



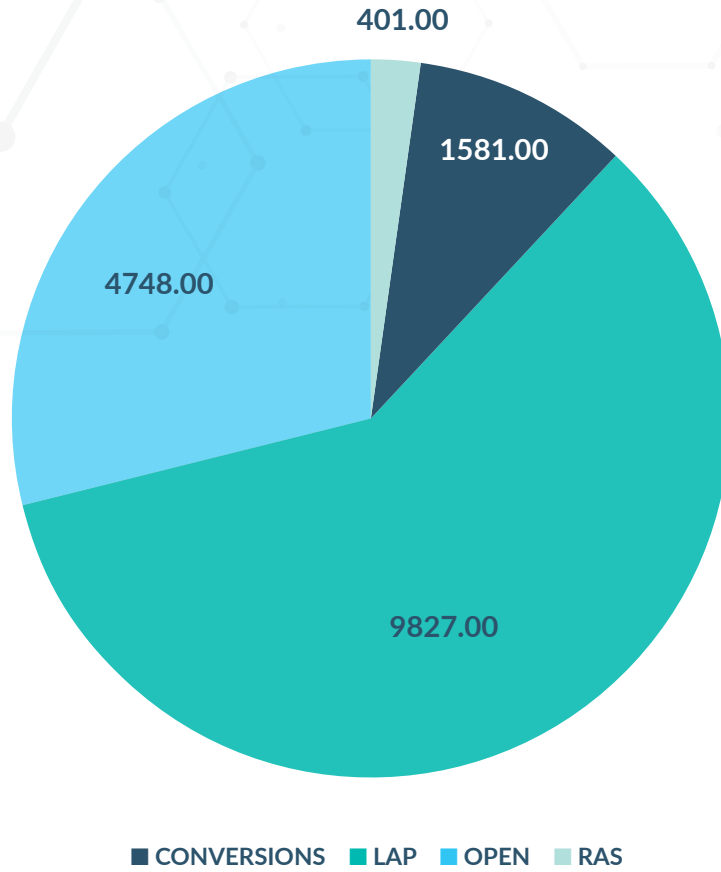
# Robotic-assisted surgery

**Preliminary HES data analysis**

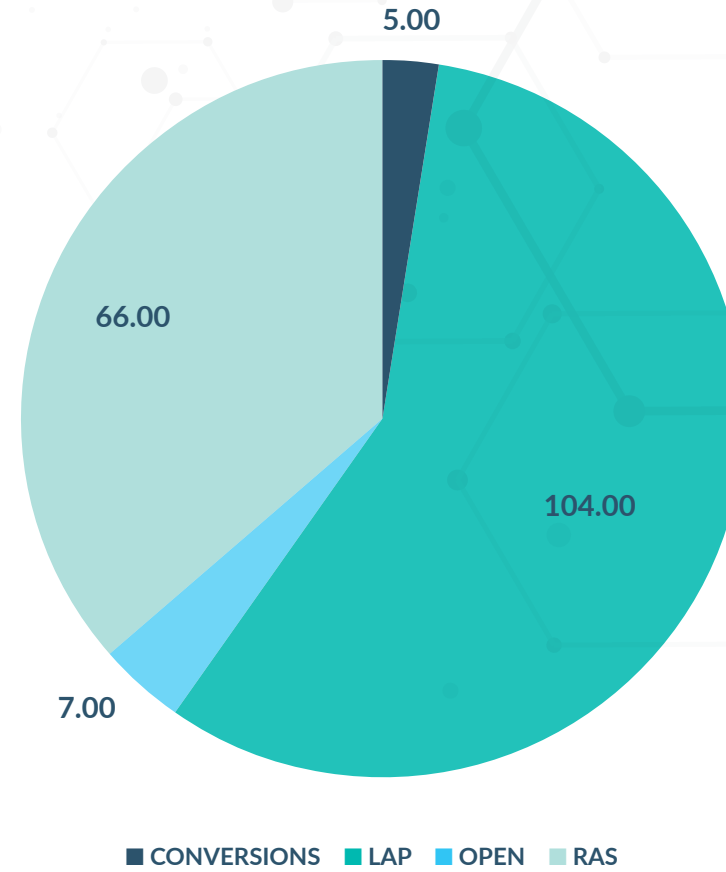
Science-based  
Learning

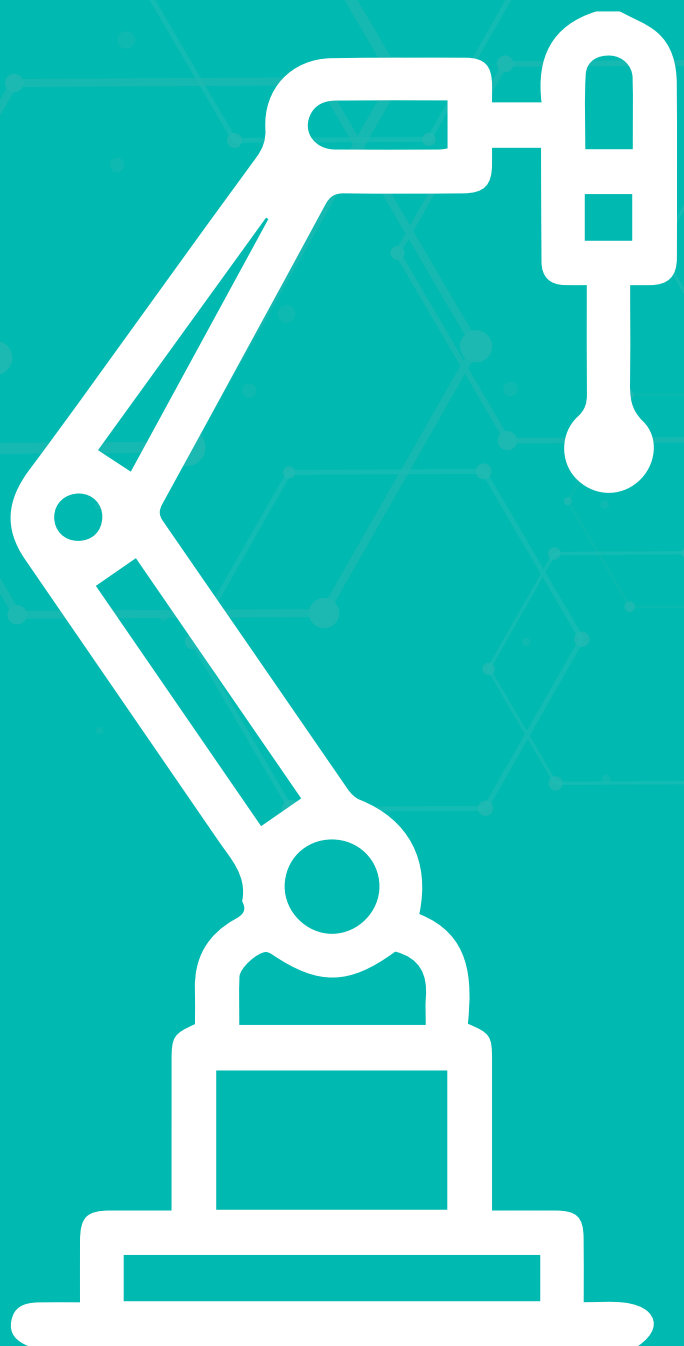
# National HES Data, 2017/18

All Trusts



Portsmouth Hospitals NHS Trust





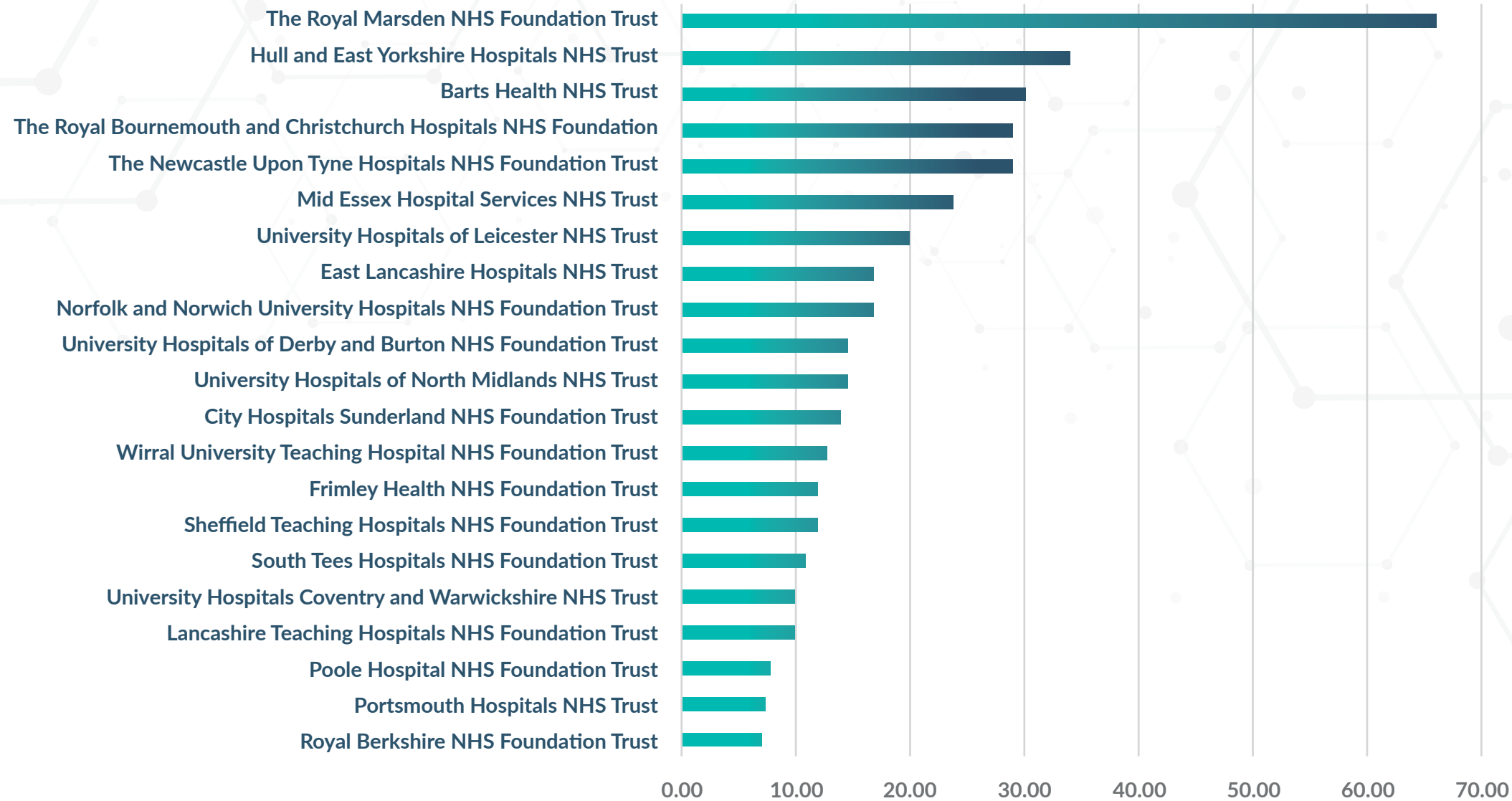
## In 2017/19, 401 patients had RAS

- Average LOS ranged from 3.86 days to 13.25 days
- Average cost per patient ranged from £2035 to £7845
- Mean number of days spent in ICU per patient was 1.93 days (IQR=0 days to 1.87 days)

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### Excluded trusts with total number of patients <5 (8)

