



# Perioperative Quality Improvement Programme

2018-19 results

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PQIP Annual Collaborative event

16 September 2019

Let's take a moment...

# Perioperative Quality Improvement Programme

# Aim

Improve processes and outcomes for patients  
undergoing major non-cardiac surgery  
through use of local quality data

# Year 1: December 2016 – Feb 2017



Using evidence and data to improve the care of surgical patients

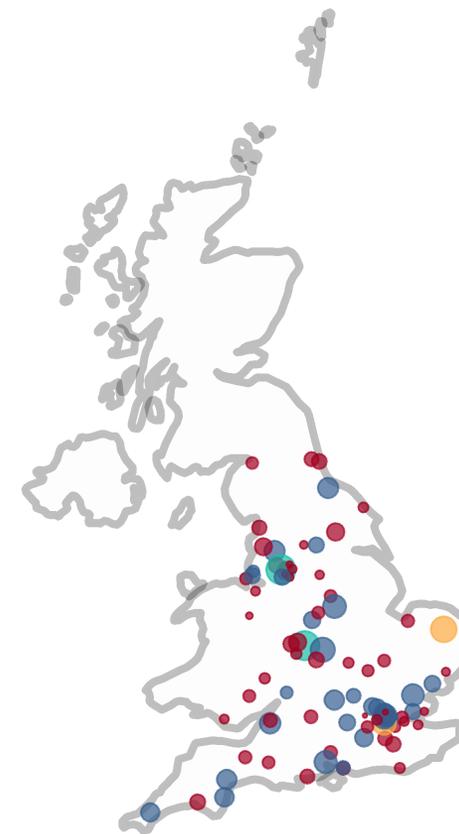
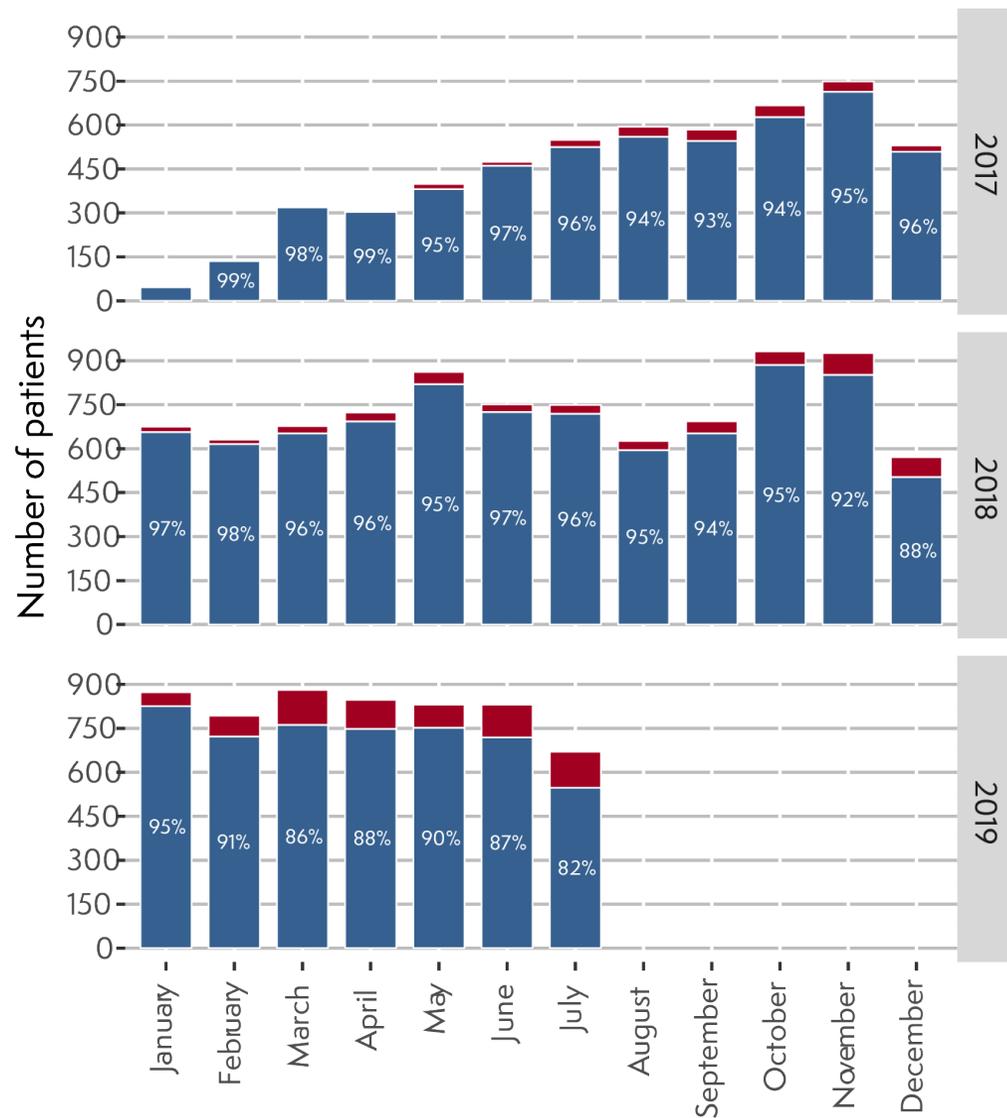
PQIP's Top 5 National Improvement Opportunities for 2018-19

