



Impact of Consultant delivered care on Emergency Theatre utilization.



Chidanand Hullur ST7 WSOA, Raghuraman Govindan, Consultant Anaesthetist
Birmingham Heartlands Hospital, Birmingham

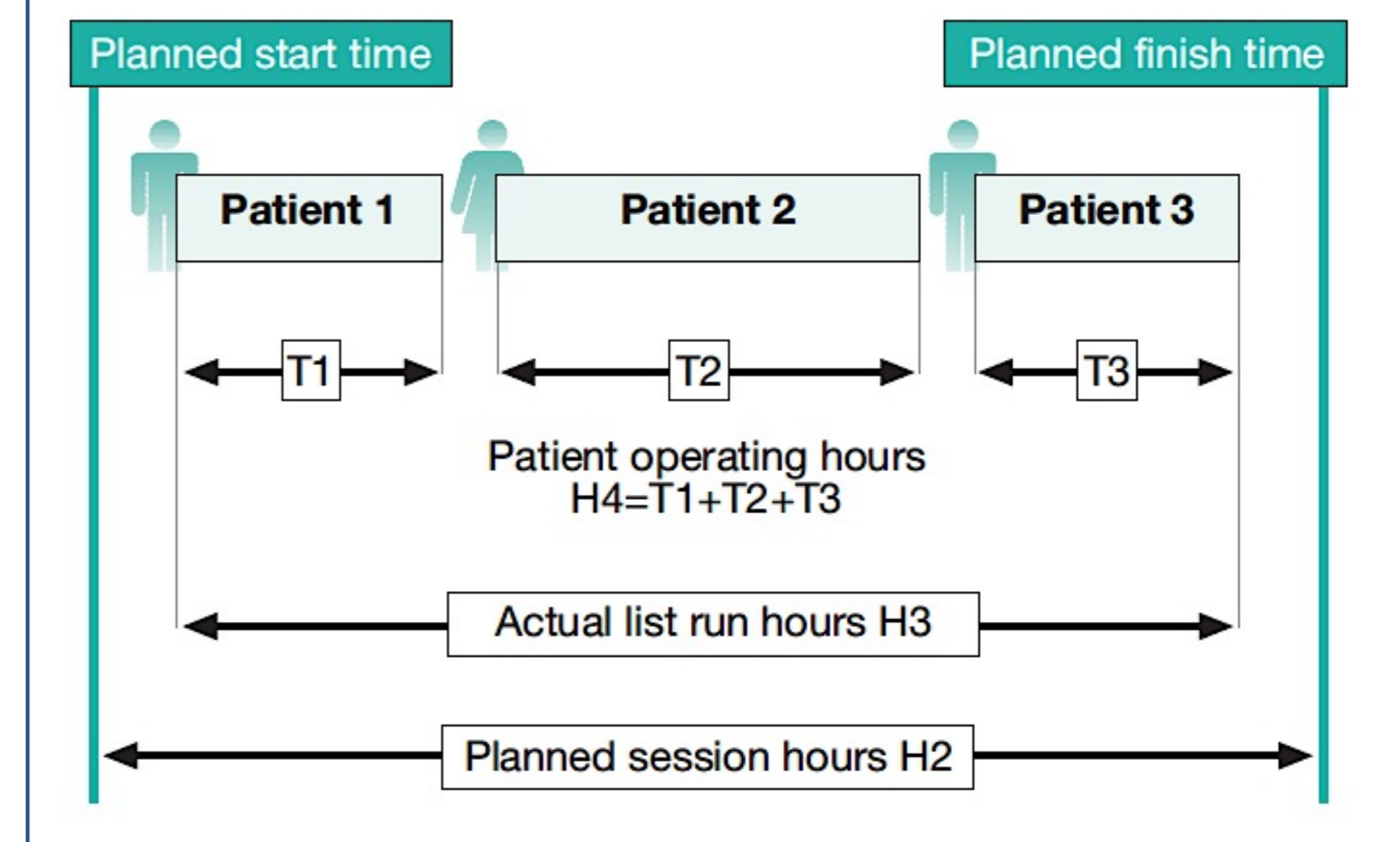
Aim

Following introduction of European working Time directive and Modernising Medical Career, there has been an acute shortage of middle grade doctors in Anaesthesia in UK. Variations in skill mix caused due to lack of suitable staff often leads to decreased productivity in operating times. Due to these issues Heart of England Trust employed consultants to bridge the gap through weekend day working in NCEPOD theatres. This study aims to look at the impact of consultant run emergency theatres in comparison to trainee run emergency theatre on weekends on theatre utilisation.

