



PQIP: the story so far

Professor Ramani Moonesinghe

Professor of Perioperative Medicine, UCL

Consultant in anaesthesia, perioperative and critical care, UCL Hospitals
National Clinical Director for Critical and Perioperative Care, NHS England

Perioperative Quality Improvement Programme

Aims:

1. Describe and analyse epidemiology of:
 - evidence based processes of care
 - morbidity & mortality
 - patient reported outcome & disability free survival
 - failure to rescue
2. Support clinicians in using data for improvement
3. Evaluate effectiveness of a national approach to perioperative QI

Perioperative Quality Improvement Programme: methods

- Recruitment – focused or not
- Adult major surgery
- Validated process and outcome measures:
 - Risk adjustment factors
 - Enhanced recovery; high grades of evidence
 - POMS D7; Clavien-Dindo
 - Mortality & survival
 - HRQOL (EQ5D) and Disability free survival (6m and 1y using WHO-DAS)
- Evidence based improvement methodology:
 - Data feedback
 - Support for using data effectively
 - Media strategy

Engagement, engagement, engagement

Untapping the potential of medical trainees to improve the quality of healthcare

Author: Ben Bray[^]

Surgical admission

1.8. Date of admission to hospital

DD/MM/YYYY

?

1.9. Date of surgery

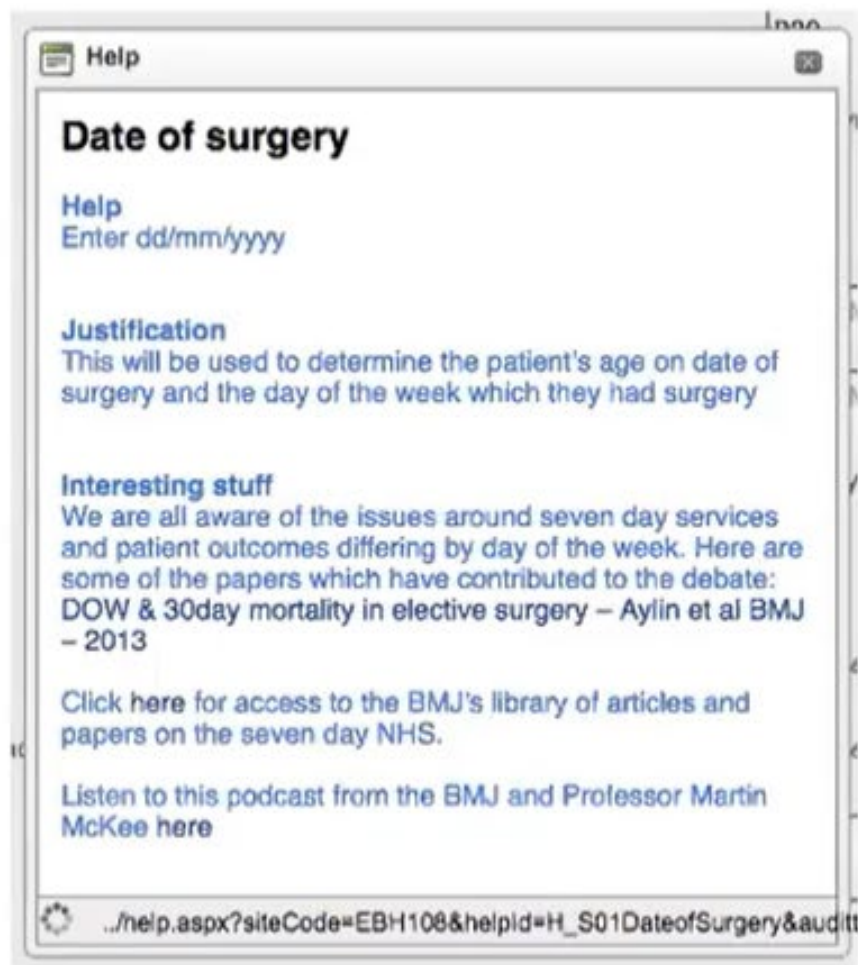
DD/MM/YYYY

?

1.10. Age on date of surgery

(yrs) (months)

?



RESEARCH



Day of week of procedure and 30 day mortality for elective surgery: retrospective analysis of hospital episode statistics

 OPEN ACCESS

P Aylin *clinical reader in epidemiology and public health*¹, R Alexandrescu *research associate*¹, M H Jen *research associate*¹, E K Mayer Walport *clinical lecturer*², A Bottle *senior lecturer in medical statistics*¹

¹Dr Foster Unit at Imperial College, Department of Primary Care and Public Health, School of Public Health, Imperial College, London W6 8RP, UK; ²Department of Surgery and Cancer, St Mary's Hospital, Imperial College, London W2 1NY, UK

Effective use of data

Building knowledge, engagement & a sense of community

Improvement tools

Click on any of the links below to download the relevant documents:-

- How to create a simple run chart (PDF)
- How to create a simple SPC chart (PDF)
- How to use the model for improvement PQIP (PDF)
- How to Driver Diagrams PQIP (PDF)
- How-to Process Map PQIP (PDF)
- Model for Improvement Planning Work sheet (PDF)
- Process Mapping Facilitation How-to Guide PQIP (PDF)
- Run chart template (XLSX)
- SPC chart template (XLSX)



Perioperative Quality
Improvement Program



Home

About

For Patients

Resources

Dashboard and QI

Library

News & Events

Login

Library

Patient Risk Factors

- 1.6 BMI 1 Barnard - Is social deprivation an independent predictor of outcomes following cardiac surgery
- 1.6 NCBI 2 Charlton - Impact of deprivation on occurrence outcomes and health care costs of people with multiple morbidity
- 1.7 home 1 Finlayson - Major abdominal surgery in nursing home residents
- 1.7 home 2 Neuman - Survival and functional outcomes after hip fracture surgery among nursing home residents
- 1.16 BMI 1 Halner - Obesity paradox does exist
- 1.16 BMI 2 Turnerone - The relationship between BMI and 30 day mortality risk
- 1.16 BMI 3 Nepogodiev - Determining surgical complications in the overweight - DISCOVER
- 2.6 Sodium 1 Cecconi - Preoperative abnormalities in serum sodium
- 2.8 Urea 1 Gonen - Perioperative acute kidney injury
- 2.9 Creatinine 1 Mooney - Preoperative estimates of glomerular filtration rate as predictors of outcome
- 2.10 Albumin 1 Gibbs - Preoperative serum albumin level as a predictor of operative mortality and morbidity
- 2.12 Haemoglobin 1 Musallam - Preoperative anaemia and postoperative outcomes
- 2.22 cerebro 1 Uao - Outcomes after surgery in patients with previous stroke
- 2.24 dementia 1 Hugs - Dementia and Cognitive Impairment
- 2.32 alcohol 1 Oppedal - Preoperative alcohol cessation prior to elective surgery

Download the new PQIP App!

Click here to download the new PQIP App, providing easy access to quality improvement resources and the latest updates and notifications on everything to do with PQIP.

Available for free on both iPhone and Android!





