



The Global Language of Business

## Getting it right first time in endoscopy

Use of barcodes to improve patient safety, patient flow and reduce resource wastage

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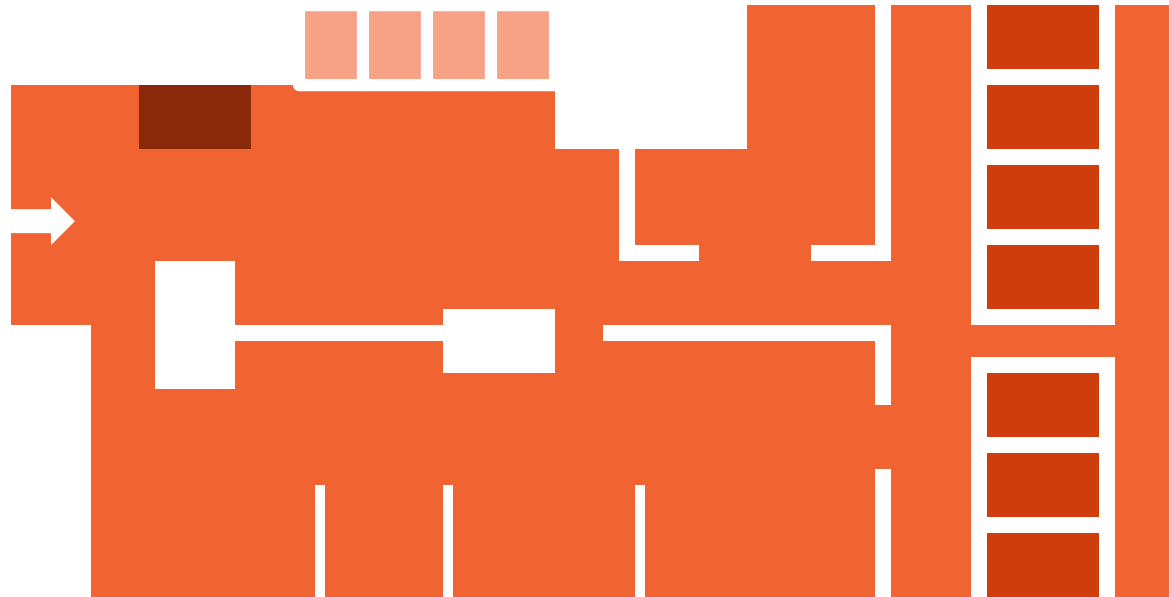
# Introduction

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- Complex and non-compatible ways to collect data during patient journey in endoscopy
- Co-morbidities not recorded in a way that allows coding (HRG 4+)
- Patient flow not monitored
- Consumable stock control poor
- Complications recorded poorly
- GIRFT programme

