

Improving theatre utilisation in Gynaecology: Evidence-based guidelines for estimating operating times

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Objective

The aim of this project was to develop guidance for theatre times for common gynaecological operations.

Despite a national target of 85% theatre utilisation recommended by NHSE (Getting it right first time n.d.), no standardised local guidelines currently exist for estimating operating times in gynaecology, which are used to populate theatre lists, leading to wide variation of between 50% and 90% theatre utilisation within our department. By providing evidence-based recommendations, we hope to reduce variation and improve theatre efficiency.

Design

This was a retrospective study used to assess accuracy of estimated times when compared to actual theatre time.

Additionally, we studied the relationship between BMI and operative times. The study included 506 procedures between October 2023 and March 2024.

Results

17 types of procedure were included in the data set, of which, as a trust we were only accurately estimating theatre time in 5 of them (29.4%). (Figure 1)

As a trust, 47.1% of the time we were overestimating theatre time, meaning wasted theatre capacity as lists were being completed earlier than estimated. When this is the case, there is the potential for more cases to be on a list, directly reducing waiting lists.

Of the remaining 23.5%, the department was underestimating times, meaning lists ran over scheduled theatre time increasing the risk of staff burnout and the potential last minute case cancellation due to the schedule. This directly impacts patient safety and waiting lists.

Our results showed poor estimation across all procedure types (laparotomy, laparoscopy, hysteroscopy and vaginal repair) with no area of strength in estimating anticipated theatre times.

Despite 75% of the patients in the data set having a BMI >25, procedure length was only impacted by BMI in two procedures : Total Laparoscopic Hysterectomy with Bilateral Salpingoophorectomy and Laparoscopic Bilateral Salpingoophorectomy. (Figure 2)

Methodology

- The data was collected from the electronic patient flow record and included:
- Anticipated theatre time (anaesthetic and operative time) from theatre booking forms completed by the gynaecology team.
 - BMI from pre- assessment documentation
 - Total Theatre Time (time of anaesthetic induction to arrival in Recovery) from electronic theatre record

Data was separated into procedure type (laparoscopic, open, hysteroscopic etc.). Mean averages were calculated for BMI ranges for procedures.

Our results were then the basis of an evidence-based guideline for the gynaecology team to use when booking procedures. If there was evidence of variation in time depending on BMI that was significant, we ensured our guidance on anticipated timings reflected that.

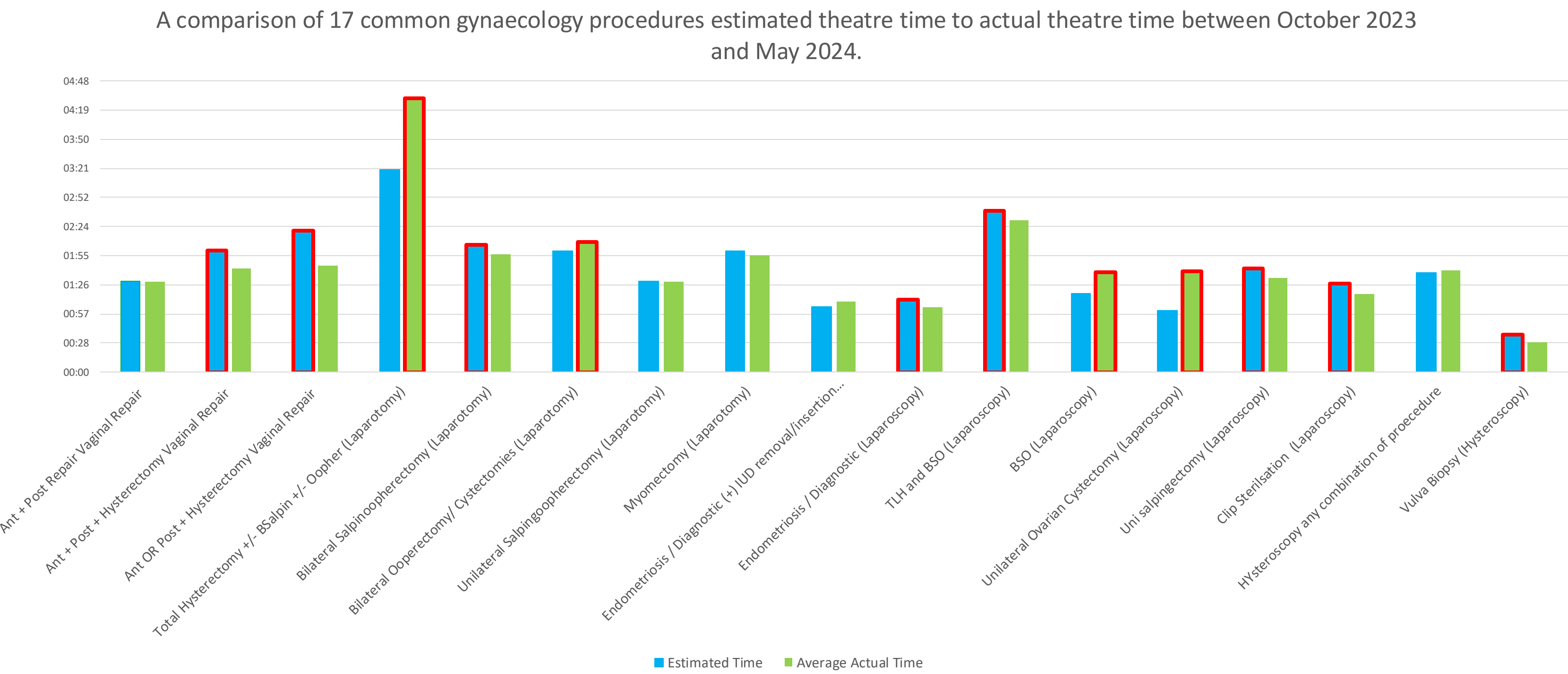


Figure 1: Represents the comparison of average Estimated Theatre time to average Actual Theatre time of 17 common gynaecological procedures carried out between October 2023 and May 2024. The red outline boxes highlight when there was disparity of >5 minutes between average estimated theatre time and average actual theatre time.