Perioperative Quality
Improvement Programme

Royal College of Anaesthetists



People like competition....?

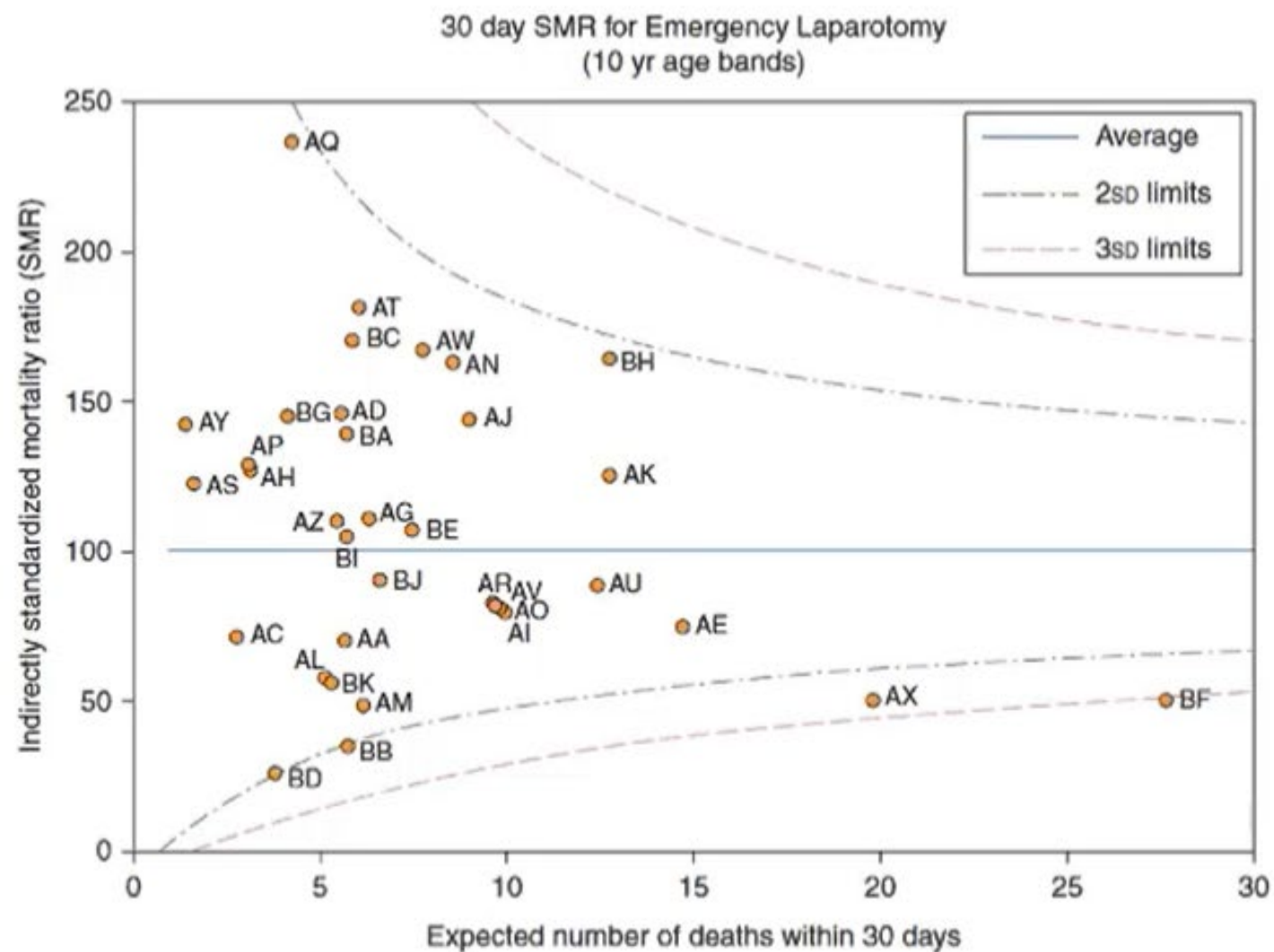


Perioperative Quality
Improvement Programme



People like competition....?

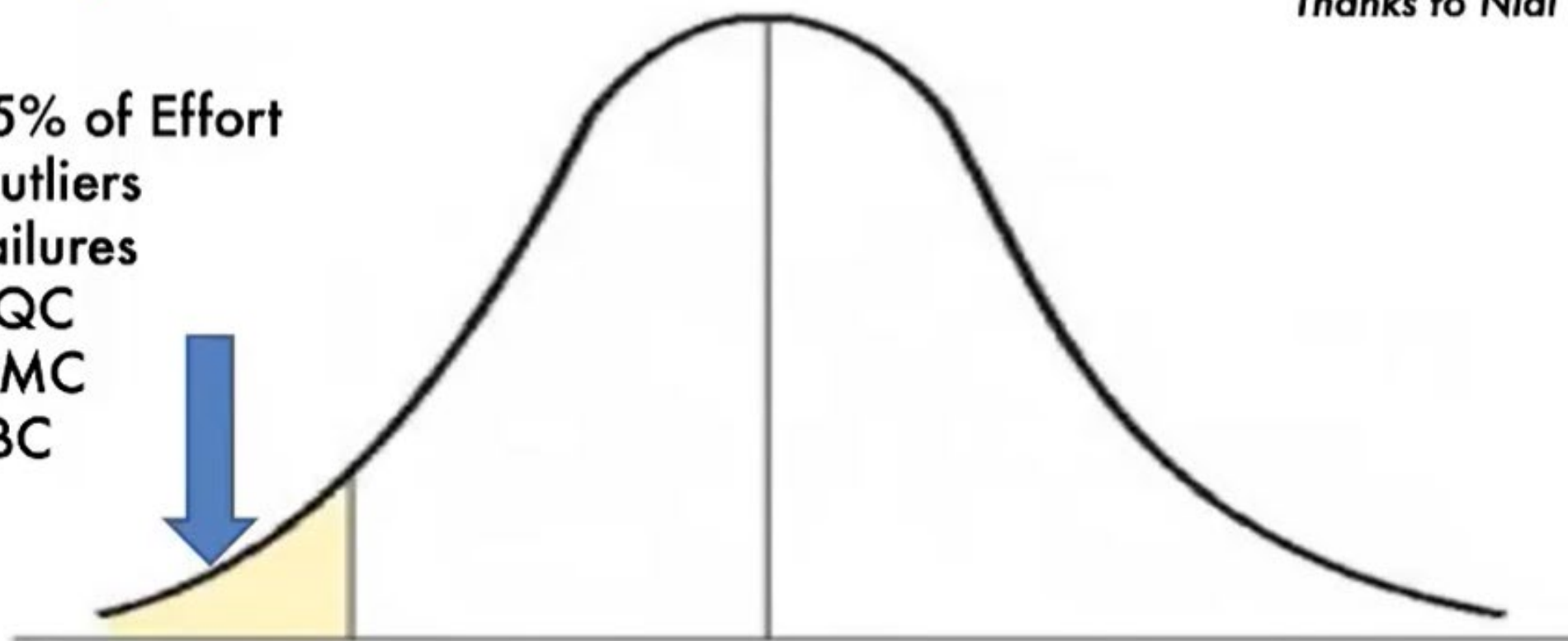




"Quality Assurance"

