Can I validly monitor turnover times or first case of the day starts by anesthesiologist?

The validity of comparing average turnover times among anesthesiologists is limited. Click here **[PDF]** for details. First, 4 turnovers in a day are not N = 4 independent random samples of turnovers. Thus, correlations among turnovers need to be modeled statistically. Click here for results from another hospital. As shown by these papers, use binning/ batching by month using control charts. Second, if an anesthesia group has 40 anesthesiologists, resulting in 40 confidence intervals to be compared to one another, either the family wise error rate or false discovery rate needs to be controlled, depending on the planned use of the results. Third, turnover times need to be adjusted for the preceding and following procedures and patients. Something simplistic like "general surgery" is absurdly insufficient because of the heterogeneity in setup and cleanup times among procedures within a specialty. In addition, the statistical interaction with surgeon needs to be adjusted (click here).

The usefulness of monitoring turnover times by individual anesthesiologist is also limited. Click here **[PDF]** for details. Suppose that each anesthesiologist were responsible for one OR. Then, decisions that reduce turnover times would always serve to increase OR efficiency or have no effect (i.e., would never be disadvantageous). However, this is not true when anesthesiologists are responsible for more than one OR (i.e., is not true for facilities making precisely the appropriate interventions to increase productivity – click here and click here). Thus, to encourage anesthesiologists to make decisions to increase OR efficiency, decision making to reduce over-utilized OR time (i.e., OR efficiency) should be monitored, not turnover times. Better yet, individuals should be provided with real-time recommendations to focus attention on those turnovers that, if reduced, would serve to increase OR efficiency and/or to reduce surgeon waiting. To understand the need for recommendations from displays, click here **[PDF]**. For a related article on why doing so reduces the hours that anesthesiologists and OR nurses work late, click here **[PDF]**.

The same principles apply to monitoring first case of the day starts by anesthesiologist. Click here **[PDF]** and click here **[PDF]** for details. That is, such procedures are of limited validity and usefulness. Regardless, less than 1% of the variance in tardiness of the first case starts is attributable the anesthesiologist: click here.

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