# Patient Flow

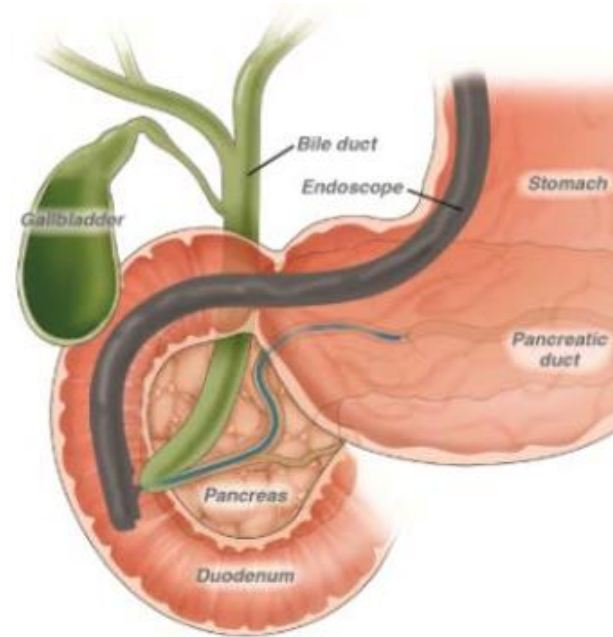
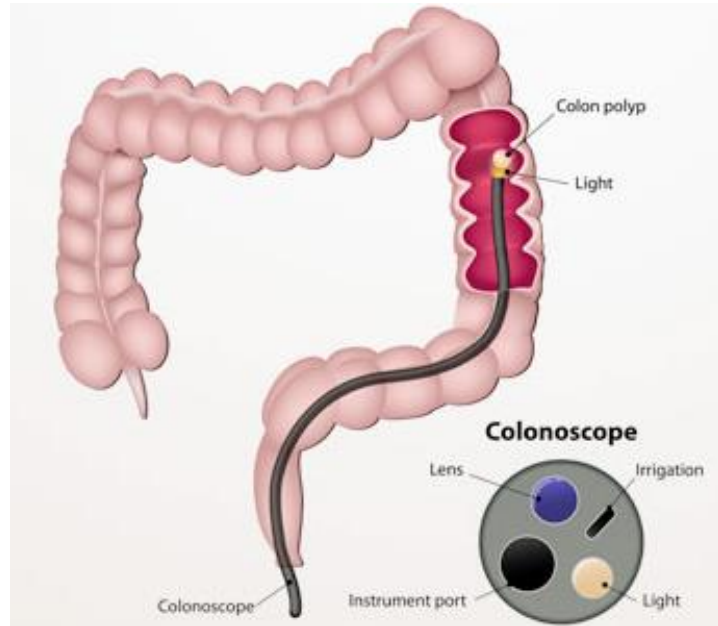


# Data collected



- Electronic
  - PAS
  - Endoscopy reporting system – findings, QA measures
  - Washer systems
  - Datix
- Paper
  - Nursing notes – co-morbidities, regular meds, observations, complications
  - Medical notes – complications

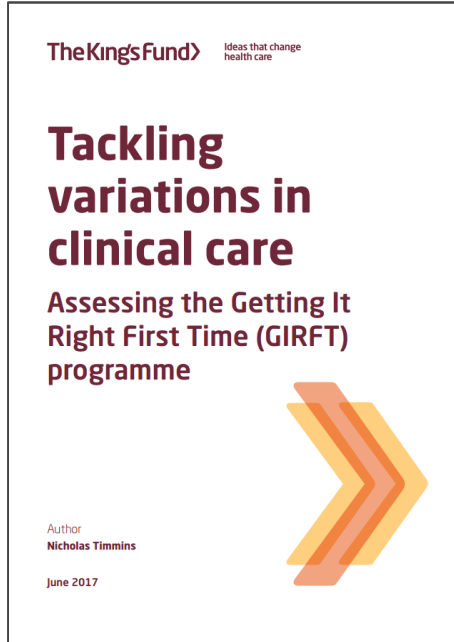
# Colonoscopy and ERCP



# Complications – are we safe or sloppy?



- In 3 months June-August 2015
  - 127 ERCP
  - 1080 colonoscopies
  - >3000 gastroscopies
- 2 significant complications were recorded in endoscopy for ALL procedures
- Expected rate of such complications is 7-12 for this period just for ERCP and colonoscopy



- National programme
- 32 surgical and medical specialties
- Links clinical, financial and performance data