Thanks to Nial Quiney

- 95% of Effort
- Outliers
- Failures
- CQC
- GMC
- BBC

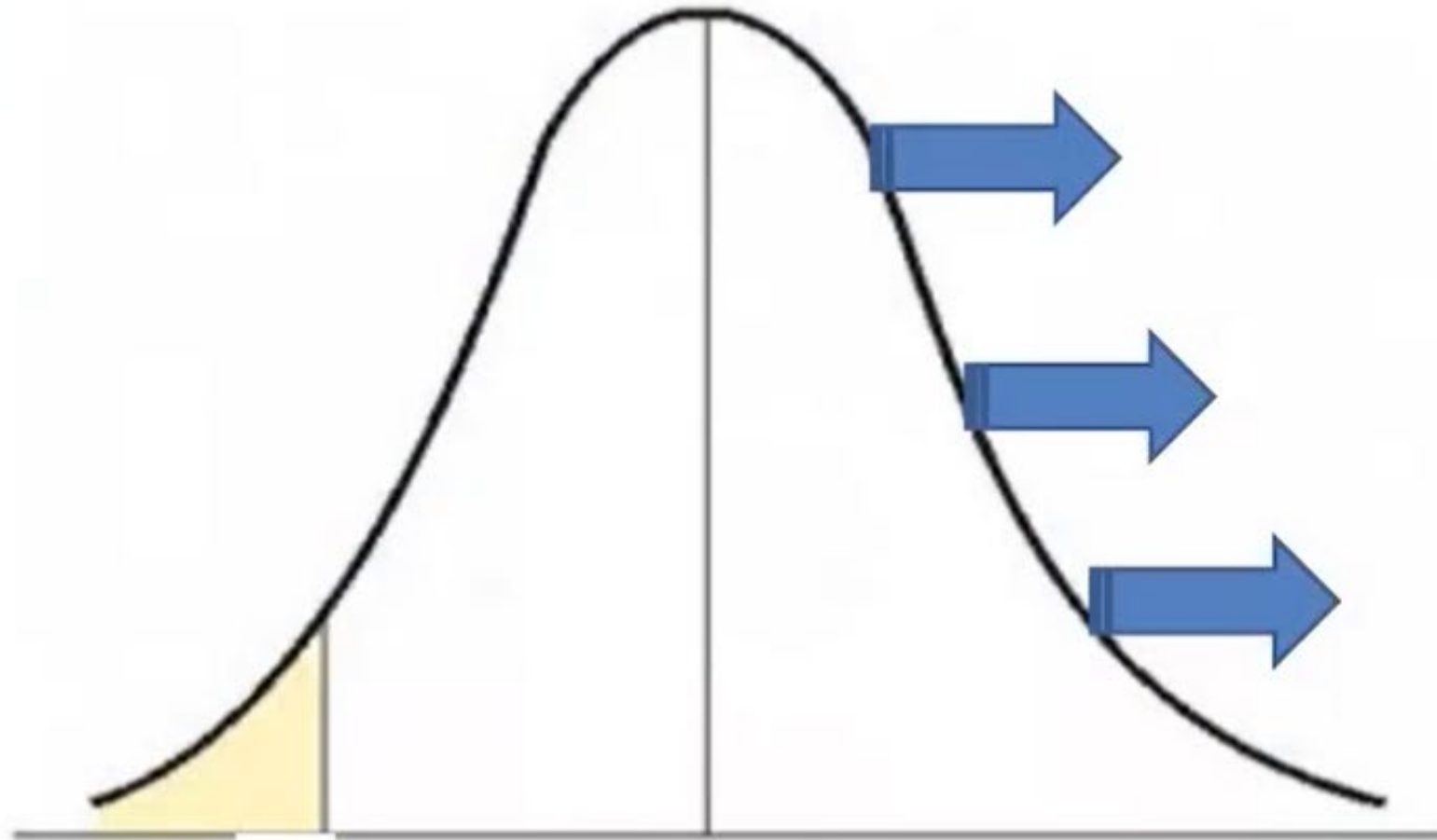


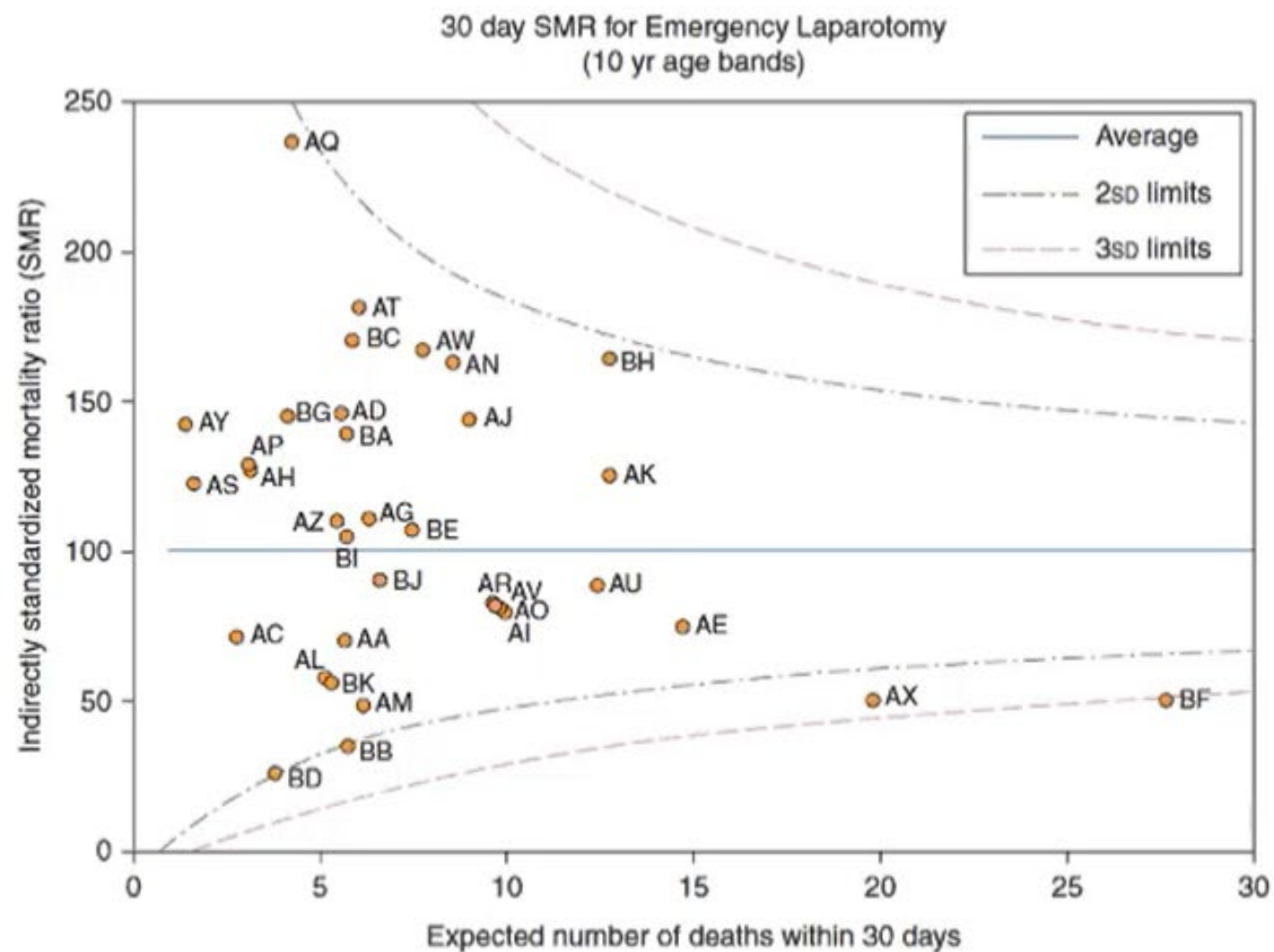
RAG ratings

'What we think it says'		'What we do with it'
Good		Complacent
Caution. What is happening? Be prepared to do something		Tampering
OMG! What is happening Need to do something....		Search for someone to blame. Act on anything

IHI Leaders 2017

Quality Improvement





Positive deviance

From Wikipedia, the free encyclopedia

Positive deviance (PD) is an approach to behavioral and social change based on the observation that in any community there are people whose uncommon but successful behaviors or strategies enable them to find better solutions to a problem than their peers, despite facing similar challenges and having no extra resources or knowledge than their peers. These individuals are referred to as positive deviants.^{[1][2][3]}

The concept first appeared in nutrition research in the 1970s. Researchers observed that despite the poverty in a community, some poor families had well nourished children. Some suggested using information gathered from these outliers to plan nutrition programs.^{[4][5]}

Lancaster Infirmary, Russells Hall Hospital, Salford Royal Hospital, Sandwell General Hospital, Southmead Hospital, St George's Hospital, St Thomas' Hospital, St. Peter's Hospital, Stoke Mandeville Hospital, Tameside General Hospital, The James Cook University Hospital, Torbay Hospital, University Hospital, Coventry, Warwick Hospital, Watford General Hospital, Yeovil District Hospital, York Hospital

Urology: Birmingham Heartlands Hospital, Norfolk and Norwich University Hospital, Royal Devon and Exeter Hospital, Salford Royal Hospital, St George's Hospital, Sunderland Royal Hospital, The James Cook University Hospital, The Royal Marsden Hospital, University College Hospital, University Hospital, Coventry

Thoracics: Basildon University Hospital, Birmingham Heartlands Hospital, Bristol Royal Infirmary, Norfolk and Norwich University Hospital, Papworth 17 Hospital, St George's Hospital, Wythenshawe Hospital

Orthopaedics: Royal National Orthopaedic Hospital, The Royal Orthopaedic Hospital

Spinal: National Hospital for Neurology and Neurosurgery, Royal National Orthopaedic Hospital

Burns and plastics: Queen Victoria Hospital

Eating within 24h of surgery: National target 80%

>80% of patients were eating within 24h of surgery in these hospitals: Aintree University Hospital, Basildon University Hospital, Bedford Hospital, Birmingham Heartlands Hospital, Bristol Royal Infirmary, Castle Hill Hospital, Charing Cross Hospital, Countess of Chester Hospital, Cumberland Infirmary, Hereford County Hospital, Lister Hospital, Musgrove Park Hospital, National Hospital for Neurology and Neurosurgery, Nevill Hall Hospital, Nottingham City Hospital, Papworth Hospital, Queen's Hospital, Burton upon Trent, Queen Elizabeth University Hospital, Gateshead, Royal Cornwall Hospital, Royal Derby Hospital, Royal National Orthopaedic Hospital, Royal Surrey County Hospital, Sandwell General Hospital, Southmead Hospital, St George's Hospital, Stoke Mandeville Hospital, Sunderland Royal Hospital, The Royal Orthopaedic Hospital, Torbay Hospital, University Hospital Wales, Wythenshawe Hospital