- 1**  
 An icon depicting a red blood cell and a hand pointing to a drop of blood, representing anaemia and diabetes.  
**Anaemia & Diabetes**
- 2**  
 An icon of a medical chart with a red cross, representing individualised risk assessment.  
**Individualised Risk Assessment**
- 3**  
 An icon showing a family of three (a man, a woman, and a child) standing under a string of bunting, representing enhanced recovery.  
**Enhanced Recovery**
- 4**  
 A simple blue smiley face icon representing individualised pain management.  
**Individualised Pain Management**
- 5**  
 An icon showing a glass of water, a plate with a heart, and a person walking with a cane, representing drinking, eating, and mobilising (DrEaMing).  
**Drinking, Eating, Mobilising (DrEaMing)**

ANNUAL REPORT 2018-19



- 18,530 patients with locked records
  - Year 1: up to 28 Feb 2018  
n = 6,378
  - Year 2: up to 5 August 2019  
n = 12,152
- 124 hospitals
  - England
  - Wales
  - Northern Ireland soon...
  - Scotland pending



Total number of patients recruited

- 50
- 100
- 150
- 200
- 300

Average patients recruited per week

- 0-2
- 2-4
- 4-5
- >5

■ Unlocked records ■ Locked records

# Cohort characteristics

Median age 66y

ASA II 61%

70% cancer diagnosis

13% diabetes

15% respiratory history

4% cerebrovascular disease

1% liver disease

58% male

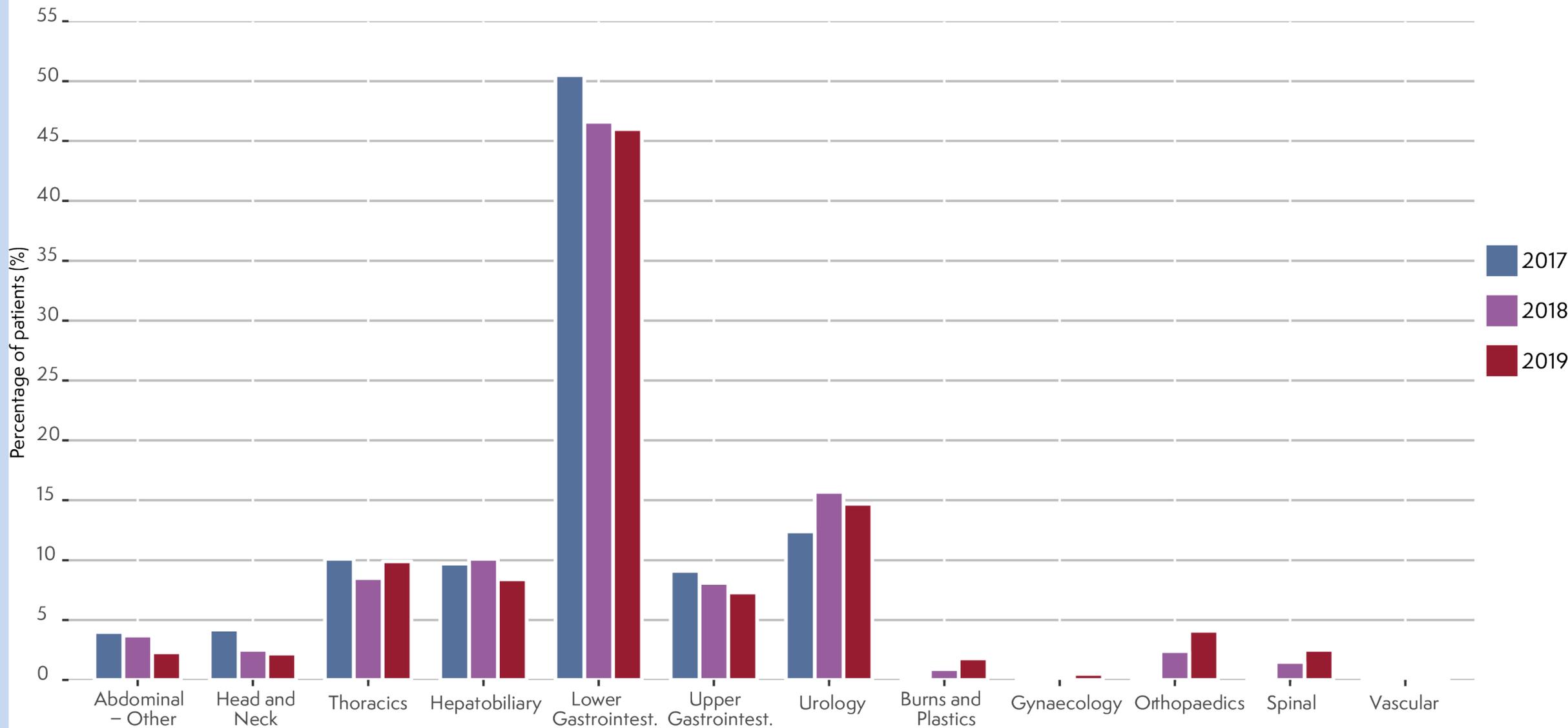
ASA III 27%

10% smokers

17% NYHA II+

15% abnormal ECG

1% dementia



# Complex major surgery

Surgical complexity (%)	Year 1	Year 2
• Major	13.4	11.6
• X-Major	34.0	33.2
• Complex	52.6	55.1

