Surgical team familiarity reduces operative time, improves performance

Surgical team familiarity contributes to reductions in operative time, and performance improves as team experience accumulates, a new study finds.

Previous studies of teamwork and its influence on surgical outcomes have been limited by the challenge of objectively quantifying teamwork. Survey-based methodologies are subject to responder bias, and the tools used by trained observers may be too rigid to accurately capture aspects of team performance. The few studies that have used a quantitative approach have suggested that team size and continuity of team membership may influence performance.

This study by researchers from Brigham and Women’s Hospital-Harvard Medical School, Boston, is the first to examine the effect of familiarity of team members and surgical team learning curves (teaming curve) on operative time.

Included in the study were 754 bilateral reduction mammaplasty procedures performed by 223 teams (8 attending surgeons and 107 assisting surgeons) between 1995 and 2007.

For each procedure, the researchers determined the operative experience of the attending and assisting surgeons and the number of procedures they had previously performed in collaboration. They then quantified the influence of these factors on operative time.

The mean experience level was 10.8 years for attending surgeons and 4.5 years for assisting surgeons. The number of prior collaborations between an attending and assisting surgeon ranged from 0 to 18.

The researchers found a statistically significant association between the number of prior collaborations and mean operative time:

- 153 minutes for teams with no prior collaborations
- 132 minutes for teams with 1 to 5 collaborations
- 116 minutes for teams with 6 to 10 collaborations.

Collaborating more than 10 times did not yield additional reductions in operative time.

In addition to mean operative time, the range of operative times across teams decreased as the number of prior collaborations increased:

- 109 to 235 (126) minutes for teams with no prior collaborations
- 101 to 144 (43) minutes for teams with more than 10 prior collaborations.

Operative time was also independently associated with the individual operative experience of the attending and assisting surgeons and the number of prior collaborations between them.

The expected reductions in operative time over the attending surgeon’s career and the assisting surgeon’s training period were 59 and 22 minutes, respectively, whereas their prior collaborations independently accounted for an additional reduction in expected operative time of 16 minutes.

The findings suggest potential benefits to maintaining continuity of team members over time, the researchers say.
Reference