By specialty, >80% of patients in these hospitals were eating within 24h of surgery:

Colorectal: Bedford Hospital, Broomfield Hospital, Castle Hill Hospital, Countess of Chester Hospital, Hereford County Hospital, North Manchester General Hospital, Nottingham City Hospital, Queen's Hospital, Burton upon Trent, Queen Elizabeth University Hospital, Gateshead, Royal Cornwall Hospital, Sandwell General Hospital, Southmead Hospital, Stoke Mandeville Hospital, Torbay Hospital, Watford General Hospital, Wythenshawe Hospital

Urology: Birmingham Heartlands Hospital, Salford Royal Hospital, St George's Hospital, Sunderland Royal Hospital, University Hospital, Coventry

Thoracics: Basildon University Hospital, Birmingham Heartlands Hospital, Bristol Royal Infirmary, Norfolk and Norwich University Hospital, Papworth Hospital, St George's Hospital, Wythenshawe Hospital

Orthopaedics: Royal National Orthopaedic Hospital, The Royal Orthopaedic Hospital

Spinal: National Hospital for Neurology and Neurosurgery, Royal National Orthopaedic Hospital

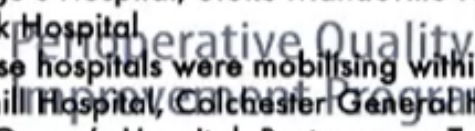
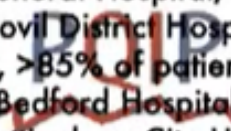
Burns and plastics: Queen Victoria Hospital

Mobilising within 24h of surgery: National target 85%

>85% of patients were mobilising within 24h of surgery in these hospitals: Aintree University Hospital, Basildon University Hospital, Bedford Hospital, Birmingham Heartlands Hospital, Bristol Royal Infirmary, Colchester General Hospital, Cumberland Infirmary, Gloucestershire Royal Hospital, Hereford County Hospital, Manchester Royal Infirmary, Musgrove Park Hospital, Norfolk and Norwich University Hospital, Papworth Hospital, Queen's Hospital, Burton upon Trent, Queen Elizabeth University Hospital, Gateshead, Queen Victoria Hospital, Royal Hampshire County Hospital, Royal Lancaster Infirmary, Royal Surrey County Hospital, Russells Hall Hospital, Sandwell General Hospital, St George's Hospital, Stoke Mandeville Hospital, Sunderland Royal Hospital, University Hospital Wales, Warwick Hospital, Wythenshawe Hospital, Yeovil District Hospital, York Hospital

By specialty, >85% of patients in these hospitals were mobilising within 24h of surgery:

Colorectal: Bedford Hospital, Churchill Hospital, Colchester General Hospital, Cumberland Infirmary, Hereford County Hospital, Norfolk and Norwich University Hospital, Nottingham City Hospital, Queen's Hospital, Burton upon Trent, Queen Elizabeth University Hospital, Gateshead, Royal Hampshire County Hospital, Royal