**66% surgery >3 hours**

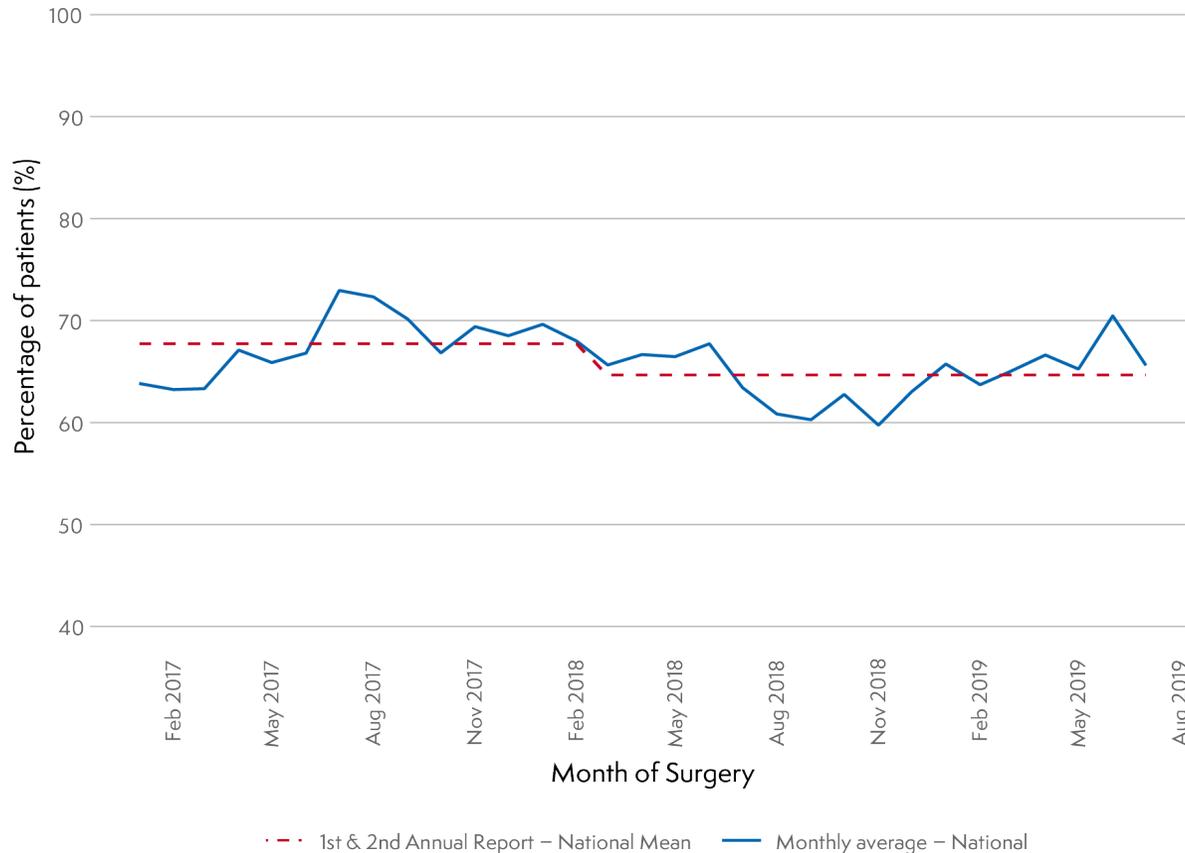
**99% consultant surgeon**

**96% consultant anaesthetist**

**41% admitted to Level 2 or 3 postoperatively**

# Challenges

# Individualised risk assessment



