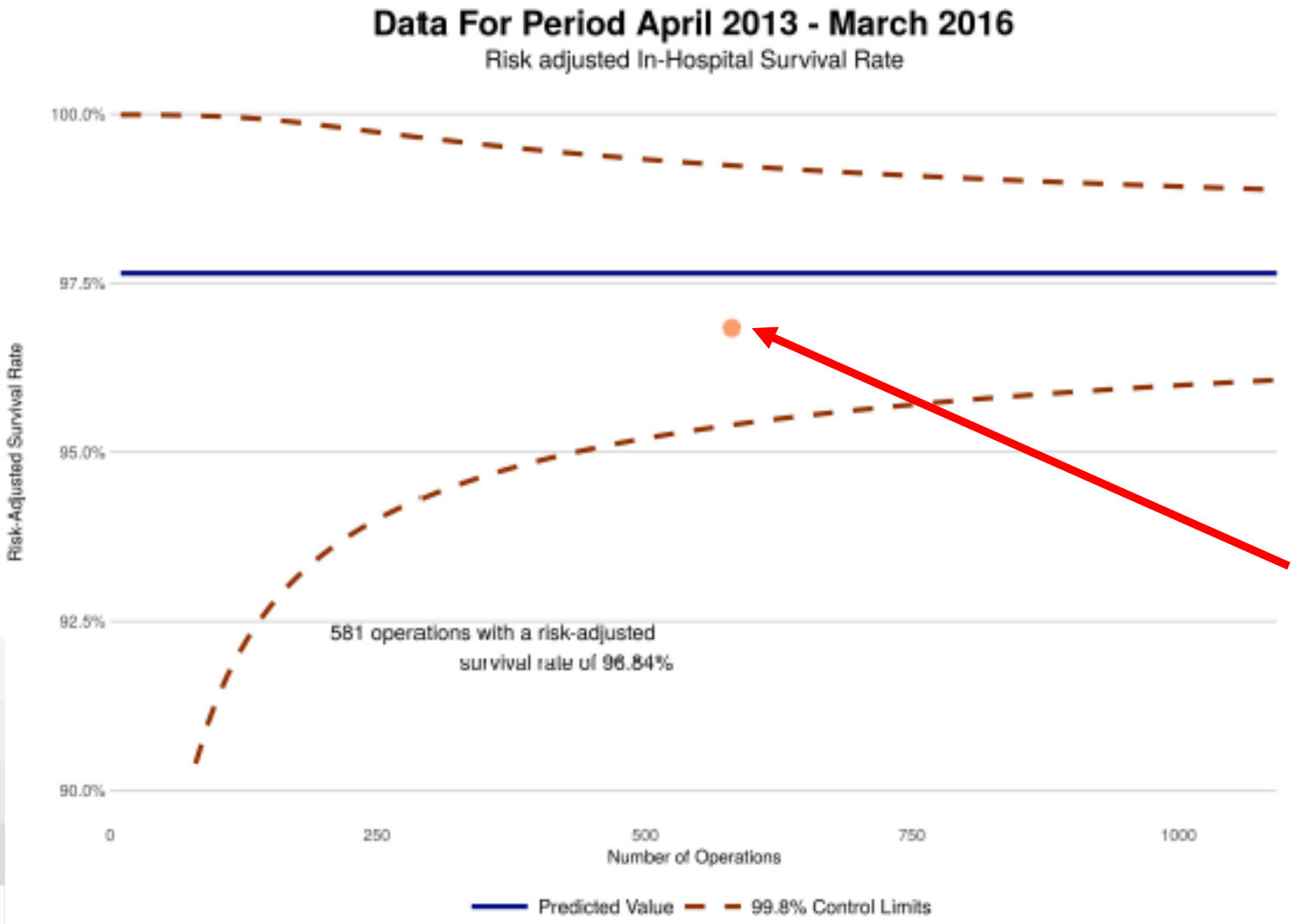
Volumes by surgeon



Patient profiles by surgeon



Risk-adjusted survival: funnel plots

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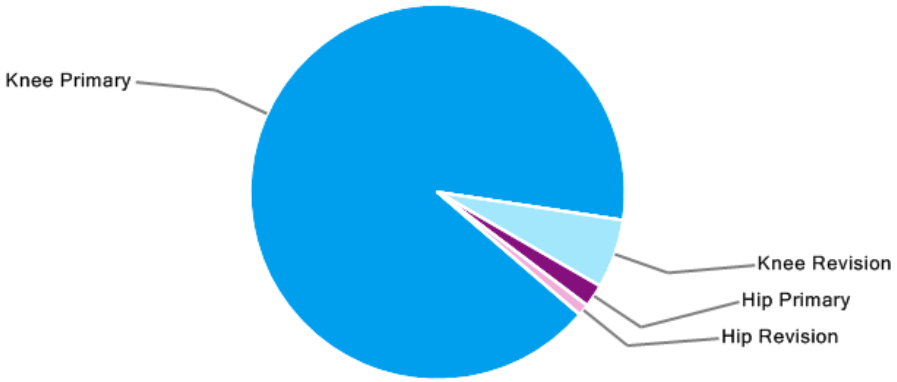
NJR
National Joint Registry
www.njrcentre.org.uk
Working for patients, driving forward quality
NJR Surgeon and Hospital Profile
for hip, knee, ankle, elbow and shoulder joint replacement surgery
HOSPITAL
Surgeon: David Duffy
GMC: 4122106
HOSPITALS IN WHICH THE SURGEON HAS ACTIVITY RECORDED IN NJR
12-MONTH PRACTICE PROFILE (1 YEAR)