- Imperial College Healthcare NHS Trust
- Leeds Teaching Hospitals NHS Trust
- Lewisham and Greenwich NHS Trust
- Mid Cheshire Hospitals NHS Foundation Trust
- Oxford University Hospitals NHS Foundation Trust
- Royal Surrey County Hospital NHS Foundation Trust
- Shrewsbury and Telford Hospital NHS Trust
- The Christie NHS Foundation Trust





## Comparing Portsmouth to other RAS performing Trusts

### Portsmouth Hospitals NHS Trust

- Total of 66 patients had RAS
- Average cost per patient was £6915 (among top 40% most expensive)
- Average LOS was 8.74 days (among top 40%)
- Among top 40% by bed days in ICU per patient

### All other NHS Trusts

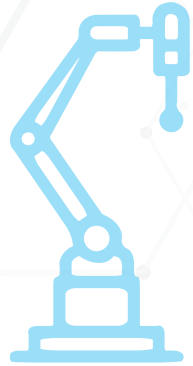
- Total of 335 patients had RAS
- Average cost per patient ranged from £2035 to £7844
- Average LOS ranged from 3.85 days to 13.25 days



### What next?

- Patient demographics - segmentation
  - Age
  - Gender
  - Comorbidities

## Comparing RAS and LAP nationally



RAS

- In Total, 401 patients had RAS
- Average LOS ranged from 3.86 days to 13.25 days
- Average cost per patient ranged from £2035 to £7845
- Mean number of days spent in ICU per patient was 1.93 days (IQR=0 days to 1.87 days)



