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Implementation of total laparoscopic hysterectomy as day case surgery

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Elective surgeries within the National Health Service are frequently cancelled due to shortages of inpatient beds due to acute emergency admissions, and more recently, the COVID-19 pandemic. The aim of this quality improvement project was to initiate a day case hysterectomy pathway, prospectively collecting data on a group of selected motivated patients to assess its feasibility and safety. Interventions to maximise the chance of same day discharge included preoperative education and hydration, alterations in anaesthetic and surgical techniques and collaborative working between surgeons and recovery nurses to safely discharge patients. In change cycle 1, 93% of patients were discharged on the same day as surgery. In change cycle 2, 100% of patients were discharged on the same day as surgery. In a patient questionnaire, 90% of patients would recommend a day case hysterectomy to their friends or family. Day case hysterectomy was safely introduced to our unit, through leaders actively encouraging contributions and feedback throughout the initiation of the pathway from different components of the multidisciplinary team, from conception to roll out of the guideline for use by other gynaecological surgical teams within the trust.

PROBLEM

ABSTRACT

Prior to the onset of the COVID-19 pandemic in 2019/2020, National Health Service (NHS) bed occupancy averaged 90.2% and regularly exceeded 95% in winter. Between 2010/2011 and 2019/2020, the number of NHS beds in England has reduced by 8.3%. This has been one aim of the NHS Five Year Forward View; to 'free-up' 2000–3000 acute hospital beds by delivering funding to local authorities, primary and community services, and indeed, many Sustainability and Transformation Projects focus on moving care out of hospital with the aim of improving the quality of patient care while reducing costs.

At the peak of the COVID-19, between March 2020 and March 2021, the number of patients in the NHS waiting more than 52 weeks from referral to start of elective treatment for all medical specialties increased sharply from 3097 to 436127⁵. In April 2022, the Royal College of Obstetricians and Gynaecologists published a report: 'Left for too long: understanding the scale and impact of

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Day case total laparoscopic hysterectomy (TLH) is safe and feasible but is not yet accepted as the standard of care in the UK. Widely accepted practice is an overnight stay or 23-hour discharge.

WHAT THIS STUDY ADDS

⇒ This study demonstrates effective implementation of day case TLH with no requirements for expensive equipment, no significant complications and high patient acceptability rates.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ The authors aim to illustrate how day case hysterectomy can be implemented using many adjustments to an existing enhanced recovery programme in order to establish day case hysterectomy as a standard of care.

gynaecology waiting lists', which revealed that as of December 2021, 570 000 women were waiting for treatment. With any approaching winter season, when elective surgeries are at higher cancellation risk due to bed shortages, an opinion of many affected surgical teams is that the only way to achieve surgical treatment, is if it is performed as day case.

University Hospitals Sussex NHS Foundation Trust was created in 2020 by the merger of Western Sussex Hospitals and Brighton and Sussex NHS Trusts. In the 2019/2020 financial year, between our unit and our sister hospital, 2126 elective gynaecological procedures were carried out; 1475 days case procedures and 651 planned inpatient stays. Prior to this project, no day case hysterectomies were being carried out in any four sites within the trust, nor in any immediately local trusts. At St Richard's Hospital, introduction of same-day discharge had been discussed but not implemented until severe bed pressures caused by the COVID-19 pandemic.

The aim of this quality improvement project (QIP) was to implement day case hysterectomy safely in at least 75% of patients chosen, a comparable rate to other prospective studies in the literature.⁷ Studies in



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Europe by Maheux-Lacroix *et al*⁷ and Korsholm⁸ conclude that day case TLH is feasible with an emphasis on patient selection and preoperative planning. Data from the National Consultant Information Programme show that implementation of day case TLH in the UK is not yet the standard of care; prior to this QUIP, the best performing decile of NHS Trusts in England was achieving a 6.5% rate of day case TLH as a proportion of all hysterectomies performed. Day case TLH was to be achieved by the creation and utilisation of a patient pathway document, thus enabling planned treatments to proceed with a standardised approach.