36-MONTH PRACTICE PROFILE (3 YEAR)
HIPS
KNEES

▼ 36-MONTH PRACTICE PROFILE (3 YEAR)

Data for 1 April 2012 - 31 March 2015



Operation Type	Operation Subcategory	Procedures Recorded for this Surgeon	National Average
Hip Primary	-	7	114
Hip Revision	-	Fewer Than 5	27
Knee Primary	Patello-Femoral Replacement	6	7
Knee Primary	Total knee replacement	278	123
Knee Primary	Unicondylar Knee Replacement	111	27
Knee Revision	-	24	14
Total	-	426+	312

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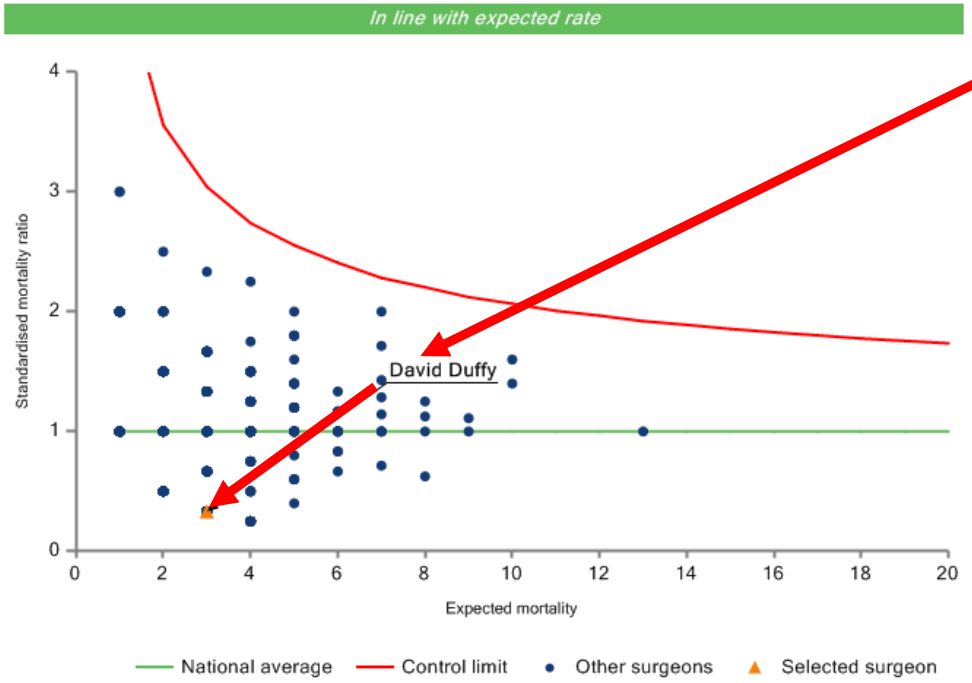
▶ ABOUT THE PATIENTS WHO WERE TREATED