IMPACT: OUTPUTS

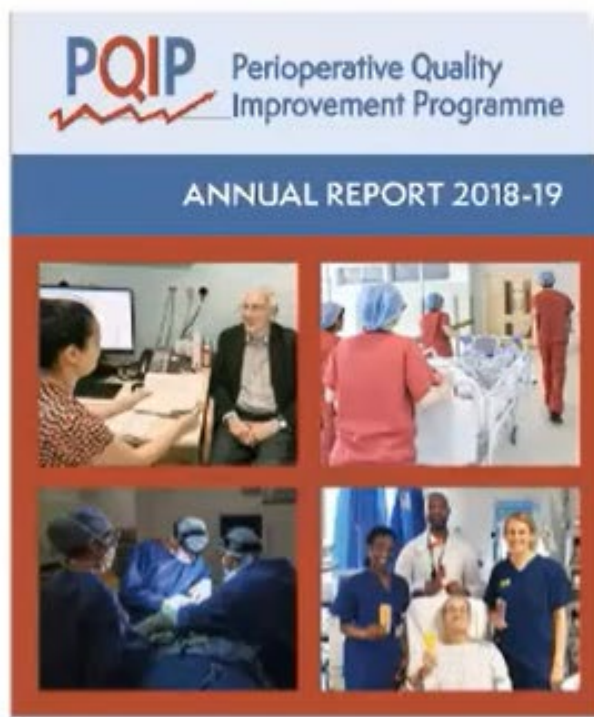


Perioperative Quality
Improvement Programme





Perioperative Quality Improvement Programme



Perioperative Quality
Improvement Programme

RCOA
Royal College of Anaesthetists

NIAA HSRC
Health Services Research Centre

The Health Foundation
Inspiring
Improvement

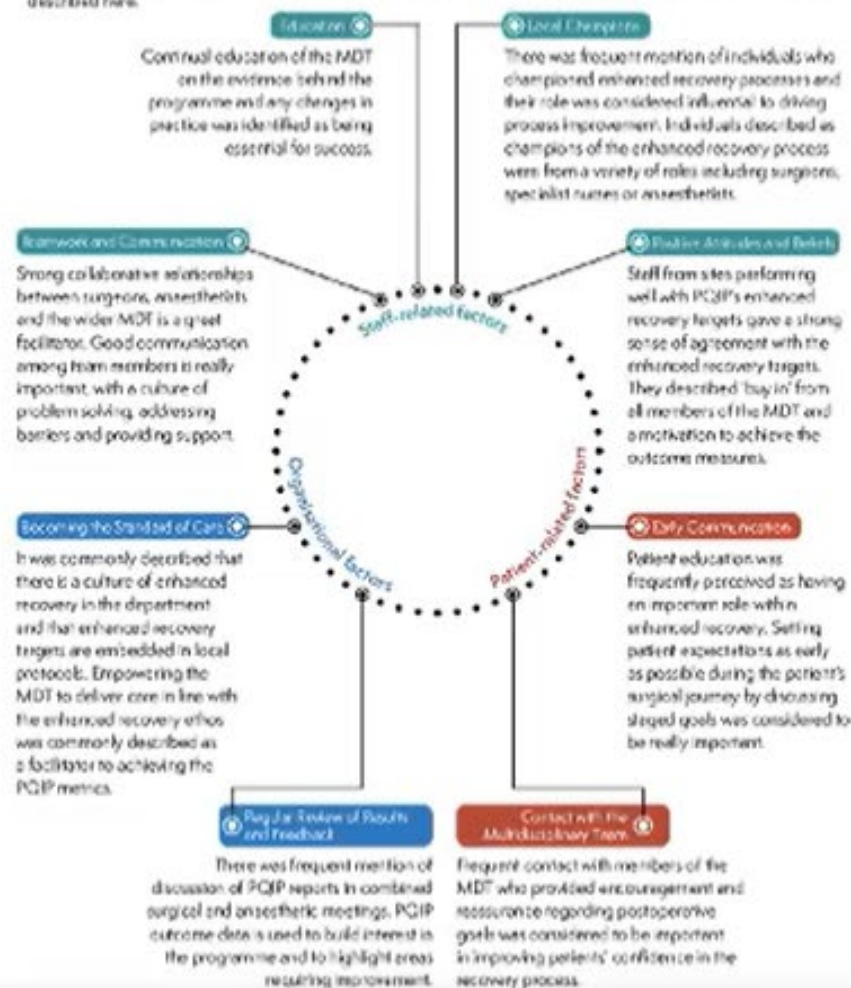
>42,000 patients from
>80% UK hospitals

Lower GI	Urology	Thoracics	Hepatobiliary
- Anterior resection - Right hemicolectomy (with anastomosis) - Excision of sigmoid colon - Reversal of Hartmann's procedure - Abdominoperineal (AP) resection with end colostomy	- Radical prostatectomy - Total nephrectomy (non-transplant) - Cystectomy - Nephrectomy and excision of perirenal tissue - Nephroureterectomy	- VATS lobectomy - VATS wedge resection of lung - Pulmonary lobectomy including segmental resection - VATS pleurodesis/pleurectomy - VATS excision lesion of mediastinum including thymectomy	- Resection of lesion(s) of liver - Pancreatoduodenectomy and excision of surrounding tissue (Whipple's procedure) - Hemihépatectomy (right) - Pancreatectomy (partial/distal) - Hemihépatectomy (left)
Upper GI	Orthopaedics	Abdo – Other	Spinal
- Oesophagectomy (total) / Oesophagogastrrectomy - Gastrectomy (total or partial) with excision of surrounding tissue - Oesophagectomy (partial) - Pancreatoduodenectomy and excision of surrounding tissue (Whipple's procedure) - Transabdominal anti-reflux operations - Transabdominal anti-reflux operations	- Revision of total replacement of knee joint - Revision of total hip replacement - Revision of uncemented or cemented total hip replacement without adjunctive procedures - Removal of total hip replacement - Distal femoral Replacement	- Abdominal wall reconstruction - Adrenalectomy (unilateral) - Complex restoration of intestinal continuity - Total exenteration of pelvis - Laparotomy + excision of sarcoma tumour	- Anterior discectomy, decompression and fusion (C) - Primary posterior fusion +/- decompression +/- discectomy (L) - Combined anterior approach discectomy, decompression and fusion and posterior fusion (L) - Anterior discectomy (C) - Primary posterior fusion with instrumentation +/- decompression +/- discectomy (L)
Head and Neck	Burns and Plastics	Gynaecology	Vascular
- Selective dissection of cervical lymph nodes - Extensive excision of mandible - Total laryngectomy - Partial or hemi maxillectomy for malignancy - Radical dissection of cervical lymph nodes	- Mastectomy with soft tissue reconstruction - Reconstruction of breast using flap - Delayed reconstruction of breast using pedicled TRAM - Partial reconstruction of breast using pedicled perforator flap - Lumpectomy and immediate partial reconstruction of breast using pedicled perforator flap	- Vaginal hysterectomy including salpingo-oophorectomy - Hysterectomy with excision/ biopsy and or removal of omentum and uterine adnexa for ovarian malignancy - Anterior (+/- posterior) colporrhaphy with vaginal hysterectomy - Radical hysterectomy and lymphadenectomy (Wertheim's) - Anterior exenteration of pelvis	- Endarterectomy of femoral artery - Femoro-popliteal bypass using vein - Open infrarenal abdominal aortic aneurysm tube graft - Aorto-bifemoral bypass - Aorto-iliac, aorto-femoral, ilio-femoral bypass