Methods and Materials

Retrospective data analysis of time covered before the introduction of Consultant delivered weekend day working (05/08/2013 to 04/02/2014) and following introduction (05/02/2014 to 05/08/2014). End utilisation time (EUT) defined as ratio of touch times (clinical time) spent on the day to allocation time (staff resourced time) was used to compare the data between the periods. Data is analysed using SPSS and appropriate statistical tests applied for comparisons.

Schematic diagram of a scheduled and used theatre session. Individual patient hours include anaesthetic and surgical time – see Appendix: glossary of terms.



End utilisation time = $H1/H4$, proportion of the original planned hours that was used for operating.
 $H1$ =planned hours of scheduled sessions

Results

Total period of study			
	Pre process change	Post process change	P-value
Period of study	10/08/2013 to 02/02/2014	16/02/2014 to 03/08/2014	N/A
Number of cases(N)	327	315	N/A
Anaesthetic grade- (%)			
- Trainees only	56.60%	18.40%	
- Trainees and Consultant	19.60%	8.90%	0.00001
- Consultant only	5.80%	65.40%	
- Two consultants	9.50%	4.10%	
- Senior trainee and Junior trainee	2.14%	0.30%	
Number of cases (mean (SD, 95 CI))	4.87(1.30, 4.47-5.26)	4.98(2.15, 4.32-5.63)	0.607
First case in to theatre (median (IQR) as hrs.	09.25(0;52)	9.03(0;41)	0.004
Last case into recovery (median (IQR) as hrs.	19.30 (2.17)	20.14(1.10)	0.004
End utilisation time (median (IQR) as %	64.70(14.85)	72.95(37.16)	0.124

Table 1. Total period of study.

- EUT for trainee and consultant run theatres were 64.70% and 74.95% respectively, $p=0.124$.
- There was significant improvement in start and finish times, $p=0.004$.
- As a secondary outcome we looked at EUT when the queue for theatres was greater (more than 3 cases), which was significantly better when consultant run theatre (65.45% v 73.86%, $p=0.025$)
- Cost analysis of the change showed cost utilisation of approximately £135,000 annually.

Results table 2 (excluding 3 or less cases/day)			
	Preprocess change	Post process change	P-value
Anaesthetic grade- (%)			
- Trainees only	56.74%	19.02%	
- Trainees and Consultant	19.12%	9.18%	
- Consultant only	5.96%	64.26%	
- Two consultants	9.72%	4.26%	
- Senior trainee and Junior trainee	1.88%	0.33%	
Number of cases (mean(SD, 95 CI))	5.24(1.05, 4.89-5.58)	5.79(1.66, 5.21-6.38)	0.163
First case into theatre (median (IQR) as hrs.	09.22(0;47)	08.50(0;35)	<0.0001
Last case into recovery (median (IQR) as hrs.	19.33(1.56)	20.18(1.12)	0.003
End utilisation time (mean (SD, 95%CI) as %	65.45(16.08, 60.20-70.70)	73.86(19.71, 67.00-80.70)	0.025

Table 2. Excluding 3 or less cases.

