Leveraging Tracking System Database to Extract Gross Dissection Activity Data

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Background

Gross dissection is a critical step of pathology examination. Optimal staffing of gross dissection operation prevents creation of workflow bottleneck. On academic medical centers with pathology residency programs, tracking gross dissection metrics is not only important to monitor the operation as a whole, but also to keep track of residents' progress. Dissection time, the amount of time taken to gross a case, is a quantitative variable that can be used isolated or as a component of a metric. Although case dissection time was not available in our laboratory information system, a script was created to extract this information from the tracking system database.

Methods

The tracking system database was accessed and rows containing pathology case number, username, type of activity, and timestamps were downloaded. Jupyter notebook, python 3.7 programming language, and Pandas library were used for data exploration and creation of a script. Case dissection time was defined by the difference between the timestamp associated with the last cassette of a case that was scanned at the gross dissection and the timestamp associated with specimen container scanning at gross dissection. A Tableau© dashboard was created to show dissection time per individual, per type of specimen and per case.

Results

The dissection time documented for most specimens was close to the real dissection time. This methodology requires no additional step in the workflow. Therefore, it doesn't create a documentation burden. Another advantage is possibility of historical data extraction, in addition to quasi-real-time monitoring. One shortcoming is that delays related to breaks are not taken into account. Additional data cleaning strategies may be used to filter imprecise intervals due to delays. The Tableau© dashboard is used by management, residency program leadership, and individuals performing gross dissection for monitoring, documentation and feedback.

Conclusion

Dissection time can be extracted from the database of tracking systems using timestamps of specific events. This piece of information can be potentially helpful for multiple stakeholders. There are opportunities for creators of pathology software solutions to design an easy workflow to capture dissection time with better accuracy.