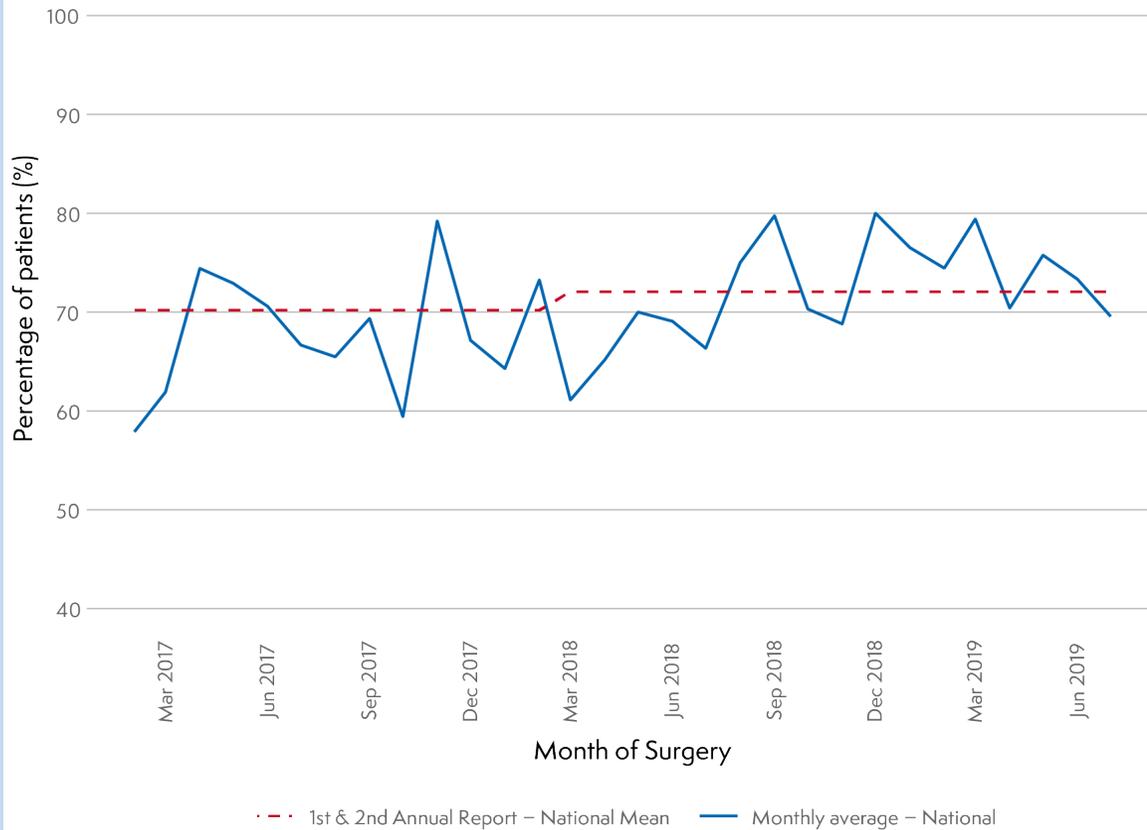
- Y1/Y2 hospitals small improvement
- New hospitals – lower compliance
- Postoperative critical care admission – not obviously related to risk assessment
- Surprisingly tough nut to crack...?