▼ KNEES - 90-DAY MORTALITY

Data for 1st April 2003 to 31st July 2015

Surgeon risk adjusted 90-day mortality

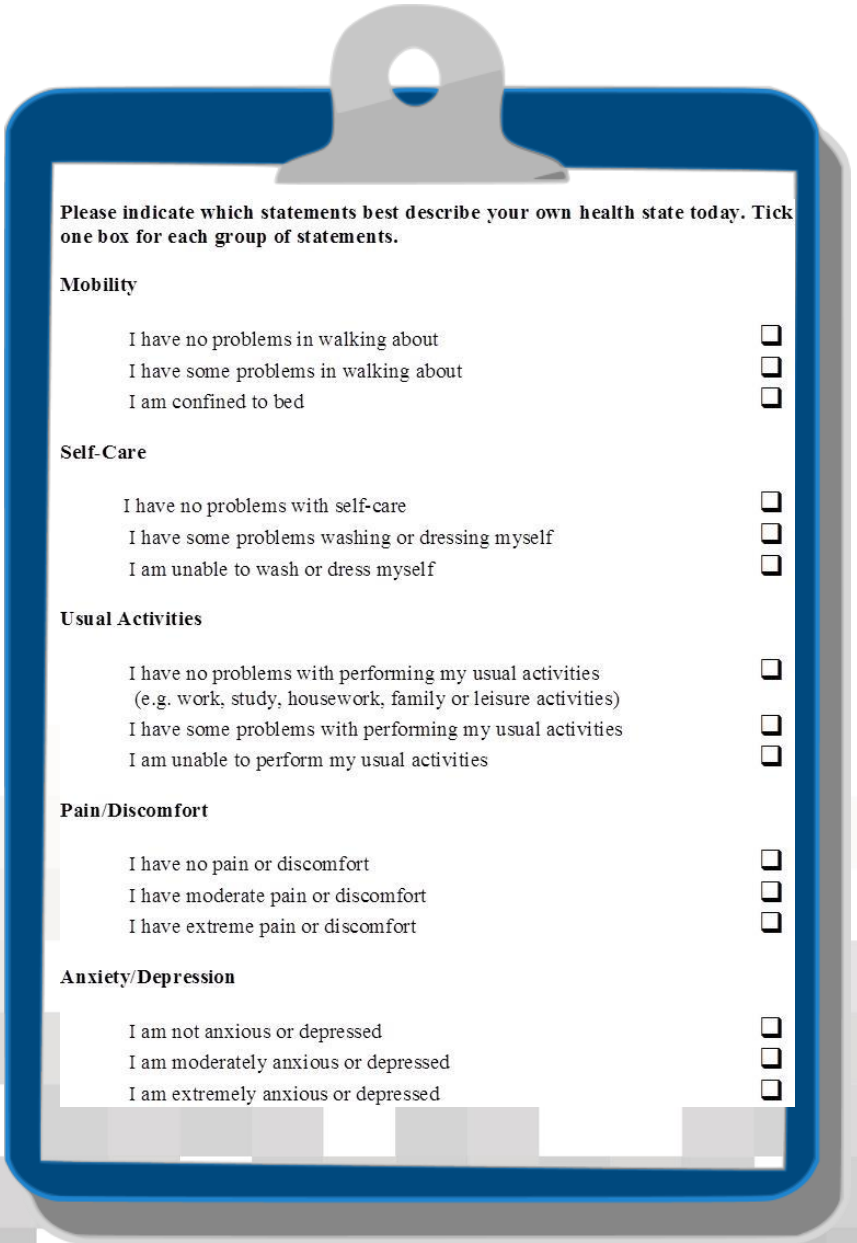


Outcome measures in England

Since 2009, all patients asked to complete health status questionnaire before and after surgery

- Hip replacement
- Knee replacement
- Hernia repair
- Varicose vein removal

EQ-5D



Please indicate which statements best describe your own health state today. Tick one box for each group of statements.

Mobility

- I have no problems in walking about ❑
- I have some problems in walking about ❑
- I am confined to bed ❑

Self-Care

- I have no problems with self-care ❑
- I have some problems washing or dressing myself ❑
- I am unable to wash or dress myself ❑

Usual Activities

- I have no problems with performing my usual activities (e.g. work, study, housework, family or leisure activities) ❑
- I have some problems with performing my usual activities ❑
- I am unable to perform my usual activities ❑

Pain/Discomfort

- I have no pain or discomfort ❑
- I have moderate pain or discomfort ❑
- I have extreme pain or discomfort ❑

Anxiety/Depression

- I am not anxious or depressed ❑
- I am moderately anxious or depressed ❑
- I am extremely anxious or depressed ❑

- Mobility
- Self-care
- Usual activities
- Pain & Discomfort
- Anxiety & Depression