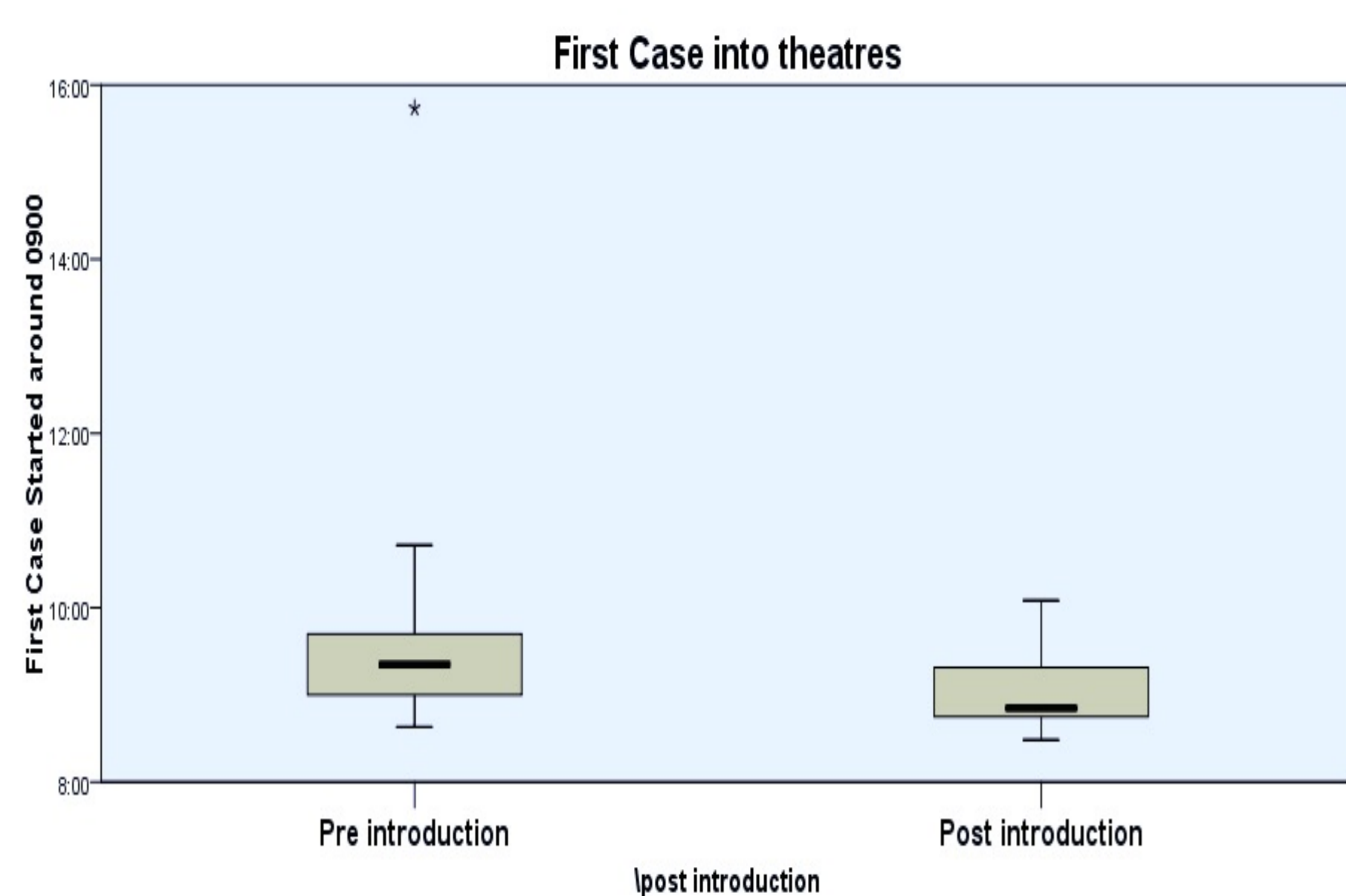


Chart 1. First case into theatre.

