

Innovation as a response to disruption: Maintaining operations during a major renovation

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1 | PROBLEM

Historically, clinic sessions at the University of Michigan School of Dentistry have been 1 morning and 1 afternoon session, each of 3 hours duration and with a supply of 144 dental chairs. During 9 clinic sessions per week (no clinic on Wednesday afternoons), there were 1296 appointment opportunities. In addition, another 20 chairs were occasionally available in Foundations Clinic, which is primarily used for student-on-student clinical instruction. During a major renovation that began in January 2020, the number of chairs reduced to 72 plus the 20 chairs available in the Foundations Clinic. We needed a strategy to maintain adequate patient care and student experiences using only 92 chairs per day. An opportunity was believed to exist in the underutilization of chairs since faculty members reported students finishing early and leaving the chair unused.

2 | SOLUTION

We studied completed appointments and found that only 17% extended to the full 3 hours duration. A further 18% lasted only 1 hour, which left the chair empty for 2 hours. A total of 65% lasted between 80 and 120 minutes. These findings suggested there were opportunities for us to improve efficiency in chair utilization. After piloting several solutions, we moved to a model that reflected this utilization pattern for the 92 chairs we had remaining (56% of our

usual). Over the course of a full day, 67% of appointments were 2 hours, 22% of appointments were 3 hours, and 11% of appointments were 90 minutes duration.

3 | RESULTS

Despite the closing of 72 of our chairs, during the first 2 months of the renovation we were able to maintain the number of appointments by using those chairs much more efficiently than previously. January 2020 had 3041 completed appointments compared to 2340 in January 2019 (which included 2 days of snow closures) and February 2020 had 3669 completed appointments compared to the exact same number (3669) in February 2019 (Figure 1 shows appointments before and after the start of renovation). Production in January 2019 was \$418,304 compared with \$513,509 January 2020, which included a 2% fee increase in May 2019. Similarly, production in February 2019 was \$666,330 compared with \$689,521 in February 2020 (see Figure 2). Overall, during the January-February period, the number of appointments increased 11.6% and production increased 8.74% (after adjusting for a 2% fee increase).

3.1 | What went well

Despite significant anxiety from students, staff, and faculty regarding the closure of 2 major predoctoral clinics,

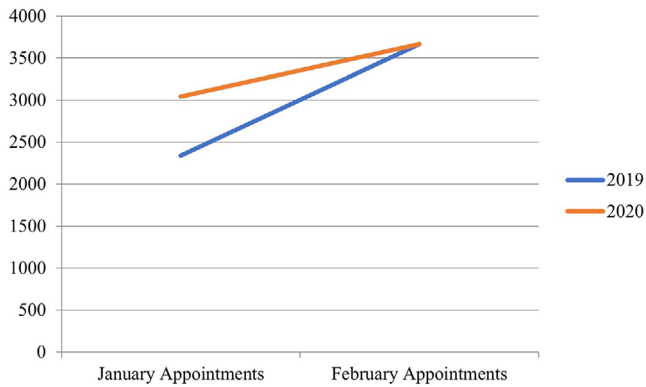


FIGURE 1 Number of completed appointments in 2019 versus 2020

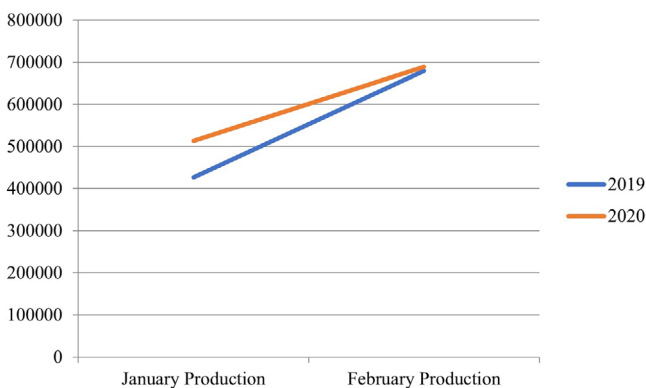


FIGURE 2 Dollars of production generated (adjusted for fee increase) 2019 versus 2020

we maintained patient care and education during the first 2 months of the renovation.

3.2 | What did not go well

The pandemic occurred during the third month of the renovation. Due to stay-at-home orders that affected our construction workers, we were forced to socially distance treatment areas while already at a low chair count. Fortunately, as the renovation continues, we will gradually increase the number of chairs until we reach 118 larger and more functional chairs (compared to 144 prior to the renovation).

3.3 | Lessons learned

The disruption forced by renovation offered an opportunity to identify inefficiencies and increase productivity in clinics.

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