EQ-5D

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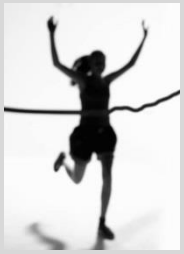
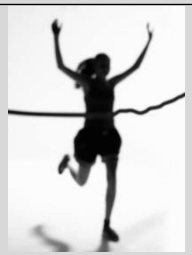
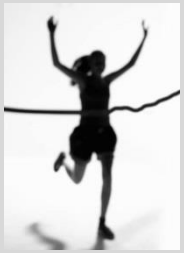
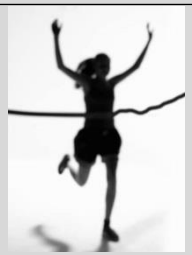
Hip surgery – mobility

Hip surgery – mobility

			
	5%		
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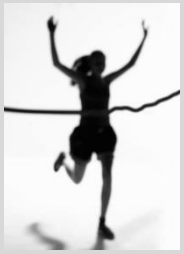
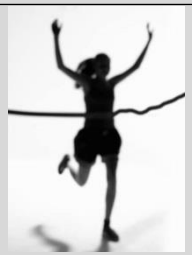
Hip surgery – mobility

			
	5%		
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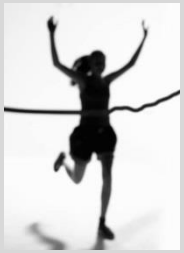
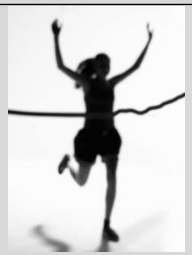
Hip surgery – mobility

			
	5%	1%	0%
	49%	44%	0.1%
	0.1%	0.4%	0%

What will is your expected post-treatment outcome?

Between April 2009 and March 2016

- 500k English patients completed the EQ5D
- before surgery and
- 3 or 6 months afterwards

Hip replacement:	185k
Knee replacement:	198k
Groin hernia repair:	115k

Gutacker & Street. (2017) Quality of Life Research

CART analysis

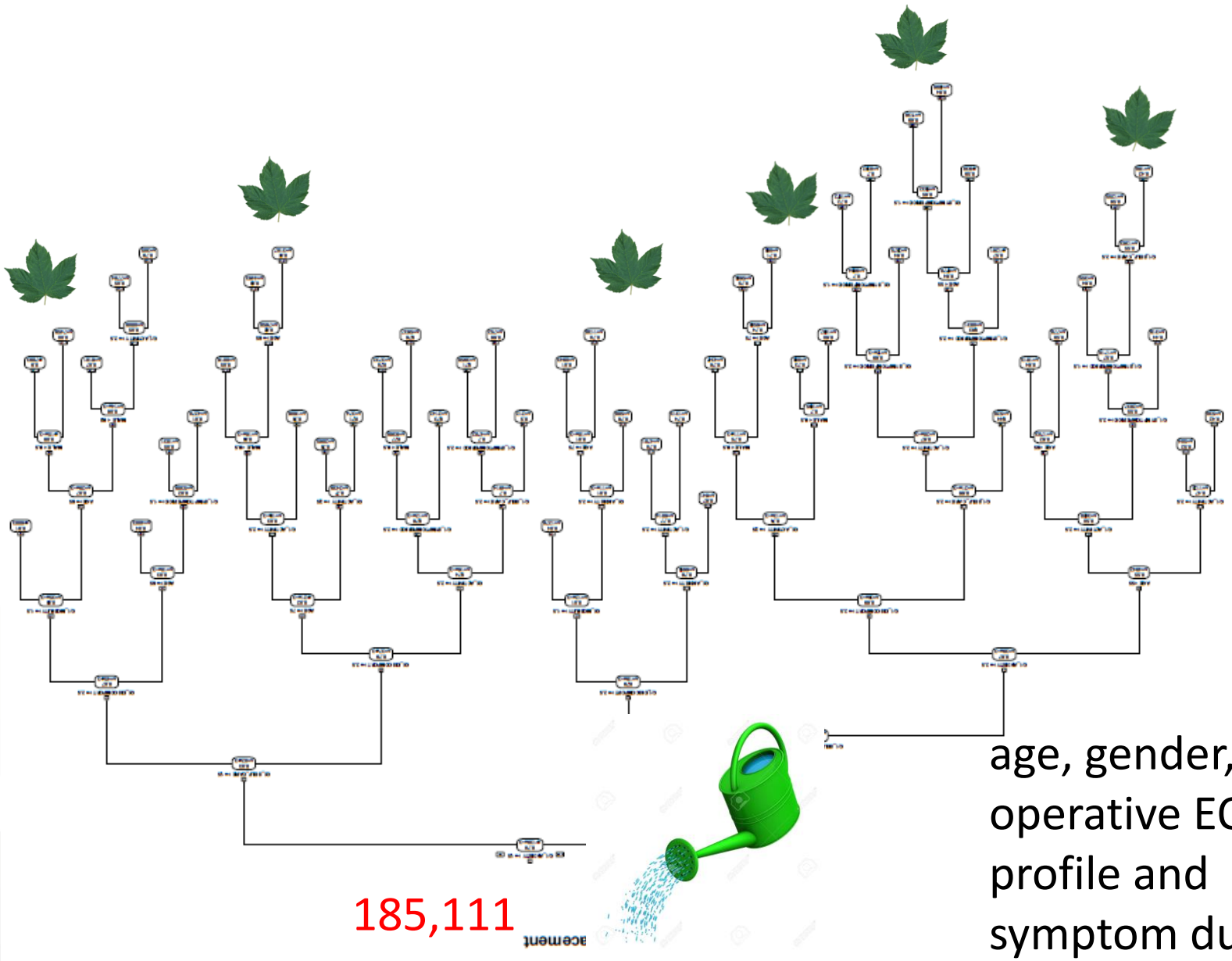
Allocate patients to groups with similar post-operative outcomes