BACKGROUND

Hysterectomy via laparoscopic surgery (total laparoscopic hysterectomy (TLH)) is now accepted as the gold standard for the procedure in suitable patients owing to its shorter recovery period and complication rates equal to that of abdominal hysterectomy.¹⁰ ¹¹

Evidence of safe and effective day case laparoscopic hysterectomy has been reported as part of a meta-analysis of 15 studies by Korsholm *et al*; day case hysterectomy was prospectively planned in six studies. Inclusion criteria of the studies were a definition of day case hysterectomy as discharge of the patient from hospital before midnight on the day of surgery. Three hundred and forty-one out of 435 patients (78.1%) were discharged the same day. In a French study included in Korsholm's meta-analysis, 85% of cases were discharged on the day of surgery with similar emergency consultation or readmission to inpatient TLH, with similar findings reproduced in studies from the USA. 12

MEASUREMENT

Change cycle 1 represented a pilot project to assess the feasibility of day case hysterectomy. The primary outcome was to establish the number of patients on the day case hysterectomy pathway who were discharged on the same day of their procedure, defined as the patient leaving the hospital from the postoperative recovery area. Typically, the recovery area closed at 1900, this would mean that the patient would then require admission to an inpatient bed if they had not been discharged from hospital by that time.

Data were collected prospectively on patients including: age, body mass index (BMI), American Association of Anesthesiologists (ASA) grade¹³ and indication for surgery categorised as 'benign' or 'malignant'. Data were also collected on cancer staging by final histology (if malignant), estimated blood loss, time from knife to skin to time of closure, Accident and Emergency (A&E) attendance within 30 days of surgery via clinic letters, World Health Organisation (WHO)checklists, ¹⁴ operation notes and A&E Clinical Assessment Services Cards.

The pathway was initiated in November 2021 and data were collected and analysed at two separate points: April 2022 (change cycle 1) and August 2022 (change cycle

Box 1 Preoperative patient criteria to maximise chances of same day discharge

- \Rightarrow ASA 1 or 2.
- ⇒ Deemed as low risk for complex surgery, for example, patients were excluded if they had previous undergone extensive abdominal surgery or had an alternative cause of significant adhesions.
- ⇒ Uterus <16 weeks size.
- ⇒ Presence of another responsible adult in the house for 24 hours postoperatively.
- ⇒ Ability to communicate care needs without the need for a translator.
- ⇒ Means of transport back to the hospital in case of complications. ASA, American Association of Anesthesiologists.

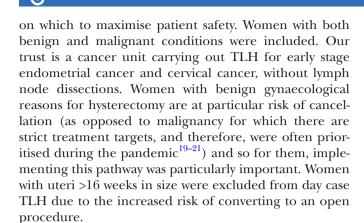
2). The project and results were discussed at the clinical governance meeting at the end of change cycle 1 and then in August at the end of change cycle 2. In addition to the data as collected above, a five-point Likert scale questionnaire was conducted at the end of change cycle 1 with 21 patients via telephone interviews to assess where the pathway could be improved from a patient perspective.

DESIGN

Seventy-eight per cent of all hysterectomies performed by our department are performed via a laparoscopic route and a recent audit of one surgeon's TLH procedures between January 2020 and October 2021 suggested that 85% of patients were discharged on day 1 postsurgery. However, day case hysterectomy in this unit was thus far untried. Having reviewed the literature his unit was thus a specific line of investigation into factors to maximise same day discharge, the pathway was then developed by the project team which included: gynaecology consultants, anaesthetic consultants, clinical staff working in the preoperative admissions area, recovery nurses and pharmacists. From a first meeting with the key stake holders in June 2021, the pathway was initiated formally in November 2021.

Patients were selected based on criteria to minimise the risk of anaesthetic and surgical complications, and therefore, optimise their chances of same day discharge (box 1). The criteria were also a means of ensuring that patients had autonomy and assumed a level of responsibility for their postoperative recovery and safety.