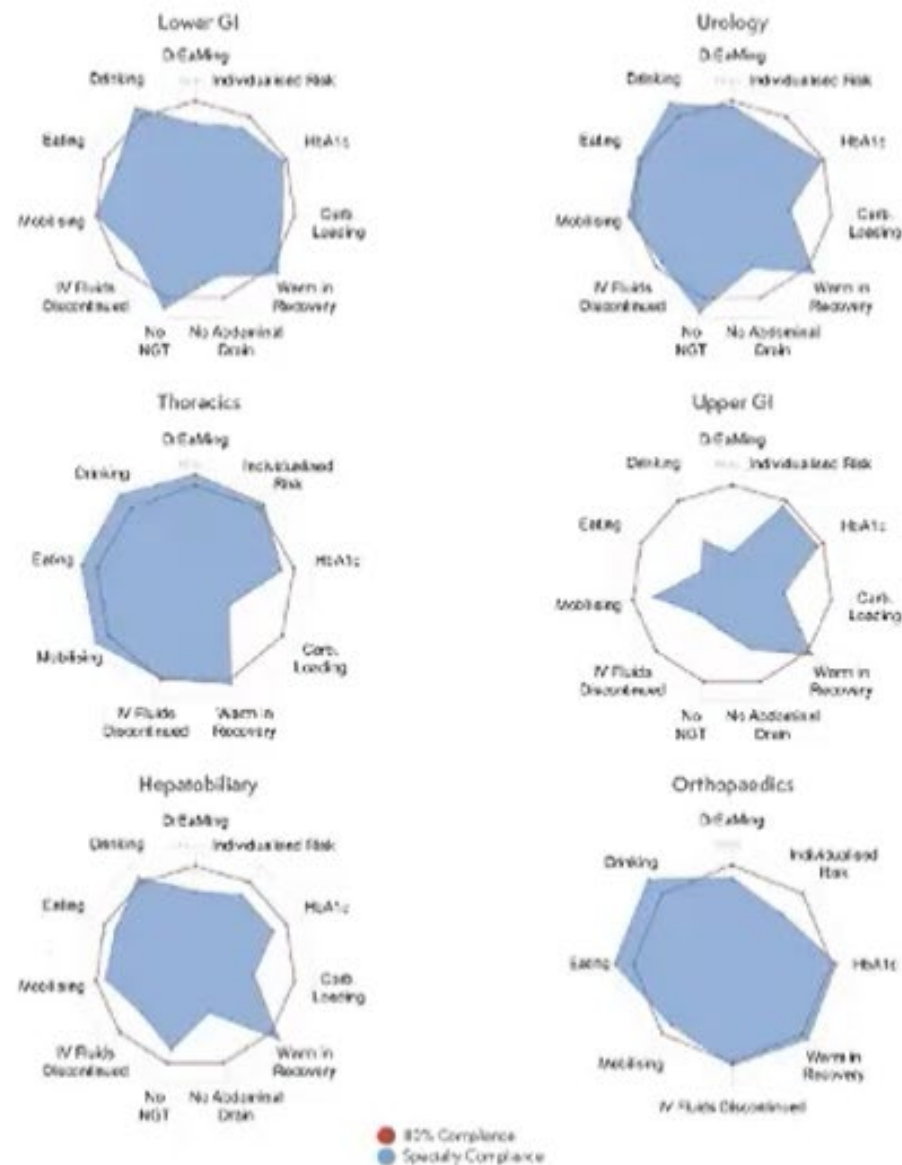
Embedded qualitative research

How do they do it? Successful enhanced recovery implementation in colorectal surgery

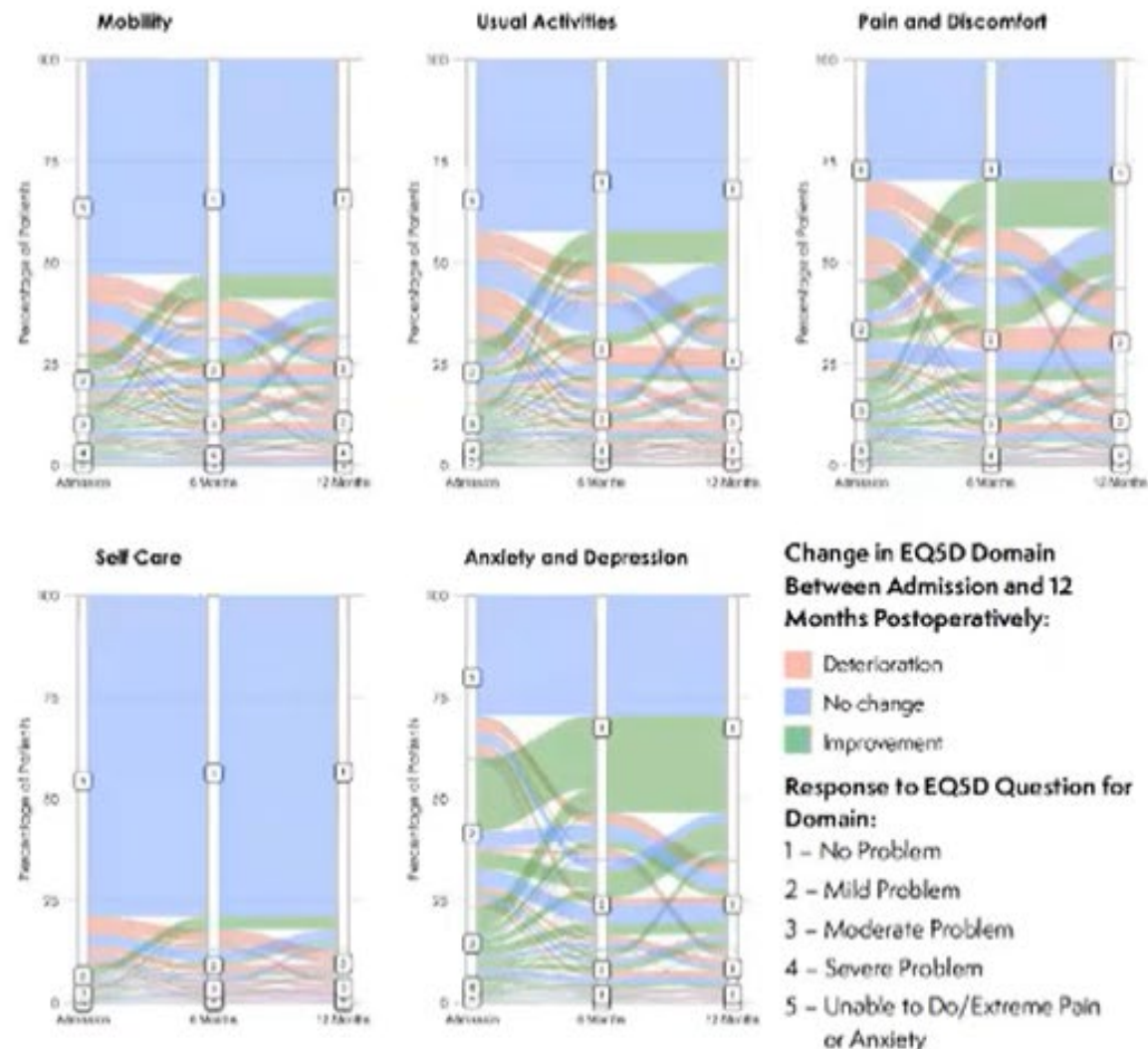
PQIP's qualitative research team has recently conducted a series of in-depth interviews with a number of our top recruiting and performing sites for colorectal surgery. These interviews were focused on the adoption of PQIP's enhanced recovery targets and their successful implementation. Several key themes have been identified and are described here.



