Restoration of elective surgery following the SARS-CoV-2 pandemic in a tertiary specialist centre
Ubhi HK [1], Nassa [1]
Pre-operative Assessment clinic[1], The Royal Orthopaedic Hospital NHS Foundation Trust, Birmingham

Introduction
- Mortality and pulmonary complications in patients undergoing surgery with perioperative SARS-CoV-2 infection was found to be extremely high [1]
- As a result, thresholds for elective surgery during the COVID-19 pandemic were universally raised when compared to normal practice
- Other recommendations included, postponing non-urgent procedures and promoting non-operative treatment
- ROHFT was one of the first trusts nationally to resume elective surgery in June 2020 post 1st wave of the SARS-CoV-2 pandemic
- National and local recommendations, based on medical and surgical priority were drawn up to guide careful patient selection in the group

Aims
- This retrospective audit was designed to assess the actual impact on patients mortality and length of stay (LOS) receiving elective surgery immediately post 1st wave of the pandemic
- Patient risk factors included; Gender, BMI, BAME status, medical co-morbidities and nature of surgery

Method
- A retrospective review of patients seen in POAC between the 1st to 30th June 2020 were selected as candidates for surgery on a medical or surgical priority basis
- Using the electronic prescribing system (PICS), data to assess risk factors, type of surgery and length of stay was sought for each patient
- All patients were required to self-isolate for 14 days pre-admission and have two negative throat and nose swabs in this period (days 11 and 13) [2]
- Each patient received information on perceived risks of surgery with additional SARS-CoV-2 related morbidity and mortality based on CovidSurg data

Results
- A total of 239 patients were reviewed in POAC, with all but three patients deemed appropriate for surgery at their appointment
- In comparison to the same time period, in 2019, in POAC 729 (32.8%) patients were reviewed and deemed appropriate
- A total of 205 (85.8%) of those assessed underwent surgery

Gender & BMI Results:
- A total of 205 (85.8%) of those assessed underwent surgery, 111 (54.1%) females and 94 (45.9%) males
- Of these, 63 (56.8%) females and 62 (66%) males were aged >60 (See Chart 1)