Compared with Korsholm *et al*'s meta-analysis, where day case selection criteria excluded those over 60 years of age, we set no age limit. Our selection criteria instead excluded patients of ASA 3 or above, as this would reflect medical comorbidity, and therefore, patients' risk of deterioration post operatively. In an interesting study by Hong *et al*, surgeon and hospital attributes played an important role in achieving same day discharge with a particularly high volume of cases. BMI made no difference to outcome in this study, supporting our pragmatic approach for our eventual policy of not excluding patients with BMI >35 kg/m². Otherwise, we chose similar inclusion criteria to existing literature in order to have an evidence base



Investigations prior to surgery were determined by National Institute for Health and Care Excellence (NICE) Guideline 45 (2016 Update) 'preoperative tests' and therefore the patient's ASA grade.²² All patients underwent a Full Blood Count and Group and Save as minimum standard. Patients were given written information leaflets; 'day case TLH' explaining the postoperative recovery (see online supplemental appendix 1).

On the day of surgery, the preoperative ward team, where patients are prepared for surgery (eg, clothing, baseline observations) were made aware of the plan for discharge home the same day to ensure accurate information was given to the patient regarding same-day discharge, especially in the context of a new pathway where previously, overnight stay was the standard of care. The patients were instructed to drink clear fluids until 2hours prior to their operation to maintain adequate hydration.²³

Patients were placed first on the list with the aim of anaesthetic induction before 9am in order to give patients longer in recovery and therefore, the greatest chance of same day discharge. An example of a typical anaesthetic regimen is outlined in box 2.

Total intravenous anaesthetic (TIVA) was used in order to minimise the risk of postoperative nausea and vomiting.²⁴ Similarly, nausea was kept to a minimum with

Box 2 An example of anaesthetic regimen used for day case hysterectomy

Preoperatively

Gabapentin 600 mg, paracetamol 1 g, omeprazole 20 mg Intraoperatively

Remifentanyl and propofol infusions Total Intravenous Anaesthetic. Target Controlled Infusions (TIVA TCI) with rocuronium 50 mg, coamoxiclav 1.2 g intravenous prophylaxis, tranexamic acid 1-2 g intravenous, dexamethasone 6.6 mg, ondansetron 4 mg, cyclizine 50 mg, diclofenac 75 mg, fentanyl 400 mg and sugammadex 200 mg if required. Vasopressors are used according to need, for example, metaraminol 0.5 mg boluses.

Postoperatively

Fentanyl boluses titrated to pain in recovery; paracetamol 1 g 6 hourly, ibuprofen 400 mg 4 hourly, low-molecular-weight heparin prophylaxis 10 days, macrogol sachets, oral morphine 20 mg as required. TIVA, total intravenous anaesthetic.

the proactive use of prophylactic antiemetics and/or steroids. Regional anaesthetic such as spinal analgesia was actively avoided to encourage early postoperative mobilisation and successful trial without catheter (TWOC).

All patients were given prophylactic tranexamic acid 1g at induction of anaesthesia to minimise intraoperative blood loss. 25 Aims of surgery were to keep operating times beneath 90 min and for the patient to be in recovery by 1300, especially if there was more than 1 day case hysterectomy planned for the list. The procedure was most often performed by a consultant with experienced assistants in order to minimise operating times. Operating pressures were maintained at 12 mm Hg in order to minimise postoperative pain. 26 Following the procedure, local anaesthetic was used at the port sites and a conscious effort was made to fully evacuate carbon dioxide from the abdomen. Urinary catheters were removed prior to extubation to maximise chance of successful TWOC. If the patient required either a surgical drain or vaginal pack, the patient was removed from the day case hysterectomy pathway and admitted overnight with the view that patient safety should not be compromised in order to achieve same day discharge.

Pain was managed proactively in recovery with the use of paracetamol and more potent non-steroidal antiinflammatory drugs (NSAIDS) such as diclofenac with the aim of minimising the use of longer acting opioids and their unwanted side effects such as nausea, lethargy and urinary retention. Recovery nurses were instructed to encourage oral intake within 2 hours of arrival to recovery and initiate mobilisation within 3 hours. Patients were seen twice by the surgeon or assistants; once in stage 1 of recovery when the patient was able to retain information about the nature of the surgery and then once in stage 2 of recovery prior to discharge, including an abdominal examination and (gynaecological sanitary) 'pad check' to check for excessive vaginal bleeding.