Different methods of data display



Health related quality of life



Using evidence and data to improve the care of surgical patients

PQIP's Top 5 National Improvement Opportunities for 2018-19



Top 5 National Improvement Priorities for 2019-20



Top 5 improvement priorities 2021/2022



NRI&Associate P Scheme - National Institute for Health Research Associate through investigator scheme

Improvement is hard! Qualitative sub-study

- Every step of the pathway to improvement is challenging:
 - Reading the data
 - Thinking about the data
 - Setting something up to use the data
 - Delivering the QI
 - Keeping it going!

Things have generally got better

- Compliance with some targets:
 - Drinking, eating and mobilizing within 24h
 - Diabetes monitoring
 - Individualized pain management
- Not with others...
 - Individualized risk assessment
 - Postoperative critical care

IMPACT – RESEARCH AND POLICY

PQIP

Perioperative Quality
Improvement Programme

RCoA
Royal College of Anaesthetists

NIAA HSRCH
Health Services Research Centre

The
Health
Foundation
Inspiring
Improvement



CLINICAL INVESTIGATION

Delivery of drinking, eating and mobilising (DrEaMing) and its association with length of hospital stay after major noncardiac surgery: observational cohort study[☆]

Charles M. Oliver^{1,2}, Samantha Warnakulasuriya^{1,2,3}, Dermot McGuckin^{1,2,3}, Georgina Singleton^{1,2,3}, Peter Martin⁴, Cristel Santos³, James Bedford³, Duncan Wagstaff^{2,3}, Arun Sahni³, David Gilheoly^{1,2,3}, Jonathan Wilson⁵, Kylie Edwards^{3,3}, Rachel Baumber^{2,3,6}, Cecilia Vindrola-Padros^{2,2}, Jenny Dorey², Irene Leeman⁷, Hannah Boyd-Carson^{8,9}, Ravi Vohra^{8,10}, Pritam Singh¹¹, Matthew Bedford¹², Abigail Vallance¹³, Giuseppe Aresu¹⁴, Olga Tucker¹², Michael Swart¹⁵, Monty G. Mythen¹⁶, PQIP project delivery team¹, Suneetha R. Moonesinghe^{1,2,7,16,*}, and for the PQIP collaborative

Some patient factors influence it:

Most are modifiable

Lots of hospital level process factors influence it:

All are modifiable

Pain, tubes and drains are bad for it:

Important targets for improvement

Methods

- Participants recruited from 151 hospitals in England & Wales (>80% eligible)
- Main cohort:
 - 22 218 participants
 - multi-level regression analysis
 - what are the patient, process and hospital level associations of DrEaMing?
- Two sub-groups:
 - colorectal subgroup: 7230
 - multispecialty subgroup: 5713
 - what is the association between DrEaMing and LOS
 - what is the association of hospital vs. patient factors?

Results



Compliance 60%



Small improvements year on year



Bundled and unbundled DrEaMing associated with reduced LOS



Delivery of DrEaMing predicted
reduced odds of prolonged LOS:

colorectal (odds ratio 0.51 [0.43-0.59], $p < 0.001$)
multispecialty (odds ratio 0.47 [0.41-0.53], $p < 0.001$).

DrEaMing and postoperative complications



General postoperative
complication rate: 25.4%

37% in patients who did not
DrEaM within 24h

17% in patients who did DrEaM
within 24h



Specific complications higher in
patients who did not DrEaM
within 24h

pulmonary (3.7% vs. 1.9%)

cardiovascular (4.8 vs 1.9%)

gastrointestinal (20.7 vs. 6.3%)

Risk factors for not DrEaMing: patient level

- Patient factors which reduce chances of DrEaMing (adjusted):
 - Higher ASA grade
 - Preoperative anaemia
 - NYHA II – IV heart failure / exertional dyspnoea
 - Liver disease
 - Female sex
- Type of surgery:
 - Specialty
 - Access

Risk factors for not DrEaMing: processes of care

- Major intra-operative blood loss
- Abdominal drain in situ
- NG tube in situ
- Moderate or severe pain within 4 hours of end of surgery
- Epidural analgesia
- Postoperative ward destination

Hospital level factors...

Table 2 Independent predictors of DrEaMing (drinking, eating, and mobilising) 24 h after surgery in the exploratory cohort, identified using single level and multilevel multivariable logistic regression models. Median OR for multilevel model 0.79 (95% CI 0.68–0.90).

Median odds ratio in a multi-level model:

Measure of variation between hospitals in the outcome (in this case DrEaMing) which is not explained by the modelled variables

Median odds ratio in this model: 0.79 (95%CI: 0.68 – 0.90)

There is something 'going on' in different hospitals which we are not directly measuring