# Anaemia management



- Modest improvement in moderate / severe anaemia rates: 11.6% in Y1 → 10.4% in Y2
- 11% of patients with anaemia have intra-op blood loss >500ml
- More women than men have moderate/severe anaemia.
- 70% of patients with Hb <130 g/l did not receive any preoperative treatment (new data since April 2019)

# HbA1C measurement



- Small improvement but....
- What could the issues be:
  - Data quality
  - Preoperative assessment
- What happens next...?

# Individualised pain management



Year 2	Recovery (%)	24h (%)
Urology	5.5	20.4
Upper gastrointestinal	16.5	19.6
Lower gastrointestinal	5.6	18.6
Hepatobiliary	13.1	17.6
Abdominal-other	7.6	21
Thoracics	6.3	24.3
Head and Neck	20.6	15.8
Orthopaedics	5.2	28
Spinal	9.0	24.2
Burns and Plastics	3.7	13.2

- Severe pain much more commonly reported at 24h than in recovery
- Likely to be multifactorial (requires local evaluation):
  - Patient-related: e.g. mobilisation
  - Structural issues (e.g. staffing)
  - Process issues (e.g. inadequate prescribing or blocks wearing off)
- What should our aim be?

# Successes





**Drinking within 24h of surgery: National Target 90%**

**>90% of PQIP patients in these hospitals were drinking within 24h of surgery:** Aintree University Hospital, Basildon University Hospital, Bedford Hospital, Birmingham Heartlands, Bristol Royal Infirmary, Castle Hill, Chelsea and Westminster, Colchester General, Countess of Chester, Cumberland Infirmary, Darent Valley Hospital, Hereford County Hospital, King's Mill Hospital, Lister Hospital, Manchester Royal Infirmary, Musgrove Park Hospital, National Hospital for Neurology and Neurosurgery, Nevill Hall Hospital, Norfolk and Norwich University Hospital, Northampton General Hospital, Nottingham City Hospital, Papworth Hospital, Princess of Wales Hospital, Queen's Hospital, Burton upon Trent, Queen Elizabeth Hospital Birmingham, Queen Elizabeth University Hospital, Gateshead, Royal Berkshire Hospital, Royal Blackburn Hospital, Royal Bolton Hospital, Royal Cornwall Hospital, Royal Derby Hospital, Royal Lancaster Infirmary, Royal London Hospital, Royal National Orthopaedic Hospital, Royal Surrey County Hospital, Russells Hall Hospital, Sandwell General Hospital, Southmead Hospital, St George's Hospital, St. Peter's Hospital, Stoke Mandeville Hospital, Sunderland Royal Hospital, Tameside General Hospital, The James Cook University Hospital, The Royal Orthopaedic Hospital, Torbay Hospital, University Hospital Wales, University Hospital, Coventry, Warwick Hospital, Yeovil District Hospital, York Hospital