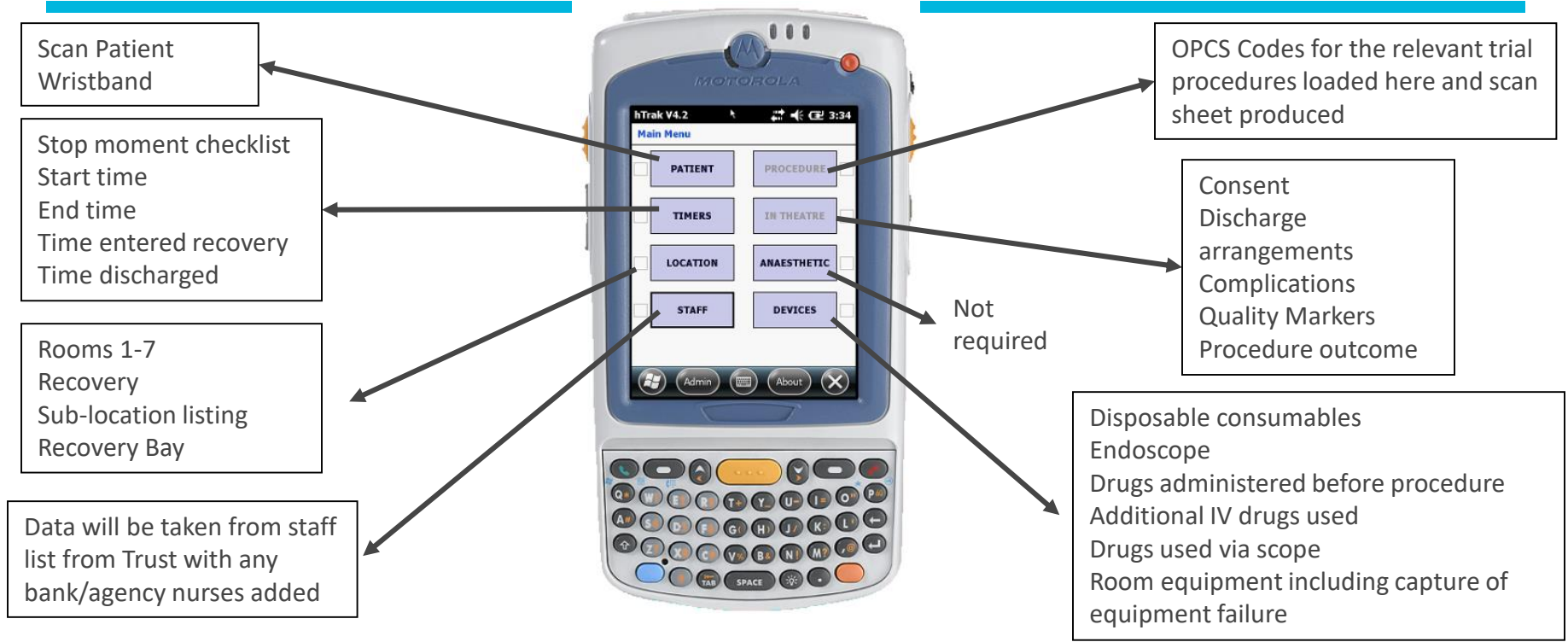
# Methods

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- June 1<sup>st</sup> 2016 – May 31<sup>st</sup> 2017
- Barcode readers used to collect data on:
  - Patient flow
  - Co-morbidities
  - Staffing
  - Equipment use (including consumables)
  - Drug usage
  - Complications







**Derby Teaching Hospitals NHS**  
NHS Foundation Trust

**COPD**  
Unspecified ☐  
Chronic bronchitis ☐  
Emphysema ☐  
Current smoker (or within 3 months) ☐  
Past smoker ☐  
Chronic respiratory failure (Home O2 inc CPAP) ☐  
Asthma (on inhalers) ☐  
Other chronic lung disease ☐

Registered Blind ☐  
Severe or profound hearing loss ☐  
Dysphagia ☐  
Hypertension ☐  
Gastro oesophageal reflux ☐  
Peptic ulcer ☐  
Abnormal LFTs (including abnormal clotting) ☐  
Jaundice ☐  
Other liver disease ☐  
History of alcohol abuse (>28 units men > 21 Units women) ☐  
Dependent diabetes ☐  
Non-insulin dependent diabetes ☐  
**Diabetic complications**  
Neuropathy ☐  
Vascular ☐  
Renal ☐  
Ophthalmic ☐  
Autonomic ☐  
**Cancer**  
(any current primary) ☐  
(any past history) ☐  
Metastatic cancer ☐  
Cancer - please document site(s) ☐  
HIV positive ☐  
Epilepsy ☐  
Parkinson's disease ☐  
TIA ☐  
Other cerebrovascular disease ☐  
Dementia excluding Alzheimer's disease ☐  
Alzheimer's disease ☐  
Depressive disorders including ☐  
Anxiety disorders ☐  
Developmental delay including learning disability ☐  
Drug abuse ☐  
Personal history of self harm ☐  
Psychotic disorders including schizophrenia, delusional disorders ☐  
Autism ☐  
Multiple Sclerosis ☐  
Stroke ☐  
Hemiplegia ☐  
Paraplegia ☐  
Anticoagulant therapy PE or DVT ☐  
Tendency to fall ☐  
Living alone ☐  
Acute Kidney Injury ☐  
Kidney Stage ☐  
Dialysis ☐  
Transplant ☐  
Urinary retention (Catheter in place/inserted) ☐  
Rheumatoid arthritis ☐  
Any connective tissue disorder ☐  
Obesity (BMI > 30) ☐  
History of ischaemic heart disease ☐  
Acute Myocardial Infarction in last 28 days ☐  
Congestive cardiac failure (any evidence of right heart failure) ☐  
Left ventricular failure ☐  
Atrial fibrillation ☐  
Cardiac pacemaker in place ☐  
Mitral valve disease ☐  
Peripheral vascular disease ☐  
*Taking pride in caring*  
G162090414