A successful TWOC was defined as two separate voids of urine of more than 150 mL within 6 hours of removal of catheter. Studies have shown the risk of failed TWOC to be as high as 30%, 8 12 and this was raised as a potential issue during the conceptualisation of the project. Therefore, robust instructions for the event of an unsuccessful TWOC were formulated in the pathway.

If unable to pass urine, the patients were bladder scanned. If there was less than 500 mL of urine in the bladder, the patient was encouraged to increase their oral intake of fluids and then reviewed in 1 hour. If more than 500 mL of urine was found on bladder scan, then the patient was discharged with an indwelling catheter on free drainage. Arrangements would be made with our local community continence nurse specialist, who carries out TWOC in the patient's home, on between day 2 and day 7 postoperatively.

All patients were discharged with 7 days' supply of co-codamol 30/500 mg, macrogol sachets, a single 100 mL sized bottle of 10 mg/5 mL oral morphine and 10 days' supply of low-molecular-weight heparin (LMWH)

subcutaneous injections. In addition, prior to the surgery, patients were advised to buy over-the-counter ibuprofen tablets. The electronic medications order form (to take out—TTOs) was completed by the anaesthetists intraoperatively via an electronic prescribing programme (Electronic Prescribing and Medicines Administration). This delegation of prescribing TTOs to the anaesthetists was created on consulting with recovery nurses during the conceptualisation of the project, following concerns that patients often spend time waiting for medications to be delivered from the pharmacy department. The recovery nurse would explain how and when to take the medications to the patient with a written information leaflet to assist with the information giving process. The postoperative information leaflet also included details of what 'not to do' following general anaesthetic, when to seek medical advice, wound care advice, venous thromboembolism avoidance measures, details of how and when to take medications and when to expect telephone follow-up (online supplemental appendix 1). Emergency contact numbers were included in the information leaflet given to patients for who to call, both in and out of hours care.

Patients were called on day 1 postprocedure by a member of the surgical team as part of their follow-up. Questions asked were around; pain, vaginal bleeding, eating and drinking, passage of flatus and/or opening of bowels and administration of LMWH.

STRATEGY

The day case hysterectomy pathway was initiated in November 2021 following approval by representatives of each component of the multidisciplinary team (MDT). Data were collected simultaneously but not formally analysed until April 2022 as more than 75% of patients were achieving same day discharge. The results of both the pilot project and the patient questionnaire were used to influence change cycle 2 in conjunction with feedback from other gynaecology consultants at the regional clinical governance meeting. Results were also compared with another centre in the South West of England where 83% of planned laparoscopic day case hysterectomies were successfully discharged on the day of their surgery between 2015 and 2020, demonstrating increasing rates of successful same day discharge throughout the study period.¹⁷

RESULTS Change cycle 1

Between November 2021 and 5 April 2022, 40 patients were enrolled into the prospective study and the results were reviewed for adverse safety outcomes monthly, and then collectively during April 2022. Ninety-three per cent of patients were discharged on the same day as surgery. Patient demographics and descriptors of their operations are outlined in table 1.

Three patients were converted to inpatient stays: Two stayed due to persistent hypotension and one stayed due to postoperative pain. All three patients were discharged on day 1 post procedure. Four patients attended A&E for emergency consultation (vaginal bleed day 1, palpable stitch in vagina day 7, vaginal bleed day 22, anal pain day 28) but did not require inpatient admission. One patient required readmission for a vaginal vault haematoma, which was conservatively managed, on day 30 postprocedure.

Although the preoperative inclusion criteria for the pilot project stated that the patient's BMI should be less than 35 kg/m², five patients underwent day case hysterectomy with a BMI of between 36 and 50 kg/m². All five of these patients achieved same day discharge. These patients were included in the prospective study as they were highly motivated patients with no other comorbidities. Two patients lost between 400 and 500 mL of blood, however, both were eligible for same day discharge as they were both haemodynamically stable in recovery and had levels of haemoglobin preoperatively that would support a drop of 10 g/L.