Classification and Regression Tree (CART) algorithm

- Branches: represent conjunctions of patient characteristics
- Each branch ends in a group allocation (Leaf)

Branch splitting variables

- age, gender, pre-operative EQ-5D profile and symptom duration



185,111

age, gender, pre-operative EQ-5D profile and symptom duration

Distinct outcome groups (leaves)

- Hip replacement
  - 55
- Knee replacement
  - 59
- Groin hernia repair
  - 60

Aftermysurgery.org.uk

After my surgery

NHS
Vale of York
Clinical Commissioning Group

University of York

Home How it works

Welcome to After my Surgery

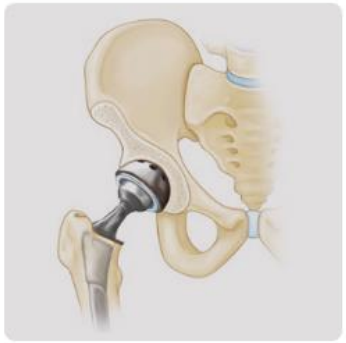
Are you considering a hip, knee or hernia operation?

Having an operation is a big decision and it is natural to wonder how you will feel after surgery. Will you be able to walk without problems and do the shopping again? Will you be free of pain?

Many people in this situation would like to know how patients before them have benefited from surgery. This website shows you what thousands of NHS patients have said about their own experience. You can use it to see how patients of your age and with similar health problems felt after they had their operation.

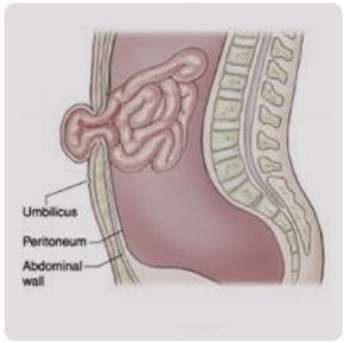
You can use this tool at home or in your local GP surgery. You can print your results and discuss them with your family, friends and your doctor.

Please start by selecting an operation below. If you would like to learn more about how our calculator works, please click on *How it works* above.