☐ History of ischaemic heart disease  
☐ Acute Myocardial Infarction in last 28 days ☐  
☐ Congestive cardiac failure  
(any evidence of right heart failure)  
☐ Left ventricular failure ☐  
☐ Atrial fibrillation ☐  
☐ Cardiac pacemaker in place ☐  
☐ Mitral valve disease ☐  
☐ Peripheral vascular disease ☐



# Results



Procedure Type	
Diagnostic Colonoscopy	694
Therapeutic Colonoscopy	58
Diagnostic ERCP	28
Intermediate Therapeutic ERCP	122
Major Therapeutic ERCP	250
	<b>1155</b>



Gastro oesophageal reflux/GORD	ICD:K21.9
Atrial fibrillation	ICD:I48
Type 2 Diabetes	ICD:E11
Other Liver Disease	ICD:K70-K77
COPD- Unspecified	ICD:J44.9
Allergy-other	DR/AL011
Hypertension	ICD:I10
Anticoagulant - other	DR/AL003
History of ischaemic heart disease	ICD:I25.9
Polypectomy	INT004
Any connective tissue disorder	ICD:M30 - M36
Dementia excluding Alzheimer's disease	ICD:F03.9
Past Smoker/History of alcohol abuse	ICD:Z86.4
Chronic respiratory failure (Home O2 inc CPAP)	ICD:J96.9
OSA/OHS	ICD:G47.3/E66.2



## Delay Reasons

Endoscopist Late Arriving	41
Overrun of List	28
Patient Late Arriving	18
Patient Req'd Blood Tests	2
Room Not Ready	10
	<b>99</b>



## Cost of Consumables per Procedure

Diagnostic Colonoscopy	£20.41
Therapeutic Colonoscopy	£37.31
Diagnostic ERCP	£319.13
Intermediate Therapeutic ERCP	£338.28
Major Therapeutic ERCP	£461.80



## In Room Complications

Bleeding-minor-stopped no intervention	30
Bleeding-significant-haemostasis req'd	5
Bradycardia <45 - Intervention req'd	1
Pain/Distress: Additional drugs	3
Flumazenil used	2
Pain/Distress: Procedure abandoned	9
Request to stop proc by patient	2
Tachycardia >150 -No Intervention	2
	<b>54</b>





## Recovery Complications

Abnormal observations	5
Need for Flumazenil	1
Overt Bleeding	22
Seizure	1
Significant pain/distress	3
Vomiting	1
	<b>33</b>

# Problems

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- New technology difficult for staff to become comfortable using - 'Hearts & minds'
- Challenges using technology in busy day-case setting, especially concerns that distracts nursing staff from patient care
- Number of readers limits utility – ideally reader should follow patient

# Conclusions

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- Co-morbidities can be easily recorded to improve coding
- Complications are more readily detected allowing safety improvements to be developed and assessed
- Consumables stock control improved
- Reference costs more easily identified
- Patient flow can be used to identify delays and target improvements

# Next steps

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- Roll-out to all procedures:
  - Flow
  - Consumables
  - Complications
  - ?Co-morbidities
- National Endoscopy Database
- GIRFT gastroenterology work stream