Chart 1. A bar chart showing the age ranges of male and females operated on.
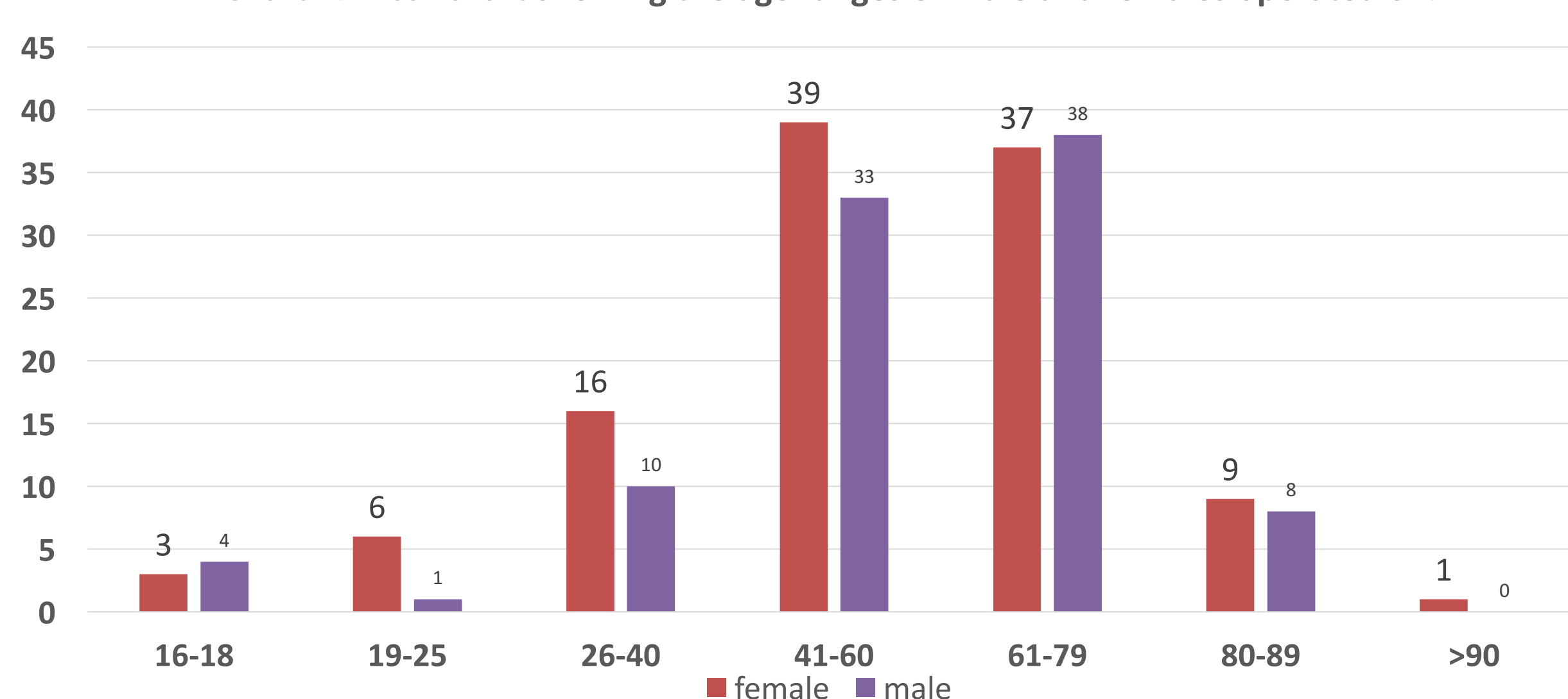
- 44 (46.8%) males had a BMI >30 versus 46(41.4%) females, demonstrating the reduced mobility and exercise tolerance of these patients (See chart 2)
- 4 patients in total had a BMI >45 who were due to have Revision arthroplasty surgery due to infection

Chart 2: A bar chart showing the BMI for males and females undergoing surgery during this time
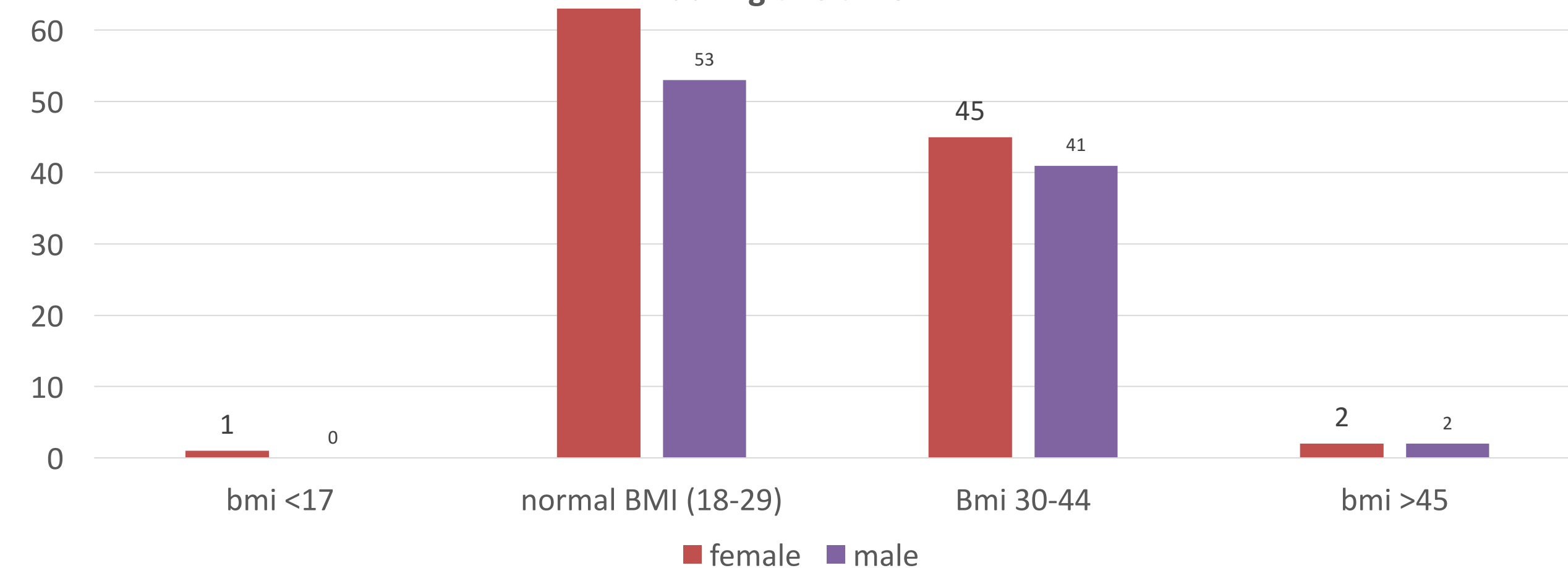
BAME Results:
- 20 (9.8%) patients belonged to BAME group (including Black, Indian and Pakistani patients) , with an equal male and female divide and 179 (87.3%) being of a white background
- 13 (65%) BAME patients had primary Arthroplasty, 1 (5%) Scoliosis correction, 1 (5%) revision Arthroplasty, 2 (10%) oncology procedures and 4 (20%) had day case hand surgery