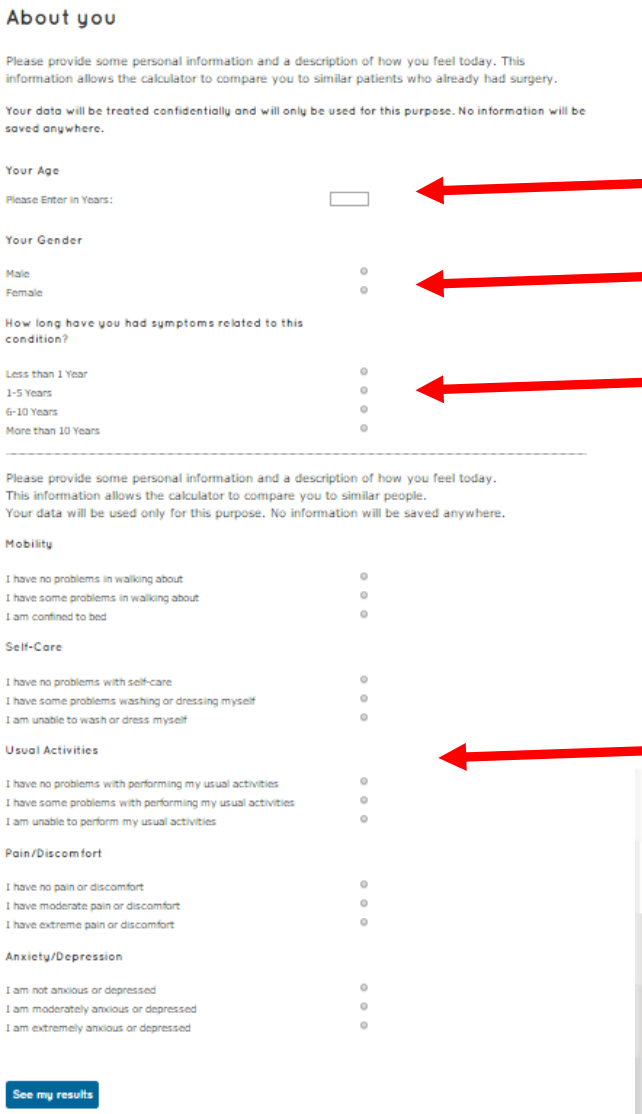


Hip replacement

Knee replacement



Groin hernia operations



About you

Please provide some personal information and a description of how you feel today. This information allows the calculator to compare you to similar patients who already had surgery.

Your data will be treated confidentially and will only be used for this purpose. No information will be saved anywhere.

Your Age

Please Enter in Years:

Your Gender

Male
Female

How long have you had symptoms related to this condition?

Less than 1 Year
1-5 Years
6-10 Years
More than 10 Years

Please provide some personal information and a description of how you feel today.
This information allows the calculator to compare you to similar people.
Your data will be used only for this purpose. No information will be saved anywhere.

Mobility

I have no problems in walking about
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Self-Care

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I am extremely anxious or depressed

See my results

Age

Gender

Years with symptoms

EQ5D

Your Results

This figure shows how 100 patients like you felt six months after their operation, compared to how they felt before. These patients are similar to you in terms of their age, gender and how they felt before having surgery.

Please note that these results only provide an indication of the likely outcome of your surgery.

There may also be a number of other things you may wish to know about, for example how long you will need to be in hospital for or what may happen if you do not have surgery. We recommend that you discuss these results with your GP or consultant.

You can print these results by clicking on the button below. You can also change your answers.

If you would like to learn more about how we calculated these results please click on *How it works* above.

How 100 patients like you felt after surgery

93 Noticeably Better

4 Not Different Than Before

3 Noticeably Worse

Mobility After Surgery

47 Had no problems in walking about

53 Had some problems in walking about

0 Were confined to bed

Self Care

88 Had no problems with self care

12 Had some problems with washing or dressing themselves

0 Were unable to wash or dress themselves

Inquiry into paediatric open heart surgery at Bristol Royal Infirmary

Between 1991 to 1995, between 30 - 35 more children under 12 months died after open heart surgery than expected.

Bacchus Marsh Hospital: Coroner finds significant failings in care in baby death cases

LSE

Damning verdict of medical failings and cover-ups in deaths of children in Northern Ireland

PROBLEMA SILENCIADO

Uno de cada cinco pacientes sufre un error sanitario en los hospitales

Los médicos reclaman que se desestigmatice el fallo y un baremo de indemnizaciones

Los efectos adversos ocasionan el 15% del gasto hospitalario en países de la OCDE

Medical Errors: The Third Leading Cause of Death in the United States

The Royal College of Surgeons referred the subject to a Committee, which reported adversely upon Miss Nightingale's Forms

The costliness of the work of compilation,

the difficulty of securing actual, as well as apparent, uniformity …

… are among the causes which have defeated Miss Nightingale's scheme (Cook 1913)

Final thoughts

Why is there limited information on performance?

- Data collection is costly
- It is difficult to make valid comparisons
- Data threatens to undermine the power of particular interest groups

Florence Nightingale

"The very first requirement in a hospital is that it should do no harm"

References

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