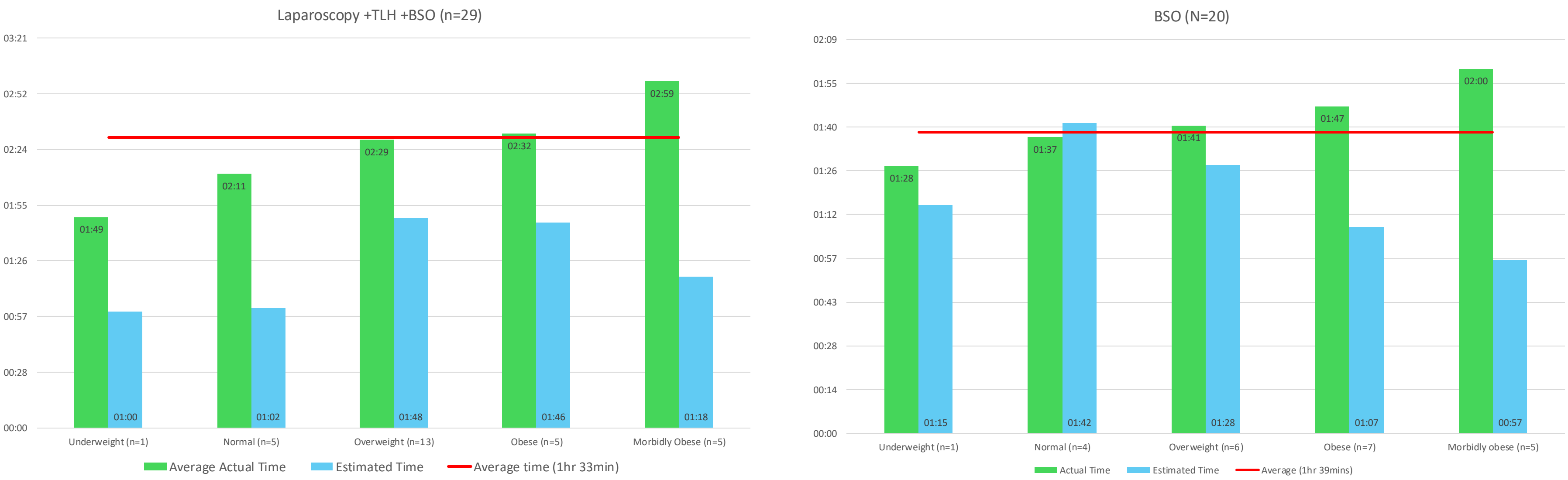


Figure 2: Demonstrates the increasing Actual Theatre Time proportional to the increasing BMI. As the graphs show, as BMI increases, Actual Theatre Time thus increases. As the blue bars (Estimated Time) demonstrate, as a trust we are not factoring in BMI when estimating theatre times.

Conclusions

The lack of standardised guidelines for anticipated operation times is contributing to suboptimal theatre usage which affects patient care and waiting lists. Currently, estimated times are provided by clinicians in clinic when they add patients to a waiting list- junior clinician's may not be familiar with the average procedure duration.

75% of patients in the study had a BMI >25 and whilst this did not affect all procedure lengths- it **must be considered** in Laparoscopic Procedures.

Therefore, our evidence suggests that a guideline based on trust specific data will help streamline theatre usage. (Figure 3)

Type	Procedure	Suggested Estimated Total Theatre Time
Laparotomy	TAH +BSO	4hr 30mins
	BSO	2hrs
	Bilateral Oophorectomy/ Cystectomy	2hrs
	Unilateral Salpingoophorectomy	2hrs 30mins
	Myomectomy	2hrs
Vaginal Repair	Anterior + Posterior + Hysterectomy	1hr 45mins
	Anterior + Posterior	1hr 30mins
	Anterior / Posterior + Hysterectomy	1hr 45mins
Hysteroscopy	Any combination of procedure	40mins
	Vulval Biopsy	30mins
Laparoscopy	TLH and BSO BMI <18-24.9 BMI 25-34.9 BMI >35	**Consider BMI** 2hrs 2hr 30mins 3hrs
	BSO BMI <18 BMI 19-34.9 BMI >35	**Consider BMI** 1hr 30mins 1hr 45mins 2hrs
	Diagnostic ONLY	1hr
	Diagnostic with IUD	1hr 15mins
	Clip Sterilisation	1hr 15mins
	Unilateral Ovarian Cystectomy	1hr 40mins
	Unilateral Salpingectomy	1hr 30 mins

Figure 3: The conclusive guidelines created as a result of this project. All 17 common procedures with suggested Estimated Total Theatre Times