

Case-to-case Factors Affecting Operating Room Turnover Time Which Surgeons Can Utilize To Improve Efficiency

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INTRODUCTION

- It is important to maximize efficiency and decrease unnecessary cost
- Average utilization cost of an operating room (OR) per minute \$621 (range \$22-\$133)
- Numerous factors affect OR turnover time
 - Comorbidities
 - Surgeon experience
 - Procedure type
 - Hospital setting
 - Staff experience
 - Team dynamics
- Our goal was to perform a critical evaluation of multiple factors believed to affect turnover time which the surgeon can alter to improve efficiency

METHODS

- Single institution retrospective review of hospital ambulatory cases
- 486 cases from May 2016-2017
- Variables collected:
 - surgical site laterality
 - OR staff breaks*
 - delay codes
 - adjuncts
 - staff experience
 - team dynamics
- Statistical analysis: unpaired, two tailed t-test



* Break time starts at 11 AM and lasts 75 minutes

RESULTS

- Average turnover time = **29 minutes**

| Factor | Turnover Effect (min) | p-value |
|-----------------------------------|-----------------------|---------|
| Patient in room after break time* | 8 | < 0.01 |
| Multiple procedures | 5 | 0.04 |
| Case-to-case unilateral | -1 | 0.59 |
| Gender | 0 | 0.86 |

Table 1: Effects of select factors

| Adjunct | Turnover Effect (min) | p-value |
|--------------------------|-----------------------|---------|
| Arthroscopy | 12 | 0.01 |
| Fluoroscopy (mini C-arm) | 4 | 0.02 |
| Microscope | -1 | 0.5 |

Table 3: Effects of adjuncts (additional equipment)

- Turnover without delays = **19 minutes**

| Delay | Turnover Effect | p-value |
|---|-----------------|----------|
| Missing preoperative information | 13 min | 0.14 |
| Multiple or extensive set up | 9 min | 0.01 |
| Patient has multiple questions to be answered | 6 min | < 0.0005 |
| Room not clean | 5 min | 0.01 |
| Missing or inaccurate/incomplete consent | 5 min | 0.01 |
| Patient needs to use restroom | 1 min | 0.66 |
| Registration delay | 14 min | 0.01 |

Table 2: Select 'delay codes' and associated effects

| Case Complexity (dedicated side) | Turnover Effect (min) | p-value |
|----------------------------------|-----------------------|---------|
| Complex | -4 | 0.05 |
| Simple | 1 | 0.6 |

Table 4: Turnover effects of dedicated side procedures and case complexity

CONCLUSION

- one may want to book shorter procedures earlier in the day before staff lunch break to take advantage of faster turn over time.
- maintaining the same side procedures for more complex cases reduces equipment movement in the room and improves efficiency. (Ex. First perform all left sided procedures and then all right sided procedures)
- identifying inquisitive patients can also improve efficiency by allowing early engagement to answer questions

DISCLOSURE

The authors have no financial disclosures