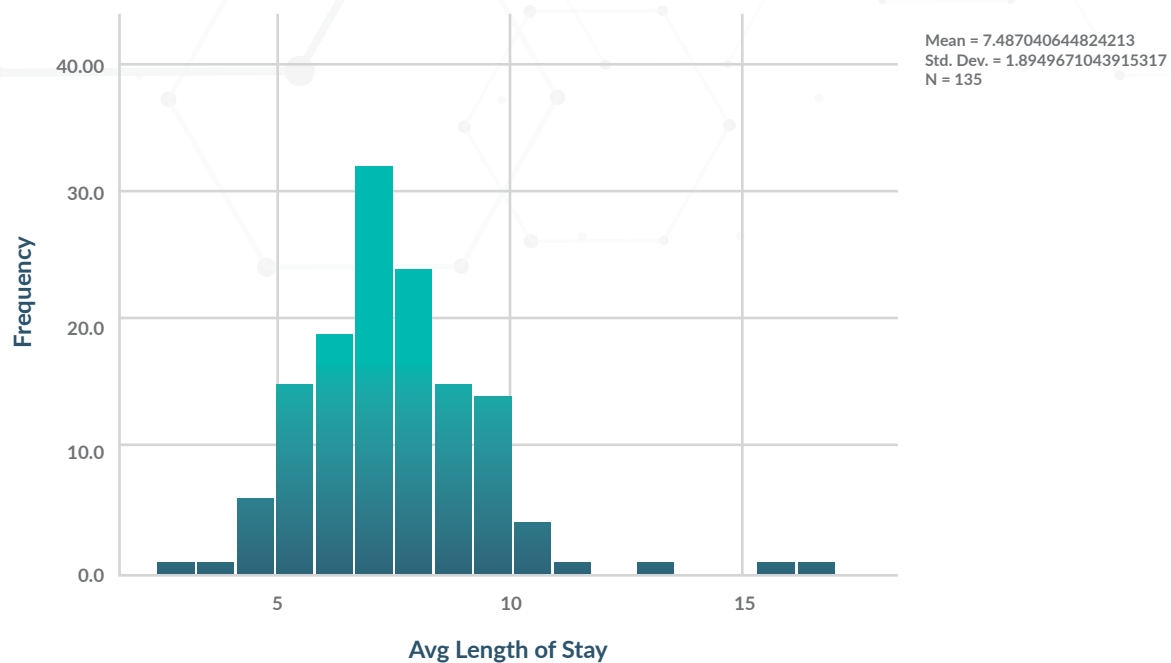
LAP

- In total, 9827 patients had LAP
- Average LOS ranged from 3.33 days to 16.11 days
- Average cost per patient ranged from £112 to £8982
- Mean number of days spent in ICU per patient was 2.81 days (IQR=0.95 days to 4.48 days)



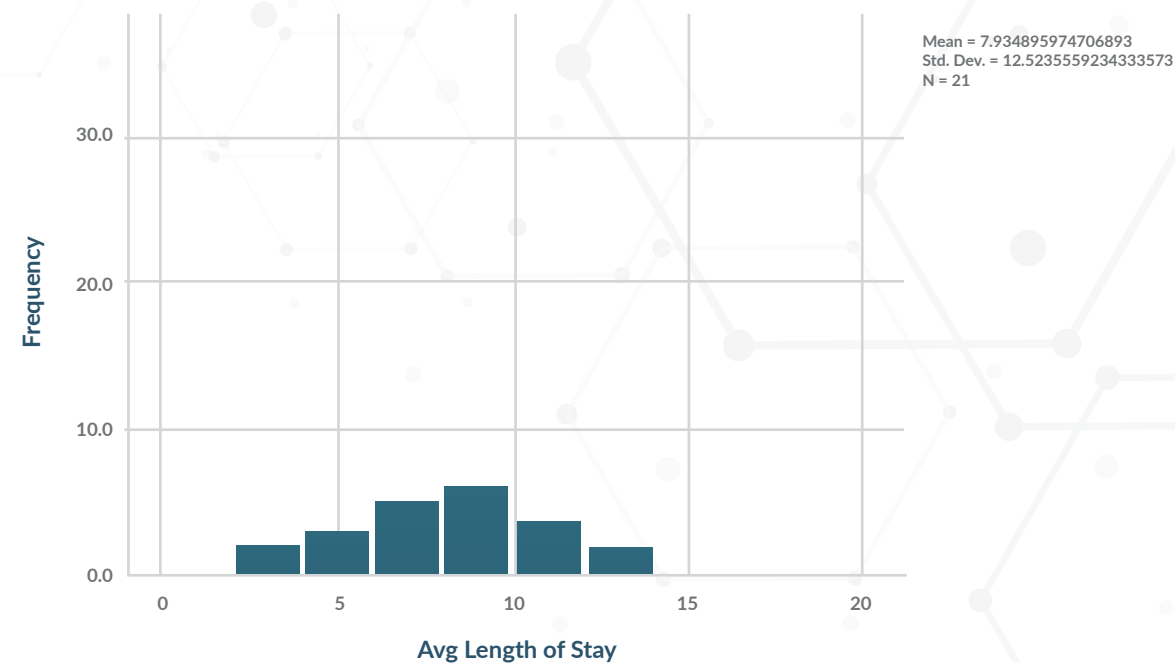
## Average LOS is comparable between RAS and LAP patients