Results based on pre-existing disease:
- 15 (7.3%) patients had co-existing cardiac and respiratory disease
- 6 (7.8%) had both cardiac disease and diabetes
- 176 (82.9%) had one to six co-morbidities (See chart 3)

Chart 3: A bar chart showing the co-morbidities for the patients undergoing surgery during this period.
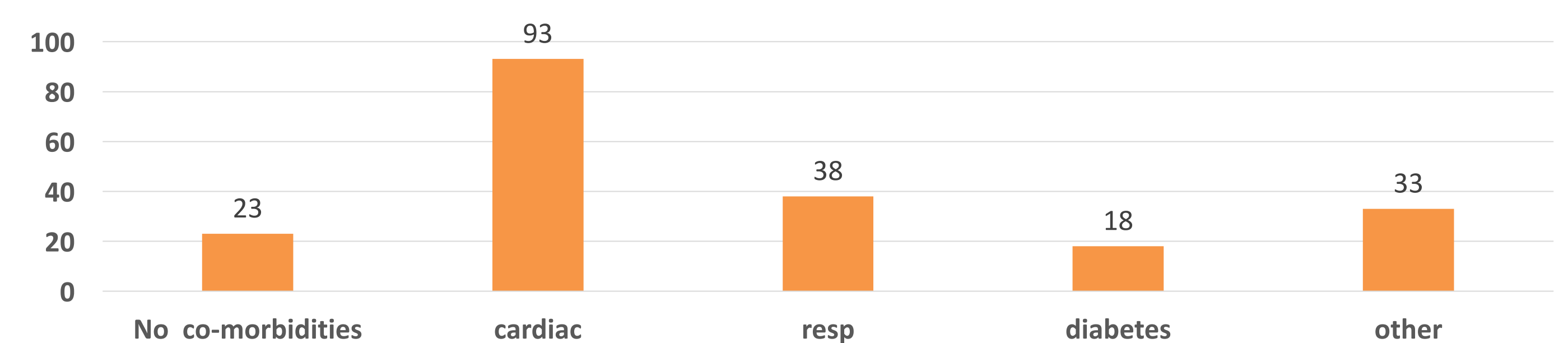
Results based on type of surgery performed:
- Chart 4 shows the types of surgery undertaken during this time period with 58 (28.3%) primary Arthroplasty cases versus 13(6.3%) revision Arthroplasty