**By specialty - these are the hospitals where patients were drinking within 24h of surgery:**

**Colorectal surgery:** Bedford Hospital, Birmingham Heartlands Hospital, Broomfield Hospital, Churchill Hospital, Colchester General Hospital, Countess of Chester Hospital, Cumberland Infirmary, Hereford County Hospital, King's Mill Hospital, Nevill Hall Hospital, Norfolk and Norwich University Hospital, North Manchester General Hospital, Northampton General Hospital, Nottingham City Hospital, Princess of Wales Hospital, Queen's Hospital, Burton upon Trent, Queen Elizabeth University Hospital, Gateshead, Royal Berkshire Hospital, Royal Blackburn Hospital, Royal Bolton Hospital, Royal Cornwall Hospital, Royal Devon and Exeter Hospital, Royal 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

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# Improvements in DrEaMing



Urology	Year 1 % (n= 870)	Year 2 % (n= 1,751)
Drinking *	92	95
Eating *	74	82
Mobilising *	80	85
DrEaMing *	65	74

Colorectal	Year 1 % (n= 3,200)	Year 2 % (n= 5,390)
Drinking *	85	92
Eating	64	66
Mobilising	79	80
DrEaMing	56	57

Upper GI	Year 1 % (n= 572)	Year 2 % (n= 905)
Drinking	33	37
Eating	14	18
Mobilising *	55	61
DrEaMing	13	16

Abdominal - other	Year 1 % (n= 247)	Year 2 % (n= 367)
Drinking *	68	87
Eating *	47	61
Mobilising *	68	76
DrEaMing *	40	54

HPB	Year 1 % (n= 603)	Year 2 % (n= 1,122)
Drinking *	69	76
Eating	47	52
Mobilising	66	64
DrEaMing	38	43

Thoracics	Year 1 % (n= 630)	Year 2 % (n= 1,050)
Drinking *	93	98
Eating *	93	96
Mobilising *	90	95
DrEaMing *	85	92

\*  $p < 0.05$

# Postoperative morbidity

# Improvements in postoperative morbidity



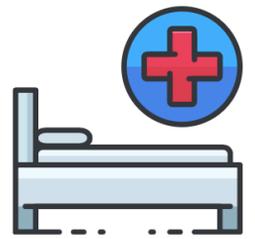
Day 7 morbidity domain	Year 1 % (n= 6,378)	Year 2 % (n= 12,152)	Day 7 morbidity domain	Year 1 % (n= 6,378)	Year 2 excluding new specialties % (n= 10, 852)
Major pulmonary*	6.2	5.3	Major pulmonary	6.2	5.8
Major infection*	12.8	11.5	Major infection	12.8	12.2
Major renal*	1.5	1.1	Major renal	1.5	1.2
Major cardiac*	2.7	2.2	Major cardiac	2.7	2.4
Major neurological*	2.4	1.8	Major neurological*	2.4	1.8
Major wound*	4.5	3.2	Major wound*	4.5	3.4
Major haematological	0.8	0.8	Major haematological	0.8	0.8
Major pain	0.9	0.8	Major pain	0.9	0.9
All gastrointestinal *	14.9	11.8	All gastrointestinal *	14.9	13.0
<b>Any morbidity*</b>	<b>28.4</b>	<b>23.8</b>	<b>Any morbidity*</b>	<b>28.4</b>	<b>25.1</b>
<b>Any major morbidity*</b>	<b>18.7</b>	<b>16.4</b>	<b>Any major morbidity*</b>	<b>18.7</b>	<b>17.2</b>

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# Postoperative length of stay

