

An Analysis of Operating Room Times and Efficiency in a Pediatric Dental Residency Program



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INTRODUCTION

Caries is the most prevalent disease of childhood. Many children wait several months to be treated in the OR setting due to sECC, medical conditions or uncooperative behavior. Long wait times often manifest in the child experiencing pain, swelling and loss of school time. Many end up in the ER which contributes to an already overwhelmed health care system. Current research regarding OR turnover times focuses more on ASA classifications of the patient, procedures performed, time spent in the recovery room and access to care. This study considers the efficiency of the OR team which includes not only the dentist, but also the efficiency of the anesthesia, nursing and OR turnover teams.

PURPOSE

Access to operating room (OR) time for pediatric patients requiring full mouth oral rehabilitation under general anesthesia (GA) is at a premium. The primary objectives of this study were to analyze OR case duration and turnover times of full mouth dental rehabilitation cases and to determine if the experience of the operator (PGY-1 vs PGY-2 residents) contributes to a decrease or increase in the overall time per case.

METHOD

This was a single-site retrospective chart review study of healthy St. Joseph Pediatric Dental Center patients' ages 3-12 years who received comprehensive dental treatment under GA at Our Lady of Fatima Hospital between 09/01/2022 and 12/31/2022 (4 months, 28 OR days). Our Lady of Fatima Hospital is a sister site of St Joseph Pediatric Dental Center and the location where GA cases are completed for pediatric patients. This study was approved by the Institutional Review Board.

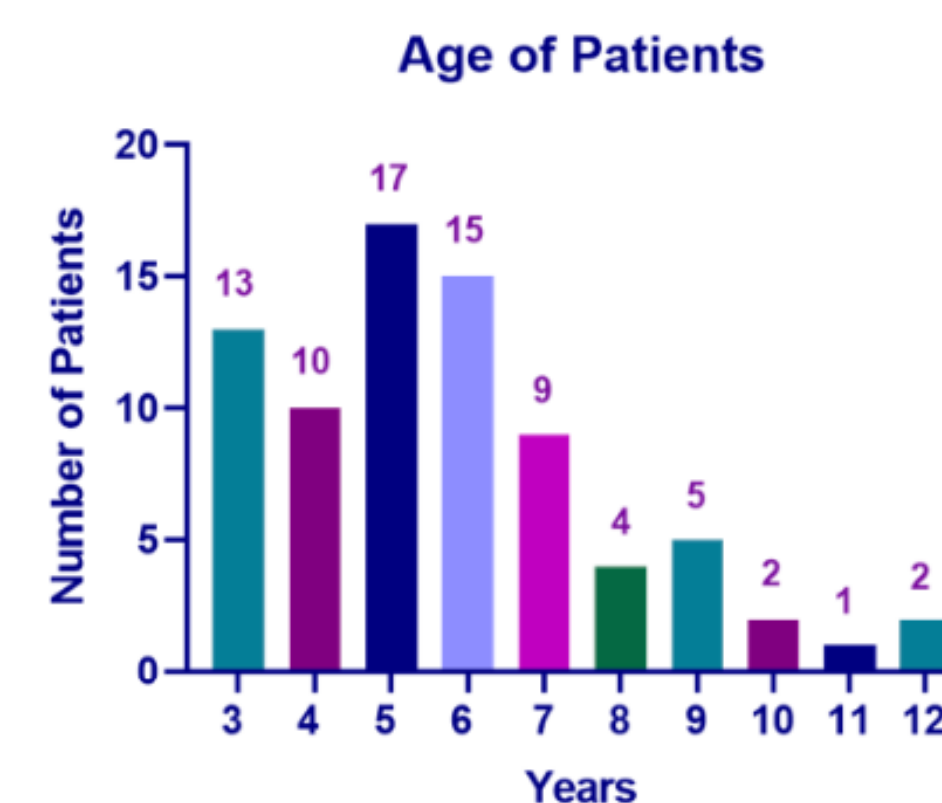
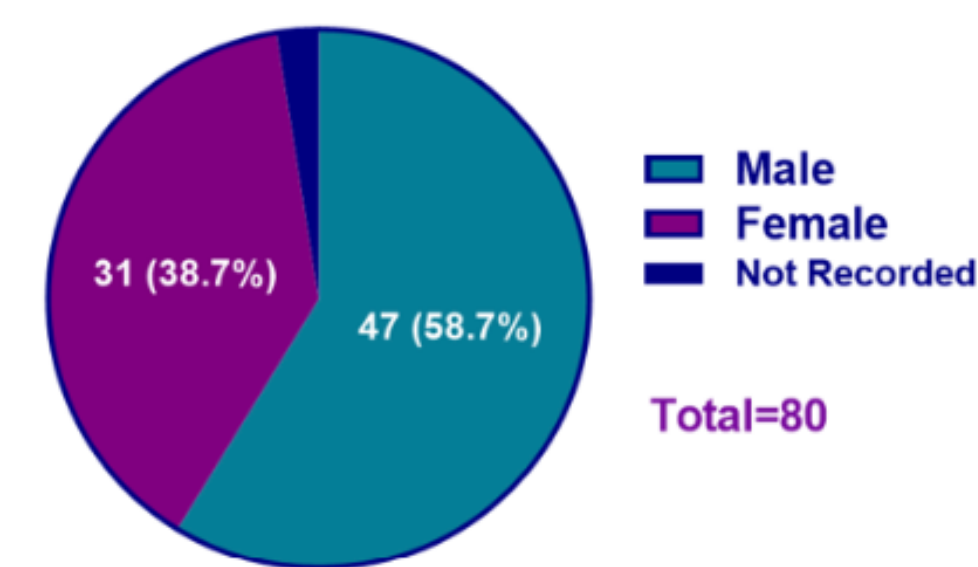