Change cycle 1 patient telephone questionnaire

Twenty-seven patients who underwent surgery between November 2021 and February 2022 were contacted between 14 March and 20 March by telephone. Of the 27 patients called via telephone, 21 patients were able to answer the 5-point questionnaire. No patients declined to take part in the interview. The questionnaire was divided into two parts: the first consisted of three questions in which the answers were fixed on a 5-point Likert scale: 'strongly agree', 'agree', 'neither agree nor disagree', 'disagree' and 'strongly disagree', which allowed for quantitative analysis of the responses. The second part of the questionnaire consisted of two questions in which the

patients Age* BMI* Benign Malignant Operating time* Blood loss* same day as surgery Change cycle 1 (November 2021 to 5 April 2022) 40 55 29.8 (22–50) 29 11 58 min (36–150) 129 mL (25–500) 37/40 (93%) Change cycle 2 (6 April 2022 to 2d 24 56 30.3 (36–74) 18 6 105 min (37–127) 105 mL (25–200) 24/24 (100%)	Table 1 Results of change cycles 1 and 2									
(November 2021 to (37–75) (22–50) (93%) 5 April 2022) Change cycle 2 (6 24 56 30.3 18 6 105 min (37–127) 105 mL (25–200) 24/24 April 2022 to 2d (36–74) (20–44) (100%)			Age*	BMI*	Benign	Malignant	Operating time*	Blood loss*	Patients discharged on same day as surgery	
April 2022 to 2d (36–74) (20–44) (100%)	(November 2021 to	40			29	11	58 min (36–150)	129 mL (25–500)		
August 2022)	0 , (24			18	6	105 min (37–127)	105 mL (25–200)	- " - "	



Table 2 Patientquestionnaire: preformed answers								
	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree			
I was given adequate information about the preoperative preparation?	13	6	0	2	0			
I was given adequate information about the recovery period?	13	6	2	0	0			
I would recommend a day case hysterectomy to friends and family	12	7	2	0	0			

patients could give their thoughts and opinions on the pathway. Discussions were recorded and then responses were analysed and grouped according to themes. The results of the questionnaire are outlined in tables 2 and 3.

The results of the survey were discussed among the main stake holders and used to influence practice in change cycle 2.

Two patients who disagreed with the statement 'I was given adequate information about the recovery period' recounted to the interviewer that they were not informed that they would be discharged the same day as the operation until they arrived on the day of the surgery. Both of these patients underwent procedures at the beginning of the project in November 2021, when the pathway and guideline may not have been well established as it is now.

While the number of patients giving feedback was small and the questionnaire was unvalidated scientifically, the authors felt that the overwhelmingly positive responses from the patients involved in change cycle 1 proved patient satisfaction adequately to continue the project. This finding was important in the context of a randomised

Table 3 Patient questionnaire: free answers						
Themes	No of responses*					
What were your first thoughts when day case has proposed to you?	nysterectomy					
Positive feelings	10					
Shocked/surprised	6					
Concern/worry	3					
What are your thoughts now about day case hysterectomy?						
Efficient	5					
Positive themes associated with being in patient's own bed	3					
Kind staff	6					
'Depends on the individual'	5					
Effective analgesia	3					
Felt rushed	1					
Unable to take in verbal information given while still recovering from anaesthetic	2					
*Individual patients were allowed to discuss their tho	oughts and					

trial of day case versus inpatient laparoscopic supracervical hysterectomy published in 2011, examining quality of life questionnaires by Kisic-Trope et al. 18 The study found that although patient satisfaction was similar between patient groups, there was a statistically significant reduction in quality of life in the day case group postoperatively which may have been due to greater anxiety levels. 18 This finding was also reflected in Ellinides' systematic review published in 2022, which found that day case TLH was associated with poorer quality of life outcome measures in the first week postdischarge.²⁷ Ellinides et al's study underlines the importance of patient selection and not imposing this pathway on unmotivated or unsuitable patients.²⁷

Actions taken as result of change cycle 1

With preliminary data showing patient acceptability, achievement of same day discharge and endorsement by the recovery nurse team, it was agreed that people with BMIs of >35 kg/m² could be considered for same day discharge and this was no longer considered to be an exclusion criterion.