# 1 day reduction in length of stay

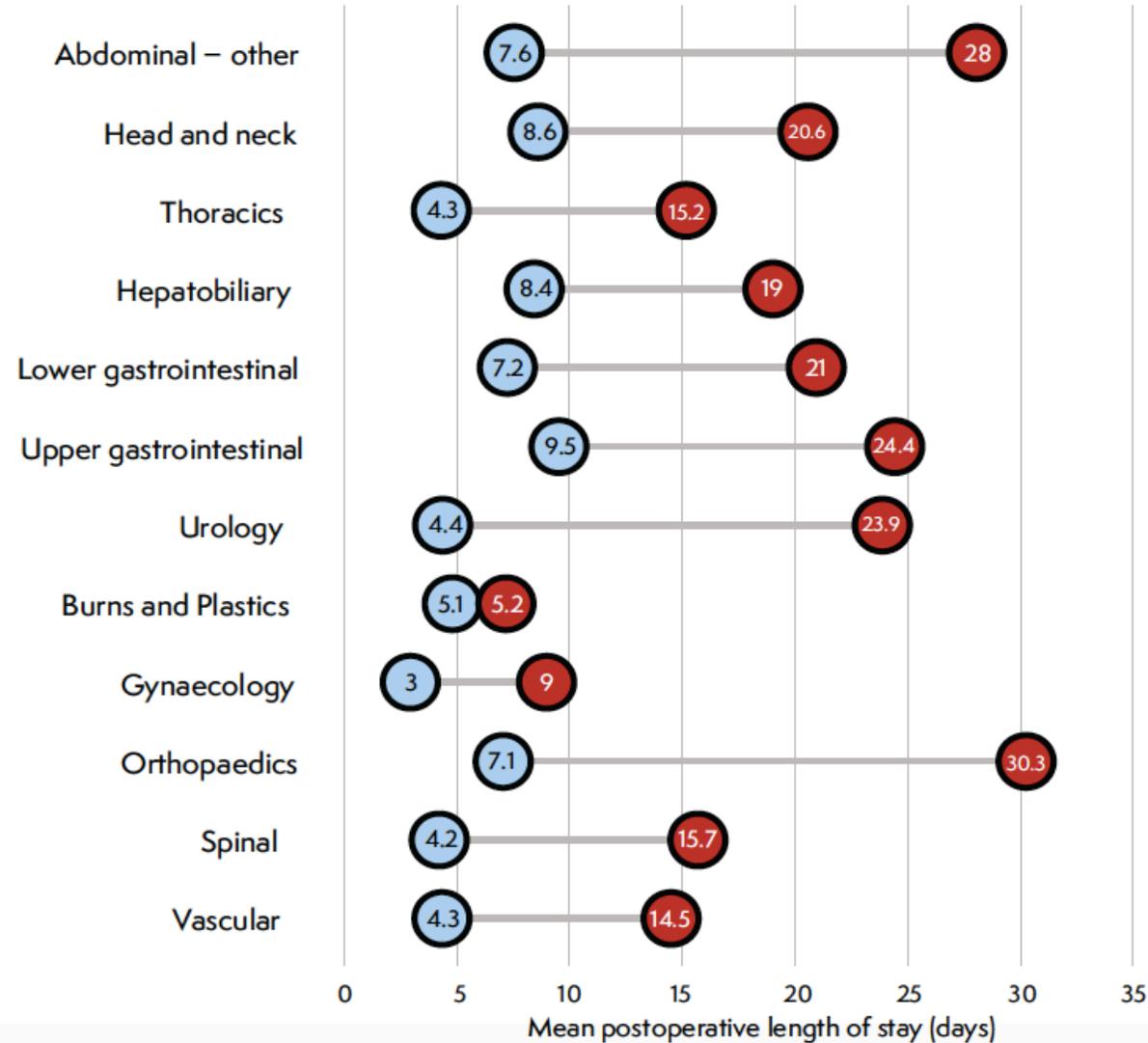
	Year 1 (n)	Length of stay (days)	Year 2 (n)	Length of stay (days)
Total PQIP population	6378	8.9	12152	8.0
Hospitals participating in both Y1 and Y2 (n=65)	6378	8.9	8835	7.8

Table 12. Length of stay between years 1 and 2 for entire PQIP cohort (n=18,530)



- 1 million procedures per year
- £313 per day
- Annual saving of £313 million

# Impact of complications on LOS



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# What does this all mean?

