

Stammers M, Thalasekaran S, Bhandari P

Queen Alexandra Hospital (QAH), Portsmouth, United Kingdom

## INTRODUCTION

Endoscopy workload is increasing at a faster pace than available resources. The NHS has a wealth of data, which if used properly can improve resource allocation in future.

Aim: Review mass colonoscopy data to identify those factors most associated with normal examinations in order to help rationalise future resource utilization.

## METHOD

We constructed a standardised, anonymised database, containing all colonoscopies performed locally between 01/01/2010 and 10/12/2016. The records were then histology matched.

The data was then analysed using the Anacondas™ 3 distribution of Python, using *numpy*, *pandas*, *matplotlib* and *seaborn* to clean & prepare, plot & perform statistical analysis on the data.

## RESULTS

**23,837 colonoscopies** were performed on **18,489 individual adults** during the study period. 544 procedures had to be excluded as they lacked an NHS number and couldn't be histology matched. 23,293 procedures remained.

50.4% of the procedures were performed on females. The median age was 64. Across all the procedures, 25.46% were reported as entirely normal by the endoscopist. 3.04% of procedures contained a histologically confirmed cancer.

### Age:

We found that the chances of obtaining a normal examination declined from ~49%+/- 5% ≤ 43yrs to ≤ 20%+/-2% in those ≥ 61yrs. In patients aged ≤ 43 OR of a normal exam = **3.29**. For those aged ≥ 61, (OR=**0.32** for a normal exam). Note, all OR's in this study had p<0.0001 significance.

### Sex:

Examinations performed on females were more likely to be reported as normal compared to men (OR=**1.73**). For women ≤43, OR for normality = **3.88**.

## RESULTS

### Priority:

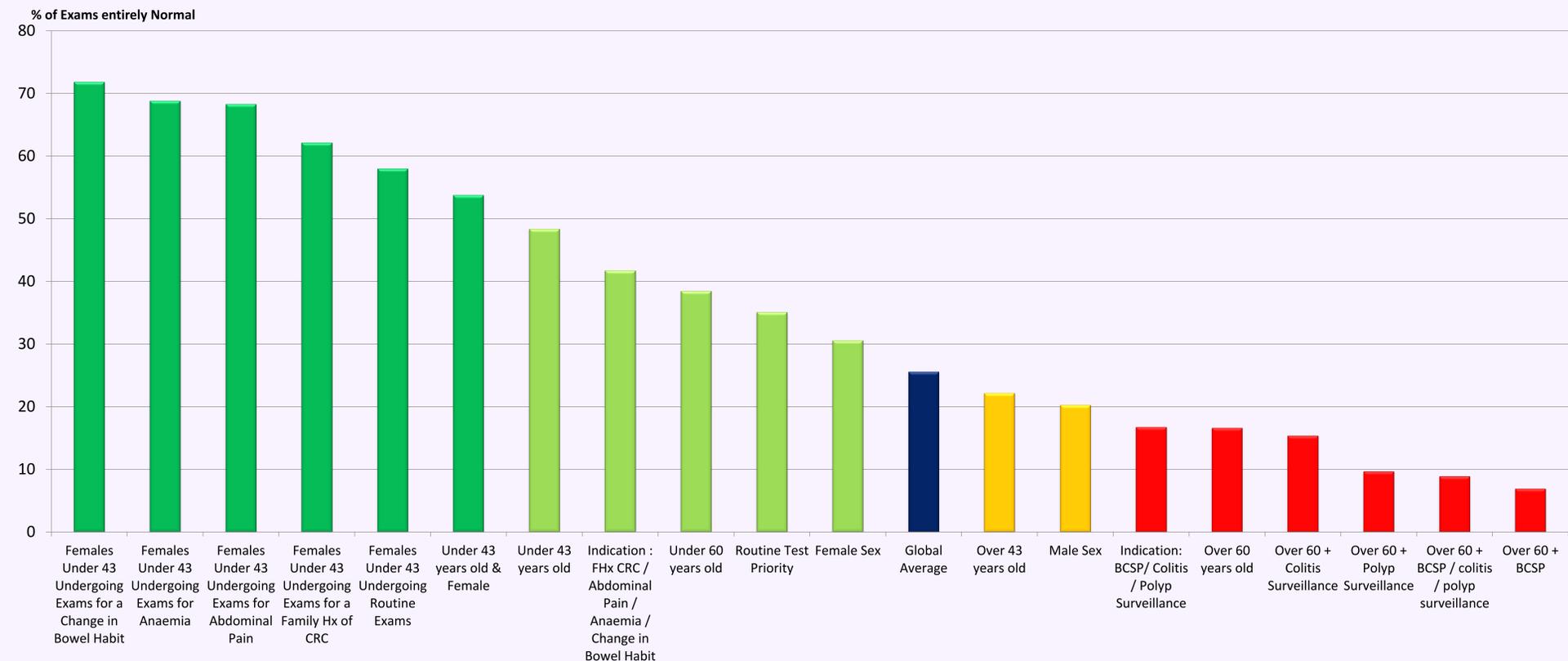
Routine priority was strongly associated with normal colonoscopy, (OR=**1.99**). Routine procedures on females ≤43 were very likely to be normal (OR=**4.90**). These patients were very unlikely to have cancer (OR=**0.093**).

### Indications:

Abdominal pain, anaemia (iron deficient) and bowel habit changes (of all types) and family history of colonic cancer were all found to be associated with a ≥40% rate of normal examinations, (OR=**3.57**).

The highest incidence of normal examinations was found amongst women ≤ 43 undergoing routine colonoscopy for abdominal pain (OR=**7.85**), followed by bowel habit changes (OR=**6.49**), and anaemia (OR=**5.91**).

Conversely, the highest rates of pathology were found in men ≥61 undergoing bowel cancer screening, (OR for pathology=**4.98**; OR for malignancy=**2**).



## CONCLUSION

We have developed a method for performing mass data analysis to identify trends in endoscopy data.

Our data can help improve future utilisation of other colonic investigational modalities like colon capsule for low risk individuals. This can release colonoscopy capacity for the patients most at need.