Although the same surgeon and theatre team worked together frequently and were familiar with the protocol, the authors found that the nature of hospital staff rotas meant that personnel changed frequently. For example, some anaesthetists may not use TIVA as often as other methods of anaesthesia, which may have contributed to different rates of postoperative nausea and vomiting and pain. This may have been a cause of unsuccessful same day discharge. In order to limit variation in care, the anaesthetic rota co-ordinator was asked to assign a consultant anaesthetist to the operating list who had experience of caring for day case hysterectomies before. The anaesthetic regimen was also circulated among anaesthetists reminding them of the importance of TIVA in women undergoing day case TLH.

The authors also noticed that some recovery nurses were occasionally using opiate based analgesia in preference to NSAIDs which could have contributed to increased drowsiness, nausea and different rates of postoperative pain. In order to improve the rates of same day discharge, we asked the senior recovery nurse to disseminate lessons learnt to her team that should be implemented specifically to day case hysterectomies.

Change cycle 2

Between 6 April 2022 and 2 August 2022, 24 patients were enrolled into change cycle 2 of the prospective study (see

feelings freely, therefore, there are more responses then patients

interviewed.

table 1 for results). One hundred per cent of patients were discharged on the day of their surgery. A lengthening in mean total operative time between change cycle 1 and 2 was likely due to increasing confidence of surgeons in the pathway and hence, selection of more complex cases. Reasons for readmission were: vaginal bleeding on day 28 secondary to a conservatively managed vault haematoma, vaginal bleeding on day 21 secondary to novel anticoagulant use and vaginal bleeding on day 7 secondary to an infected vaginal vault haematoma which required drainage at an examination under anaesthetic.

In the questionnaire, many patients suggested that the pathway suited them but they also expressed concern for less motivated or physically fit individuals who may not be able to achieve same day discharge. Therefore, clinicians consenting patients for the procedure in the outpatient clinic and in the preoperative admissions lounge emphasised the length of time in recovery and physical milestones required to pass, before the patient would be discharged safely.

As a result of patient feedback from the questionnaire, the patient information leaflet was also updated to include contact details of the community continence nurse for TWOC. The patient could then contact the community nurse to organise an appropriate time for removal of catheter once a clinical referral had been made.

LESSONS AND LIMITATIONS

The project aim was to implement TLH as a day case procedure at our unit. At the time of writing, the intervention has been successfully implemented for 10 months and is now being used as an example for other gynaecology departments to follow within University Hospitals Sussex NHS Foundation Trust. Of all the laparoscopic hysterectomies performed at our unit within the above time period, 52% were performed as day case. As a result of the performance at our unit, UHS NHS Trust (made up of four hospitals) now has a 25.4% day case hysterectomy rate and the pathway is embedded into practice. All the different aspects of the MDT have provided advice and support to the project leaders during the conception and design of the pathway, which has translated into enthusiasm for the project to succeed when in operation. This differs from other QIPs which have often been created by one type of practitioner and then the concept revealed to other members of the MDT once in service. The authors also believe that empowering recovery nurses with more responsibility with different analgesic regimens and contributing to the patient information giving process has contributed to the success of the project. This has been in the context of close supervision and/or assistance from the surgeons to ensure a supportive environment.

Positive results from change cycle 1 and its associated patient questionnaire provided proof of concept feasibility and allowed for the project to continue further, however, day case hysterectomy may not be suitable for all patients. This was reflected in the patient questionnaire

as five separate patients suggested that the pathway may not be suitable for everyone and/or would depend on the individual. Although the use of inpatient beds is reduced, patients spend on average, 6 hours in the recovery area before discharge. This is compared with a standard laparoscopic hysterectomy in which the patient may spend up to 2 hours in the recovery area. This increased time in recovery can place more of a burden on the associated nursing team and should be discussed at pathway conception.

A strength of this intervention has been the relatively low set up costs, as the equipment and personnel remain largely the same as the inpatient hysterectomy pathway. Indeed, this project has been an augmentation of an existing enhanced recovery programme through multiple small improvements and a care pathway as a whole, rather than one intervention.