Chart 4; A bar chart to show the types of surgery undertaken during this time period.
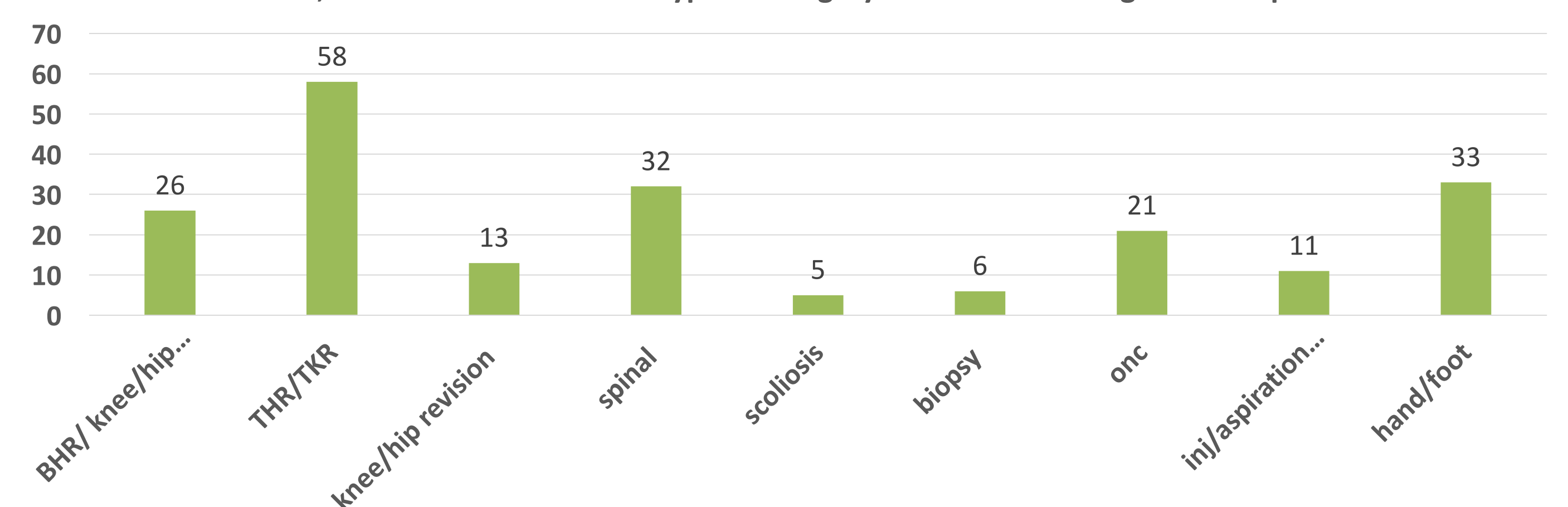
Swabbing results :
- 180 (87.8%) patients undergoing surgery had two negative swabs each.
- 11 (5.54%) of the total, had surgery with an unknown result and so followed a "unprotected" pathway for admission.
- Of those operated, eight (3.9%) had inpatient swabs taken due to suspected COVID-19, all (100%) with a negative result.
- COVID-19 related mortality for all assessed admissions was 0%.

