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The use of the independent sector in providing NHS services during the Covid-19 outbreak; two hospitals experience



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ABSTRACT

This paper reviews the activity undertaken between a teaching hospital and its adjacent Independent Hospital and its implementation under the Independent Sector Provider Contract between NHSE and the Independent Sector.

Results: From the instigation of the NHSE contract with the Independent Sector up until 28th June 2020 The Norfolk and Norwich University NHS Trust (NNUH) delivered 9016 episodes of care including 576 surgical episodes at its nearby Independent Hospital. During the time that a seven day household isolation period was required, no patients from the 31 tested postoperatively were recorded as testing positive for Covid-19. In the month after moving to a mandatory 14 day period of household isolation, 29 patients had their surgery postponed as they were unable to comply with the required period of isolation.

Conclusion: Working cooperatively with the independent sector can deliver significant additional capacity for the NHS. Fourteen days household isolation may impact on a patient's decision to have surgery, despite, in some cases, that surgery being time-sensitive. The recommendation from NICE reducing the length of isolation largely reversed this impact.

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Background

In early 2020, Coronavirus became a public health crisis in the UK and led to the cessation of all elective surgery, resulting in ever longer waiting lists for urgent and elective surgery, and subsequent potential for patient harm to individual patients.

During March, National Health Service England (NHSE) negotiated with the Independent Sector Providers (ISP) to utilize some of their capacity for time-sensitive elective surgery, primarily to provide care for those patients needing urgent elective and cancer surgery. Whilst these negotiations were progressing, the Norfolk and Norwich University Hospital (NNUH) Surgical Division began negotiations with the nearby Spire Hospital in preparation for the admission of NHS patients once the national contract was agreed. The national

contract was subsequently agreed on the 23rd March 2020 for an initial period of 14 weeks.¹ This contract covered all the inpatient facilities and the existing staff working for the independent provider. In Norfolk, the principle aim was to utilize the Norwich Spire inpatient beds and operating theatres for urgent, time-sensitive NHS elective care services along with utilization of their outpatient services and diagnostic capacity. A number of early decisions were made; it was decided that whilst patients requiring major cancer surgery and needing critical care on site would be operated upon at the main University Hospital, the ISP could be used for other priority one and two cases. This was made possible by accommodating the patients in a single ward of 32 beds.

The rest of the ISP was utilized to allow the provision of the whole of the cancer and haematology chemotherapy service from a separate clean ward. Other services moved to the ISP in

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part or total included cardiology outpatients and echocardiography, the whole dermatology service and some midwifery services, as well as blood testing for renal transplant patients. Radiology utilised the vacant CT and MRI scanners to offset the scanning capacity at NNUH that was allocated for the sole use of Covid-19 patients.

In the initial period, patients undergoing surgery, self-isolated for seven days prior to admission, with Covid-19 PCR throat swabs taken within 48 h prior to admission. When NHSE changed its advice to 14 days household isolation on the 15th May² these arrangements changed in line with the updated guidance. However, for those patients who had been already told to self isolate for seven days before surgery, the previous time frame for self-isolation remained. This advice was changed again by the National Institute for Health Care and Excellence (NICE) on July 27th; moving to 14 days social distancing with a culmination of 3 days isolation after a Covid-19 nasal and throat swab³ preceding surgery.

Methods

Following institutional approval, patient admission data stored within a secure Excel spreadsheet were reviewed to obtain date of admission, hospital number, specialty and procedure. The outcome of the patients' screening Covid-19 swab was obtained from the hospital electronic results system. The results of any further patient Covid-19 specimens were also recorded and reported.

Prior to admission to the ISP, all surgical cases had a nurse telephone assessment with both an experienced preoperative assessment clinic nurse and anaesthetist. All preoperative blood tests and other investigations were performed when the patient attended for Covid-19 swabs thereby limiting their contact with health care providers and the hospital.

Following the change from seven to fourteen days of household isolation before surgery, it became apparent that filling the operating sessions was becoming increasingly difficult. A further review of the scheduling spreadsheets for the month of June was undertaken to ascertain the reasons for cancellation or reallocation of operating slots. The NICE conducted a review of admission arrangements for elective surgery released during July 2020.³ This review recommended that patients should socially distance, have enhanced hand washing for a 14 day period and then isolate after a Covid-19 nasal and throat swab taken 3 days prior to their admission for surgery. Clinicians retained the option to recommend 14 days household isolation if the severity of the surgery or risk of infection with Covid-19 warranted it. We implemented this change gradually, not altering a patients existing pathway, and from 10th August all the admissions followed this new guidance. We reviewed the scheduling spreadsheets for the three weeks commencing 10th August to ascertain if the numbers of patients declining surgery had altered.