As with many QIPs, time has been required to start the project and create the guideline. As more patients are going through the pathway, more patients require day 1 postoperative telephone follow-up. Initially, this has been carried out by one of the surgical team. While we have saved overnight bed-stays and not needed to apply for funding for new equipment, these patients require telephone follow-up and therefore redirecting of human resources. In our trust we do not currently have a dedicated team of enhanced recovery gynaecology nurses, unlike in orthopaedics and general surgery.

Statistical analysis was not possible due to small numbers of patients and although a reduction in the number of inpatient beds was seen, cost-effectiveness analysis is complicated. Currently, day case hysterectomy attracts the same tariff for funding as inpatient hysterectomy and although a reduction in ward-based costs are seen with day case, this may be outweighed by other variations to the patient's care for example, anaesthetic drugs used or different surgical devices employed. Due to the complexities of funding for treatments and differing costs entailed for surgery, savings will vary between trusts. What is clear, however, is that when elective surgery that requires inpatient stay is cancelled due to a shortage of beds, day case hysterectomy will continue, therefore ensuring treatment for women and associated funding for NHS Trusts.

CONCLUSION

Numbers of hospital beds will continue to fall in future due to either long-term plans for the NHS or due to acute bed shortages secondary to unplanned admissions to hospitals. Day case hysterectomy has been successfully initiated at our unit with proof of efficacy and safety, with excellent patient feedback and satisfaction. Patient selection is key in terms of surgical risk profile and motivation to engage with the pathway, and therefore, recover quickly and safely. It is worth noting, however, that some risk factors which would traditionally categorise a patient with a higher ASA score, should not in themselves preclude a person from undergoing day case treatment



for example, BMI $>35 \text{ kg/m}^2$ or diabetes. Indeed, some chronic medical conditions may be managed better at home by the patient themselves than in the hospital.

Involvement of key stake holders from each part of the MDT with feedback actively encouraged from the pathway leaders has contributed to its success. We have shown that implementing this pathway can start to tackle some of the health inequality which was worsened for women during the COVID-19 pandemic.

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REFERENCES

- 1 Ewbank L, Thompson J, Mckenna H. NHS hospital bed numbers: past, present, future. 2021. Available: https://www.kingsfund.org.uk/ publications/nhs-hospital-bed-numbers [Accessed 2 Feb 2023].
- 2 British Medical Association. NHS hospital beds data analysis. 2022. Available: https://www.bma.org.uk/advice-and-support/nhs-delivery-and-workforce/pressures/nhs-hospital-beds-data-analysis [Accessed 2 Feb 2023].