Table 1. Comparison of PYG1 and PGY2 OR cases

Variable	All OR Cases (N=77) Mean (SD)	PGY1 OR Cases (N=39) Mean (SD)	PGY2 OR Cases (N=38) Mean (SD)	P Value
Average Time from Start to Timeout (minutes)	31.47 (6.34)	31.64 (6.50)	31.22 (6.22)	0.794
Average Length of OR Case (minutes)	93.44 (25.21)	95.64 (25.50)	90.26 (24.92)	0.398
Average Time Out of Room to Recovery (minutes)	11.91 (5.54)	12.36 (5.41)	11.26 (5.76)	0.432
Average Case Turnover Time (minutes)	26.74 (13.83)	29.22 (15.75)	23.19 (9.89)	0.184

RESULTS

Eighty pediatric dental OR cases were included in the study. Most of the patients were male (47, 58.7%) and the mean age was 5.8 years (SD: 2.19) (Figure 1). PGY1 pediatric dental residents completed 39 (50.6%) of the OR cases and PGY2 residents completed 38 (49.4%) OR cases. The average elapsed time between start time and timeout was 31.47 minutes (SD: 6.34), and the average length of an OR case was 93.44 minutes (SD: 25.21). Additionally, the average elapsed time from time out of the room to recovery was 11.91 minutes (SD: 5.54), and the average turnaround time to the next OR case was 26.74 minutes (SD: 13.83). The OR case duration and turnover times were similar for PGY1 and PGY2 dental residents (Table 1)

CONCLUSIONS

- Based on the study's results, the following conclusions can be made:
- 1.) The elapsed time for each perioperative time point assessed indicate no statistically significant results.
 - 2.) The experience of the dentist performing the case had no impact on the length of the OR case or the OR room turnover time.
 - 3.) Current literature focuses more about the actual work performed, type of intubation (oral vs endotracheal), ASA class and need for obtaining radiographs as factors that would increase or decrease operating room case times and turnover times. This study did not look at ASA classification, types of procedures performed or type of intubation. The cases reviewed in this study all had a complete set of radiographs taken prior to commencing treatment.
 - 4.) Several factors not considered in this study (type of procedure, ASA classification, intervention of the attending or a co-resident) may have contributed to the statistically insignificant results.
 - 5.) OR turnover times were similar to national averages.

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