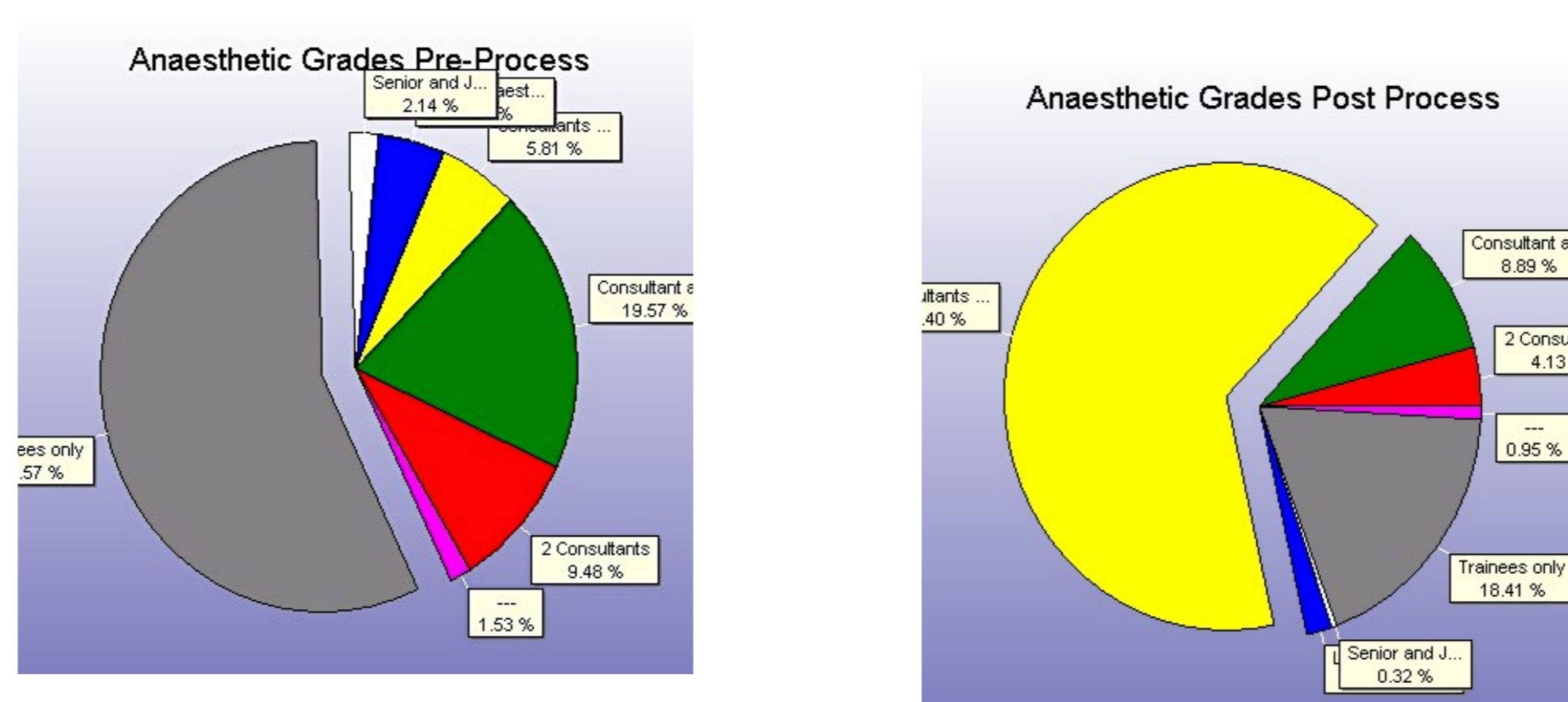


Chart 2. Comparison of anaesthetic grades.