LOS results:
- LOS was in-line with severity and complexity of surgery, as prior to the pandemic (See chart 5)
- Two (1%) patients, with a LOS of 7 to14 days underwent scoliosis correction
- LOS was 14 days or more in 5 (2.4%) in those undergoing revision surgery

Chart 5: shows the LOS for patients
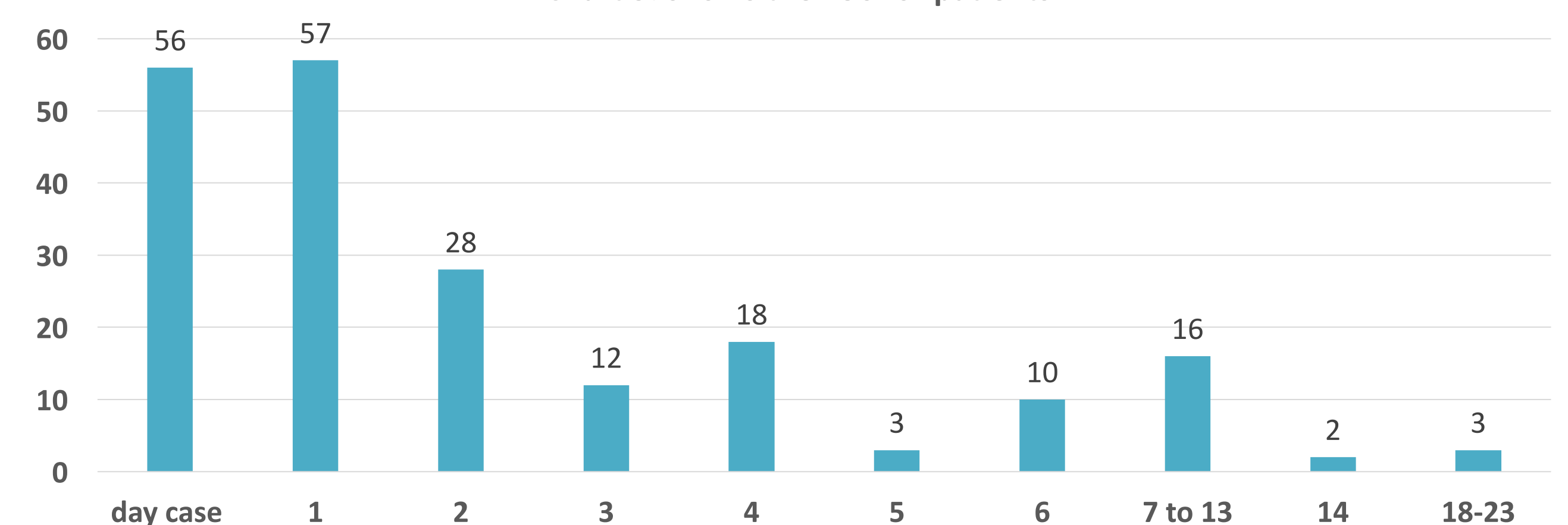
Conclusions
- Careful and collaborative patient selection contributed to minimising perioperative risks to our patients
- Comprehensive review, risk assessment and optimisation of underling conditions were all fundamental to our POAC processes, enabling informed decision making and ultimately best outcomes for patients
- Risks are perceived to be higher in the elderly male cohort, however in our audit similar numbers of males to females were assessed, with no observed statistical difference in perioperative risk
- Patient with high BMI, regularly reported reduced mobility and lack of ability to exercise due to nature of orthopaedic pathology. Further exacerbated during lockdown, isolation/shielding at home, often leading to further weight gain.
- Those with a BMI >45 were seen by an anaesthetist and unless undergoing life/limb saving surgery were referred back to their surgical teams for consideration of delaying surgery or non-operative procedures
- BAME patients formed a small percentage of the cohort, of which a high proportion underwent major surgeries based on RAG triage rating
- The types of surgery during this period were consistent with the proportions usually seen pre-pandemic
- A further project is being planned looking specifically at BAME patients. Actual vs perceived risk of perioperative mortality and respiratory complications during the next wave of the pandemic. Whilst hoping it never quite materialises…

References
1.Mortality and pulmonary complications in patients undergoing surgery with perioperative SARS-CoV-2 infection: an international cohort study, www.thelancet.com Vol 396 July 4, 2020
2. Operating framework for urgent and planned services in hospital settings during COVID-19, Version 1. NHS England. May 14, 2020