Results

Spire Norwich admitted its first NHS patient under this contract on 1st April 2020. By 14th May 2020, 255 patients had

undergone surgery. 61 patients underwent priority one or two non-cancer procedures including urological stone surgery, ureteric stent changes, ambulatory orthopaedic trauma and spinal surgery and perianal surgery. The remaining 194 patients underwent surgery for a variety of cancers across different body sites.

The specialties involved are shown in [Table 1](#).

All patients were tested at 48 h prior to admission for Covid-19, one patient was found to have a positive test and their admission and surgery was delayed whilst they recovered.

Four patients were re-swabbed for Covid-19 in the 7 days after surgery and these all tested negative, a further 27 patients were re-swabbed within 30 days of their surgery and again these all tested negative. Of these, 12 were routine preadmission swabs for further elective surgery. For the remaining 15 the reason for swab was not recorded.

Of the 255 patients, 10 suffered complications requiring admission to the main hospital site either as a transfer during their inpatient post-operative care in the satellite site, or after discharge. These include; two patients with prolonged ileus requiring nutritional support, one with a lower respiratory tract infection (non-Covid-19), two patients with wound infections requiring readmission, four patients with haematuria following urological procedures, and one patient who fell at home sustaining a fractured neck of femur.

Surgery accounted for just a proportion of the care episodes provided by the ISP. [Table 2](#) shows the total number of care episodes provided up to the end of June.

The scheduling review of the month of June revealed 23 patients who had the surgery cancelled or postponed after their anaesthetic pre-operative assessment, of which 13 were unfit and required medical optimization before their surgery could proceed and 10 had their surgical episode transferred to the base hospital as a result of comorbidities rendering them unsuitable for the ISP. A further 34 patients could not be listed for admission to the ISP. Of these 5 wanted to 'wait until Covid is over completely' and 29 reported that they could not comply with 14 day household isolation and so were unable to be admitted to the ISP.

The scheduling review for three weeks subsequent to the recommendations by NICE in July had 215 patients potentially scheduled for surgery; five were found to be unfit at their pre-operative assessment, four had holidays planned for their scheduled time, four patient symptoms had resolved and no longer needed surgery. Just two were unable to self isolate.

Table 1 – Surgical workload by specialty between 1st April and 14th May 2020.

Specialty	No of patients
Breast Surgery	53
ENT	4
General Surgery	3
Gynaecology	33
Trauma and Urgent spinal surgery	30
Plastic surgery	26
Urology	104
Vascular	2
Total	255

Table 2 – Total patient episodes from 1st April to 28 June.

Total surgical procedures	576
Dermatology See and Treat	779
Chemotherapy service	3952
Cardiology service (inc. Echocardiography)	550
Various other Outpatient attendances	2987
CT scans	172
Total	9016

Discussion

The NHS was facing a crisis during the height of the C-19 pandemic and needed to find innovative ways to maintain the service, be that Nightingale Hospitals, expansions in Critical Care capacity and reallocation of beds and staff within the hospital. Maintenance of time-sensitive surgery was an important consideration which was partly managed via the contract with the ISPs. However, the implementation of this contract was not without difficulties. Staffing proved difficult, surgical and anaesthetic staff were reallocated with agreement from direct clinical care sessions from within NNUH to staff sessions within the ISP theatres. This was possible as some inpatient operating theatres had been converted to three bedded ITUs, but fortunately these were never required. Some of the surgical and anaesthetic consultants at the NNUH were not registered with the ISP and were granted temporary admitting rights there; the base hospital human resources department provided the ISP with assurance with regards to hepatitis B testing, currency of appraisal and Disclosure and Barring Service certification. These colleagues were welcomed by those practicing at the ISP who helped familiarize them with the theatres and wards, also offering to act as surgical assistants if needed. All consultant anaesthetists were co-located whilst surgeons were co-located according to their specialty and service requirement. No colleagues asked to co-locate declined. All consultants with admitting privileges at the ISP also held contracts with the base hospitals. Theatre staff from the NNUH supplemented the staff at the ISP where particular skills were needed. Reciprocally, staff from the ISP who had critical care experience were transferred to the base hospital trust to supplement the staff on its critical care complex. Whole services were moved with the medical staff and nursing staff from NNUH to enable uninterrupted service provision in a Covid-19 secure manner, which was welcomed by the at risk patient population.