- 3 NHS. Next steps on the NHS five year forward view. 2017. Available: https://www.england.nhs.uk/wp-content/uploads/2017/03/NEXT-STEPS-ON-THE-NHS-FIVE-YEAR-FORWARD-VIEW.pdf [Accessed 2 Feb 2023].
- 4 Imison C, Curry N, Holder H, et al. Shifting the balance of care. 2017. Available: https://www.nuffieldtrust.org.uk/files/2017-02/shifting-the-balance-of-care-report-web-final.pdf [Accessed 2 Feb 2023].
- 5 Nuffield Trust. Elective (planned) treatment waiting times. 2022. Available: https://www.nuffieldtrust.org.uk/resource/treatment-waiting-times#:~:text=lt%20sets%20targets%20to%20reduce, week%20waits%20by%20March%202025 [Accessed 2 Feb 2023].
- 6 Royal College of Obstetricians and Gynaecologists. Left for too long: understanding the scale and impact of gynaecology waiting lists. 2022. Available: https://www.rcog.org.uk/about-us/campaigning-and-opinions/left-for-too-long-understanding-the-scale-and-impact-of-gynaecology-waiting-lists/ [Accessed 2 Feb 2023].
- 7 Maheux-Lacroix S, Lemyre M, Couture V, et al. Feasibility and safety of outpatient total laparoscopic hysterectomy. JSLS 2015;19:e2014.00251.
- 8 Korsholm M, Mogensen O, Jeppesen MM, et al. Systematic review of same-day discharge after minimally invasive hysterectomy. Int J Gynaecol Obstet 2017:136:128–37.
- 9 The Health and Social Care Information Centre (HSCIC). Re-used with the permission of the HSCIC and NHS improvement. In: All rights reserved. Admitted Patient Care Hospital Episode Statistics, National Consultant Information Programme (NCIP) 2019-2022. 2022.
- Madhvani K, Curnow T, Carpenter T. Route of hysterectomy: a retrospective, cohort study in English NHS hospitals from 2011 to 2017. BJOG 2019;126:795–802.
- 11 Royal College of Obstetricians and Gynaecologists. London school of hygiene and tropical medicine. In: Patterns of Benign Gynaecology Care in English NHS Hospital Trusts. 2016.
- 12 Sheyn D, El-Nashar S, Billow M, et al. Readmission rates after same-day discharge compared with postoperative day 1 discharge after benign laparoscopic hysterectomy. J Minim Invasive Gynecol 2018;25:484–90.
- 13 American Society of Anesthesiologists, ASA Physical Status Classification System. Guidelines, statements, clinical resources. 2020. Available: https://www.asahq.org/standards-and-guidelines/asa-physical-status-classification-system [Accessed 2 Feb 2023].
- 14 World Health Organization. WHO surgical safety checklist. 2009. Available: https://www.who.int/teams/integrated-health-services/patient-safety/research/safe-surgery [Accessed 3 Feb 2023].
- 15 Randall R, Ward A, Tipples M. Total laparoscopic hysterectomy and recovery: time to discharge during the covid-19 pandemic. In: British Society for Gynaecological Endoscopy, Annual Scientific Meeting. Birmingham, 2022.
- 16 Hong ČX, Kamdar NS, Morgan DM. Predictors of same-day discharge following benign minimally invasive hysterectomy. Am J Obstet Gynecol 2022;227:320.
- 17 Ferguson A, Weir A, Mankiewitz R, et al. Is it time to default hysterectomies to day surgery? A review of outcomes in aa district general hospital day surgery unit. 2020. Available: https:// appconnect.daysurgeryuk.net/media/43854/304-fergusson.pdf [Accessed 6 Mar 2023].
- 18 Kisic-Trope J, Qvigstad E, Ballard K. A randomized trial of day-case vs inpatient laparoscopic supracervical hysterectomy. Am J Obstet Gynecol 2011;204:307.
- 19 Féderation of Surgical Specialty Associations. Clinical guide to surgical prioritisation in the recovery from the coronavirus pandemic. Covid-19 documents: 2022. 1–6.
- 20 Moletta L, Pierobon ES, Capovilla G, et al. International guidelines and recommendations for surgery during covid-19 pandemic: a systematic review. Int J Surg 2020;79:180–8.
- 21 Donckier V, Estache A, Liberale G, et al. Prioritization of surgery in cancer patients during the COVID-19 pandemic. Annals of Surgery Open 2021;2:e108.
- 22 NICE. Routine preoperative tests for elective surgery. 2016. Available: https://www.nice.org.uk/guidance/ng45 [Accessed 2 Feb 2023].
- 23 Maltby JR, Sutherland AD, Sale JP, et al. Preoperative oral fluids: is a five-hour fast justified prior to elective surgery? Anesth Analg 1986;65:1112–6.
- 24 Apfel CC, Korttila K, Abdalla M, et al. A factorial trial of six interventions for the prevention of postoperative nausea and vomiting. N Engl J Med 2004;350:2441–51.
- 25 Devereaux PJ, Marcucci M, Painter TW, et al. Tranexamic acid in patients undergoing noncardiac surgery. N Engl J Med 2022:386:1986–97.
- 26 Radosa JC, Radosa MP, Schweitzer PA, et al. Impact of different intraoperative CO2 pressure levels (8 and 15 mmhg) during laparoscopic hysterectomy performed due to benign uterine

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pathologies on postoperative pain and arterial PCO2: a prospective randomised controlled clinical trial. BJOG 2019;126:1276–85.

27 Ellinides A, Manolopoulos PP, Hajymiri M, et al. Outpatient hysterectomy versus inpatient hysterectomy: a systematic review and meta-analysis. *J Minim Invasive Gynecol* 2022;29:23–40.