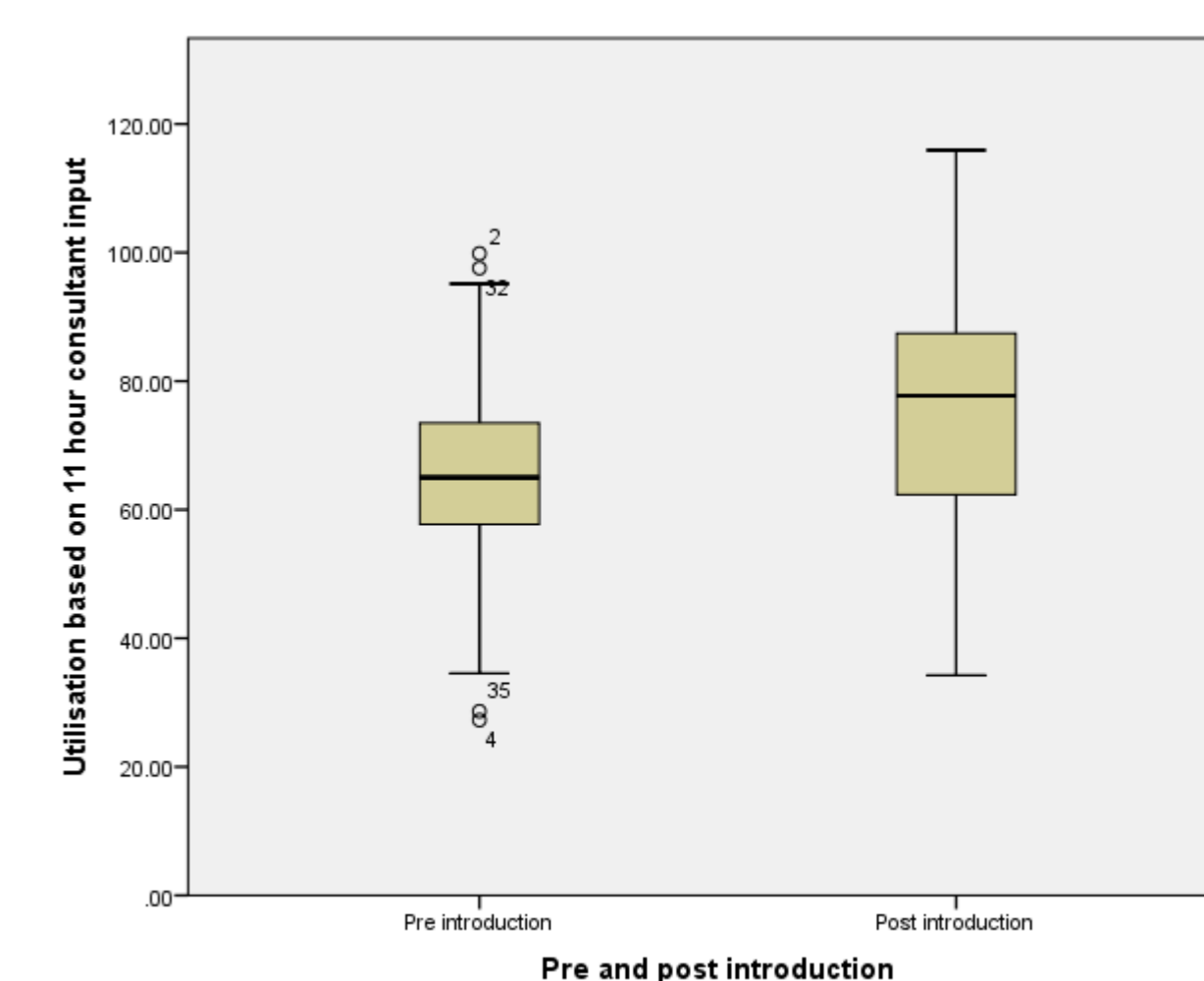


Chart 3. Utilisation based on 11 hour consultant input

Economic Analysis

- 8.45% better utilisation
- Theatre running costs £15,000/12.5hrs
- Total savings is £132,600/year
- Cost of employing consultant with 11.5PA is £143,750
- Average locum cost to cover the same is £94,750

Recommendations

- Improved leadership increased productivity at weekends and significant cost utilisation.
- Consultant delivered service could be looked, as an alternative to workforce planning was the recommendation from this audit.

Limitations

- Retrospective data
- We could not measure access times to theatre (better surrogate marker)
- Quality outcomes couldn't be measured

Contact

Chidanand Hullur and Raghuraman Govindan
Department of Anaesthetics
Birmingham Heartlands Hospital
Bordesley Green E, Birmingham, West Midlands B9 5SS
Email: govindan.raghuraman@heartofengland.nhs.uk
Website: <http://www.anaesthesiabirmingham.co.uk>
Phone: 0121 424 3438

References

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- NHS Services, Seven Days a Week Forum Summary of Initial Findings
- Operating theatres – audit commission