Distribution of average LOS for LAP patients



Average LOS ranged from 3.33 days to 16.11 days

Distribution of average LOS for RAS patients

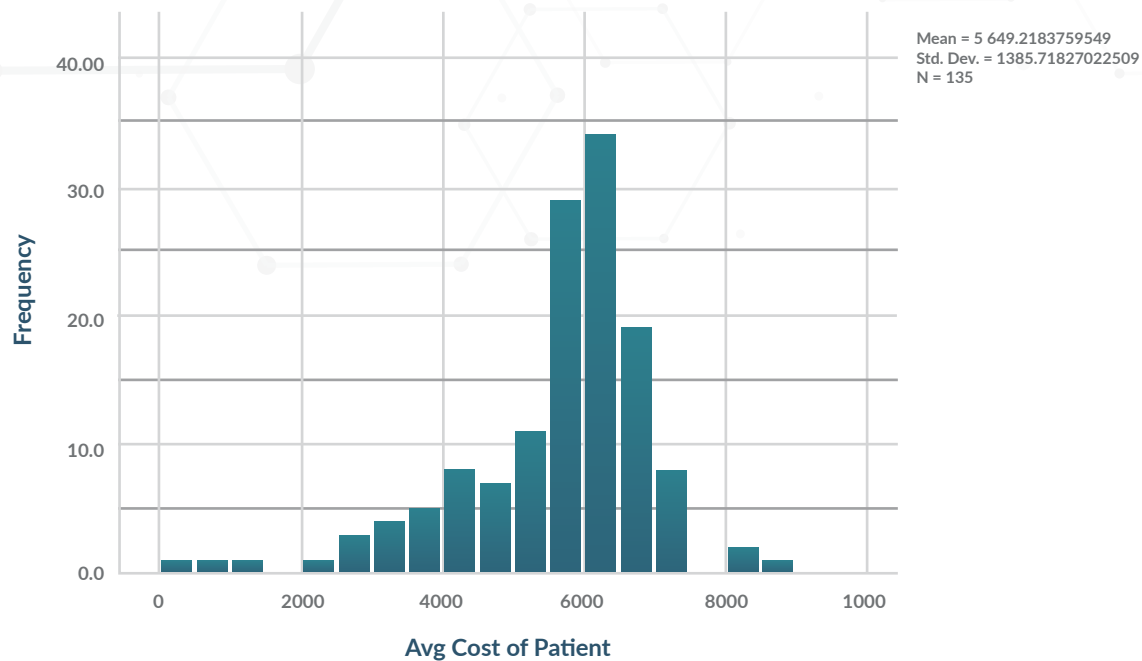


Average LOS ranged from 3.86 days to 13.25 days



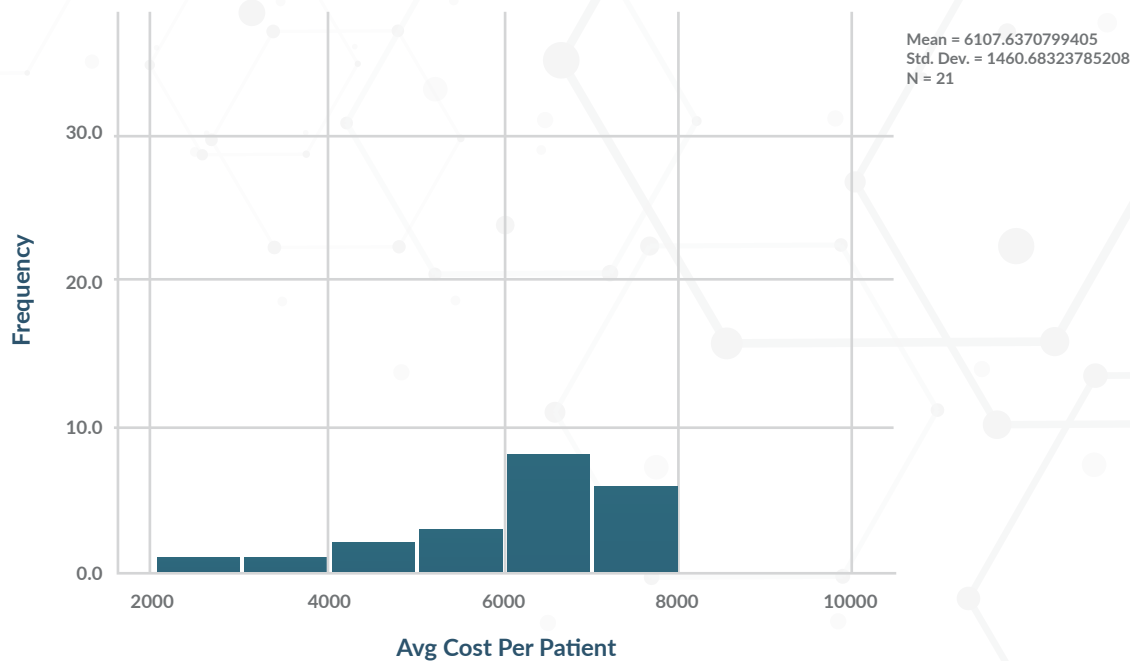
## LAP surgery has wider range of average cost per patient

Distribution of average cost per patient for LAP surgery



Average cost per patient ranged from £112 to £8982

Distribution of average cost per patient for RAS surgery



Average cost per patient ranged from £2305 to £7845





## Post-operative costs

- Followed patients to determine their post-operative costs
- Criteria:  
Readmission for any diagnosis, recurrence or mets, post-operative radiotherapy or chemotherapy and incisional hernia



**OPEN .....£992-£14,568**  
**CONVERSION £265-£11,202**  
**PLICS data investigation?**

### Surgery

- Costs comparable
- LAP with frequent lower average cost per patient



### Post-operative costs?

- LAP £1150 - £11,943
- RAS £974 - £8229



## Conversion rate

- The conversion rate reflects the total proportion of **LAP or RAS** surgeries that were converted to open surgery in 2017

- Within the dataset, we cannot determine whether the initial procedure was RAS or LAP

- Portsmouth: 1.73%\*\*  
National average: 15%

\*\*(<5 patients)

