2184 - Pilot Study of Surgical Autonomy Program (SAP) for Evaluation of Resident Performance of Epilepsy Surgery Surgery

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Introduction

Existing tools for evaluating resident operative competence are sometimes disruptive to operative workflow, are resource intensive, and are often completed long after the procedure in question. Duke Neurosurgery developed and implemented an innovative, smartphone-based tool, the Surgical Autonomy Program (SAP), in our epilepsy surgery workflow. We hypothesized that it would improve efficiency and efficacy of the resident and faculty feedback process. Here we present our experience in epilepsy surgery.
Methods

The SAP applies Vygotsky’s Social Learning Theory to the process of acquisition of surgical skills and competence. We examined resident and faculty use for index neurosurgical cases in a 26-month pilot at Duke University Hospital. Between August 2017 and October 2019, Duke Neurosurgery implemented the IRB-approved SAP, which was made available to all Duke neurosurgical faculty and residents. We present data from 72 epilepsy surgeries performed at Duke University Hospitals and recorded within the SAP software, comprising 34 vagal nerve stimulators (VNS), 15 temporal lobectomies, 9 stereotactic EEG procedures, 9 craniotomies for grids/strips, and 5 laser ablations.
Results

• The SAP provides a scalable and efficient approach that divides each surgical procedure into four Zones of Proximal Development (ZPD). Furthermore, the TAGS scale provides insights into resident expectations and faculty perceptions. The SAP appeared to be both efficient and feasible for resident self-evaluation (median 18 sec, mean 33 sec) and faculty evaluation of residents (median 22 sec, mean 45 sec).
Discussion

This pilot has demonstrated the ability of the SAP to easily and clearly measure resident learning and progress in performing epilepsy surgery and enhance the efficiency, frequency and timeliness of intraoperative assessment. This information can be used to advise individual residents, modify program curricula, and inform national training guidelines for functional surgery.
Summary Points

1. The Surgical Autonomy Program (SAP) makes real-time intraoperative performance assessment feasible for every index epilepsy surgery case and can be feasibly integrated into a residency training program.

2. The SAP provides a scalable and efficient approach that divides each surgical procedure into four Zones of Proximal Development (ZPD).

3. This pilot has demonstrated the ability to easily and clearly visualize resident progress for epilepsy surgery, as an example of index functional cases.