NNUH provided managerial support for the process from within its service directors along with a divisional matron and a consultant anaesthetist who was working from home as clinical lead (author PB). In addition, specialist equipment was loaned as necessary from the base trust.

Although the numbers are small it is reassuring that none of the initial tranche of patients tested positive for Covid-19.

The move from 7 to 14 days household isolation proved to be problematic with some patients declining appointments for surgery. This was more noticeable after 'lock down' measures

were relaxed and patients were returning to employment after a prolonged spell away from work or furloughed. This has had two effects; operating lists were harder to fill, with more patients having to be contacted to fill each theatre session, and increased anxiety amongst clinicians regarding potential harm caused by further delays in surgery. In addition, any patients found to be unfit at assessment or declining surgery later resulted in a lost operating opportunity, as the replacement patients could not meet the 14 day requirement. During June 2020, 34 patients declined surgery at the ISP covid-19 secure site as they were unable to isolate as a household for the 14 day period, a further 23 were found to be either unfit ($n = 13$) or not suitable for the ISP ($n = 10$) and their care was then undertaken at the base hospital. Patients declining time sensitive surgery were telephoned by surgeons shielding at home from the relevant specialty in telephone consultations with the patients to clarify the need for surgery with them.

The requirement for a 14 day isolation period reduced the willingness of patients to be admitted to both NNUH and the ISP. Although this effect was less at NNUH as patients were more likely to be undergoing major surgery for malignant disease and therefore had a higher personal incentive to have their surgery in a timely manner. The requirement for 14 days of isolation seemed particularly onerous on the Norfolk populous as Norfolk had one of the lower incidences of Covid-19 compared to the UK as a whole. Norfolk's population was 1,073,675 and by the end of June there were 2844 laboratory confirmed cases with 440 deaths between the three Norfolk hospitals.⁴ Overall this raises the question of the necessity of imposing a 14 day household isolation in a population with a low incidence of Covid-19 in a group of patients undergoing more intermediate surgery. Whilst the argument for 14 days of isolation before major surgery is more compelling there are concerns that patients who cannot comply with the 14 day requirement may come to harm as a result of delaying surgery. As always, the increased risk of surgery taking place in a patient that is potentially infected with Covid-19 has to be balanced against delays for protracted periods of isolation. Postoperative outcomes are affected by a number of parameters including age, sex, ASA grade, emergency v elective surgery, number of comorbidities, surgical diagnosis and also by the grade of surgery (17.2% 30 day mortality in minor and intermediate surgery in patients with perioperative SARS-CoV-2).⁵ The report from NICE in July reducing the strict household isolation of 14 days to 14 day social distancing, with social isolation required for just three days following a Covid-19 nasal and throat swab before surgery, had a marked impact on restoring our ability to schedule patients for surgery, with fewer patients declining surgery due to inability to comply with isolation recommendations. Further study is needed to see the impacts of each isolation policy on postoperative Covid infections.

We have demonstrated that cooperation between the Independent Sector and the NHS can benefit a substantial numbers of patients. Hospitals working together can maximize the utilisation of the ISP by redirecting consultant staff with their agreement and the movement of entire services.

REFERENCES

1. <https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/03/ihpn-partners>. (accessed 29.6.2020).
2. Operating Framework for urgent and planned services in hospital settings during Covid-19. <https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/05/Operating-framework-for-urgent-and-planned-services-within-hospitals.pdf>. (accessed 28.6.2020).
3. COVID-19 rapid guideline: arranging planned care in hospitals and diagnostic services. NICE guideline [NG179]. <https://www.nice.org.uk/guidance/NG179> . (accessed 21.8.2020).
4. <https://www.norfolkinsight.org.uk/coronavirus/norfolk-covid-19-report/>(accessed 04.07.2020).
5. COVIDSurg Collaborative. Mortality and pulmonary complications in patients undergoing surgery with perioperative SARS-CoV-2 infection; an international cohort study. *Lancet* 2020;**396**:27–38.