## Economic analysis – Cost: benefit model

### Costs

- Acquisition costs
- Maintenance costs
- Procedure cost (minutes)
- Training costs
- Staff costs relevant process

### Benefits/savings

- Certainty for LOS/conversions
- Conversions
- Neoadjuvant/adjuvant chemo/rad
- Stoma formation and reversals
- Readmissions
- Total and ITU bed days
- Capacity gains from fewer bed days
- Mortality

## ROLARR paper cost analysis

### Costs (metrics used)

- Initial Surgery
- Stoma reversals
- Stoma supplies
- Other Surgery
- All other costs

### Benefits/savings

- Benefits/savings not calculated as study failed to demonstrate a significant difference between both arms



## Points for consideration - costs

- HRG-based tariffs are not truly representative of the cost of either surgery to the health service

- Suggest use of PLICS data for more accurate, patient-level costing

- HES data will not provide information on costs associated with specific complications/ additional elements, e.g. chemo/ radiotherapy, stoma formation, etc

- Reference costs to be used where cost data is not readily available (either via PLICS or HES)



Units 1&2  
Field View  
Baynards Green  
Bicester  
OX27 7SG

+44 (0) 7804 623 339  
[info@odelletechnology.com](mailto:info@odelletechnology.com)  
[www.odelletechnology.com](http://www.odelletechnology.com)