# Interpretation

- Improvements are possible
- Simple, easily measureable and communicable targets work best
- Time, resources, local support
- Further direction & collaboration required

## Top 5 National Improvement Priorities for 2019-20

### 1 Preoperative assessment



Individualised risk assessment  
Anaemia detection & treatment  
Lifestyle and comorbidity optimisation

### 2 Diabetes management



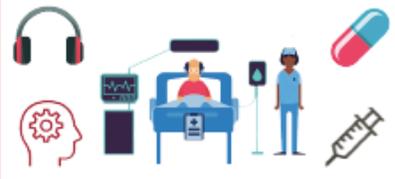
Measure HbA1C  
Measure compliance against local pathway  
Restore usual nutrition as soon as possible

### 3 Communication and multidisciplinary working



The whole MDT and patients can use PQIP to lead local improvement  
Regular, multi-modal communication keeps PQIP in focus for the clinical team  
Build discussion into clinical routines - team briefs, staff meetings, MDT meetings  
Make your data work for you: use it to build business cases, support local reward systems etc.

### 4 Individualised pain management



Expectation setting and management  
Multimodal analgesia  
Local anaesthesia techniques  
Distraction therapy  
Regular, early post-op review by pain teams

### 5 Enhanced Recovery



Surgery school or other tailored preparation  
Pre-op nutritional assessment, carbohydrate loading and minimising starvation  
Drinking, Eating [or nutritional supplementation] & Mobilising within 24h  
Minimise tubes, drains and 'institutionalisation'

- Preoperative assessment
- Diabetes pathways
- Individualised pain management
- Enhanced recovery and DrEaMing
- Communication and MDT working

# Royal Bolton Hospital Colorectal ERAS Pathway



Part of the Greater Manchester rollout of ERAS +  
Main aims are oral hygiene, nutrition, chest exercises, activity and lifestyle  
Surgeons, Colorectal Specialist Nurses, ERAS Nurse working closely  
Feedback at monthly audit meetings

## Prehabilitation



Surgery school  
MDT clinic - consultants, nurses, physios  
Learn about interventions

## Hospital Stay



Identify ERAS + patients by green wristbands  
Brush teeth 2 x day and mouthwash  
Incentive spirometry at least twice daily  
Cough  
Nutrition and fluids  
Move as soon as able  
Encourage use of PCA

## Benefits



Aim to reduce length of stay  
Evidence from Manchester Royal Infirmary shows savings of £500 000 by reducing length of stay

# North Bristol NHS Trust Colorectal ERAS Pathway



## Preoperative



Enhanced Recovery (ER) Nurses will review patients both pre-operatively and whilst inpatients

ER Nurse explains programme to patient and family

- Written information
- opportunity for questions
- discussion of diet and exercise
- discharge planning

Referral to dietician  
Patient can sample supplement drinks

## On Admission

ER Protocol is incorporated into admission medical clerking proforma

## Postoperative



Daily (monday-friday) review by ER Nurses  
Patient progression diary  
Patients discharged with a discharge information leaflet

- When to seek medical attention
- Potential complications
- Diet
- Follow up



# Improving perioperative pain

The 2018-19 PQIP report found more than 1 in 5 patients experienced severe pain within 24h of surgery.

A much lower proportion (1 in 13) report pain in the immediate recovery period.

Check your local data - do you have the same problem?  
Then look below for our top tips!

## Before

**Preparatory materials**  
(e.g. "Fitter Better Sooner") and/or Surgery School

**Pre-op referral** for 'at risk' patients to pain management services  
(e.g. patients with pain-related anxiety, chronic pain, long-term analgesia)

## During

Local protocols for **multi-modal analgesia** including consideration of NSAIDs, gabapentinoids, low-dose ketamine etc where indicated

**Procedure specific protocols** for regional blocks, wound catheters, infiltration and regional anaesthesia

## After

Local audit to identify **structural issues** e.g. inadequate prescribing of regular meds  
or **process issues** e.g. blocks wearing off overnight; inadequate prn meds  
Remember: mobilisation may be painful! and pre-empt accordingly

Consider if 'at risk' patients require **evening/overnight pain review**  
When prescribing opioids and other strong painkillers, remember **'de-prescribing'** too

# Individualised risk assessment: why and how guide



# Healthy competition



- Positive deviance
- Improvement projects based on our national priorities
- To be showcased in next year's report and collaborative event

# Sum-up

- It's still really early days
- But already seeing signs of progress
- MDT engagement and senior support essential for making improvements happen
- Thank you for all your hard work so far