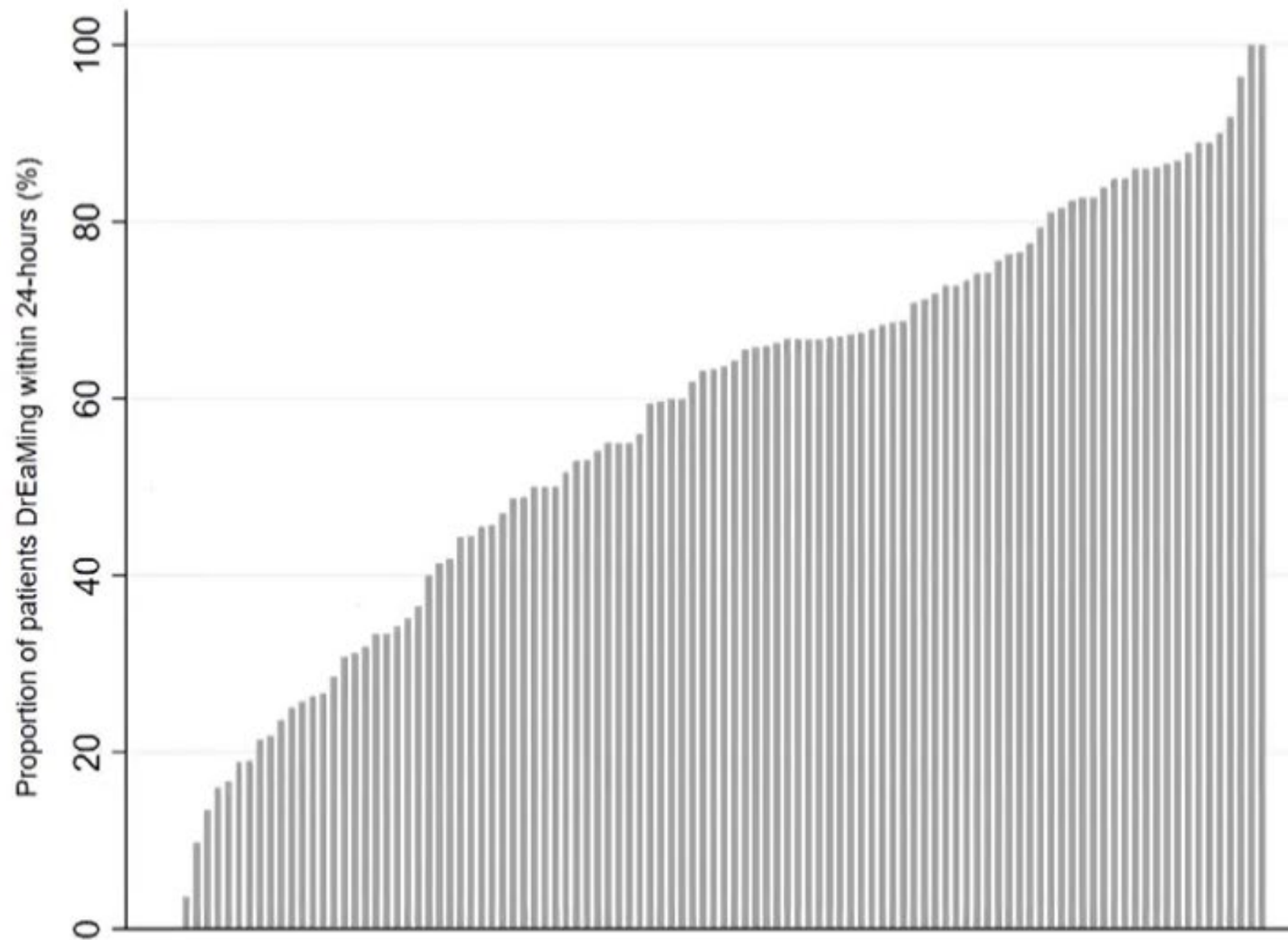
PQIP

Perioperative Quality
Improvement Programme

RCOA
Royal College of Anaesthetists

NIAA HSRCH
Health Services Research Centre

The
Health
Foundation
Inspiring
Improvement



	Quintile				
	1	2	3	4	5
Proportion of cases achieving DrEaMing (%)	0 – 33	34 – 54	55 – 67	68 - 81	82 - 100
Number of patients (N=7211)	1136	1266	1412	1974	1423
LOS (6 (4-9))	7 (5-9)	6 (4-8)	6 (4-8.5)	6 (4-9)	5 (4-8)
Incidence of major postoperative morbidity (%)	23.3	24.1	24.4	22.3	21.2

Hospitals with the highest proportion of DrEaMers:
 2 day shorter median LOS than the hospitals with the lowest proportion of DrEaMers

Why should we care?



© Alamy

PQIP

Perioperative Quality
Improvement Programme

RCoA
Royal College of Anaesthetists

NIAA HSRCH
Health Services Research Centre

The
Health
Foundation
Inspiring
Improvement

All roads end in DrEaMing

- Preoperative health screening
- Empowering patients (shared decision making)
- Optimisation of comorbidities
- Surgical technique
- Anaesthetic technique
- Analgesic strategy



Improvement

PQIP

Perioperative Quality
Improvement Programme

RCOA
Royal College of Anaesthetists

NIAA HSR
Health Services Reses. ...

Learning from the best...



Top tip: Examples of practices that have facilitated DrEaMing

- A 'cup of tea in recovery' documented in the postoperative surgical plan/operation note (Torbay Hospital).
- Supplement drinks stored in a fridge which is accessible to patients (York Hospital).
- A dining area on the postoperative ward to be used by patients for all meals and afternoon tea (Torbay Hospital).
- Hospital gowns for the day of surgery and then encouraging patients to wear their own clothes as soon as possible after the operation, promoting independence and a good sense of wellbeing (Royal Hampshire County Hospital).
- Pain scores improved following the introduction of specialty specific postoperative pain bundles. Oral analgesia is prescribed at the time of surgery as part of a pain bundle, facilitating transition to oral medications at the earliest opportunity (Queen Elizabeth Hospital, Gateshead).

How will we achieve implementation?
cold hard cash

CCG8: Supporting patients to drink, eat and mobilise after surgery

Applicability: Acute	Ensuring that patients Drink, Eat and Mobilise ('DrEaMing') as soon as possible after surgery is a key element of the NHS's enhanced recovery programme, helping to prevent post-operative blood clots and respiratory complications resulting in an average 37.5% reduction in length of stay.
CQUIN goal: 60% to 70%	
Supporting ref: Perioperative quality improvement programme (PQIP) report 3 ¹³	

Government-led financial incentive for the NHS in England

CCG8: Supporting patients to drink, eat and mobilise after surgery

Description	Ensuring that 70% of surgical inpatients are supported to drink, eat and mobilise within 24 hours of surgery ending.	
Numerator	Of the denominator, admissions where, within 24 hours of surgery ending, the patient was supported to drink, eat and mobilise by the following actions being taken: • Documented order and provision of the patient with free fluids • Documented order and provision of food, which may include oral soft nutrition or any other food • Documented order and provision of assistance to support an awake patient to mobilise from bed to chair	
Denominator	Total elective inpatient admissions with a primary procedure in the following groups: colorectal resection, cystectomy, nephrectomy, hysterectomy, primary hip replacement, primary knee replacement, revision hip replacement, revision knee replacement and liver resection. See supporting coding guidance for OPCS codes.	
Exclusions	Admissions where the patient was sedated for the 24h after surgery ended.	
Data reporting and performance	Quarterly submission via National CQUIN collection. See the section on <i>Understanding Performance</i> (above) for details about auditing as well as data collection and reporting. Data will be made available approximately six weeks after each quarter. Performance basis: Quarterly.	
Scope	Services: Acute	Period: All quarters
Payment basis	Minimum: 60% Maximum: 70%	Calculation: Quarterly average %
Lead contact	Matthew Barker m.barker1@nhs.net	

PQIP

Perioperative
Improvement

"A multidisciplinary initiative supporting local quality improvement to benefit patients undergoing major surgery."



www.pqip.org.uk

pqip@rcoa.ac.uk

rmoonesinghe@rcoa.ac.uk