

Real-time Perioperative Web-Based Anesthesia Information System

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Background/Introduction: Anesthesiologists and other providers are able to utilize a variety of information during a typical day in the operating room to facilitate safe and expedient patient care. This information includes the OR schedule, vital signs and other elements of anesthetic records, the locations of patients, who is on call, et cetera. However, this information is often located in disparate locations and is not integrated, making it relatively difficult to access.

Methods: We created a web-based system that draws on a variety of institutional databases that provides real-time monitoring of:

- Vital signs, lab values, drug administration records, and other elements of the anesthetic record in ORs
- Operating room schedule, dynamically updated to show which cases are in progress or finished, along with locations of patients and one-click access to prior anesthetic records
- Locations of anesthesia providers and membership of the call team

The site was designed specifically for anesthesia workflows, and to be easily usable on modern smartphones as well as the legacy desktop web browsers available on hospital workstations. Access is controlled using the institution-wide single sign-on system.

Results: Easy access to prior anesthetic records now allows quick preoperative evaluation, especially for add-on or emergency cases. The system allows anesthesiologists to monitor the ORs they are supervising from their phones: roughly half of accesses are from phones, which improves their mobility. In our institution, the need for the anesthesiologist on overnight call to make phone calls to ~50 anesthetizing locations in the afternoon to help determine evening staffing needs and assign the on-call team appropriately is now minimized, as the relevant information is shown on one screen, which improves efficiency of staff management.

Conclusion: Our web-based perioperative information system offers easy access to relevant perioperative information to improve expediency of patient care.

A-12	about 2 hours ago	M [redacted]	bilateral total pelvic lymphadenectomy; cystoplasty or cystourethroplasty, plastic operation on bladder and/or vesical neck (anterior y-plast for prostate cancer)	GO TO...
A-14	Proc./surgery finish 4 minutes ago	L [redacted], E [redacted] B [redacted], M [redacted]	: Right laminectomy, facetectomy and foraminotomy (unilateral or bilateral with decompression of theca equina and/or nerve root(s), (eg, spinal or lateral recess stenosis)), single vertebral segment	Cases overview Cardiac only Obstetrics only
A-15	Proc./surgery start about an hour ago	S [redacted] ur [redacted] Fi [redacted]	: Removal of total disc arthroplasty (artificial disc), anterior approach, each added separately in addition to code for primary procedure) for cervical spine stenosis	Call team Where is everyone? Page quickly
A-16	Proc./surgery start 44 minutes ago	S [redacted] K [redacted] A 2A/24Hr	: R dbis insertion - twist drill, burr hole, craniotomy, or craniectomy with stereotactic electrode array in subcortical site for parkinson's disease	Schedule My calls
A-17	Proc./surgery start about an hour ago	K [redacted] 2B U [redacted]	: L4-s1 revision w/ decompression and instrumentation for lumbar spondylosis	Sign out Joseph, Thomas
A-19	Proc./surgery start about an hour ago	H [redacted], L [redacted] G [redacted] M [redacted]	: Right partial glossectomy, bilateral modified radial neck dissection, direct laryngoscopy, tracheostomy, left forearm free flap reconstruction for squamous cell ca	
A-20	Proc./surgery start about 2 hours ago	D [redacted] Li [redacted] OB Jr	: Nerve graft (includes obtaining graft), head or neck; more than 4 cm length; neuroplasty and/or transposition; cranial nerve (specify); graft for facial nerve paralysis; free fascia graft (including obtaining fascia); correction of lagophthalmos, w/ for right bell's palsy	
A-21	Proc./surgery start about an hour ago	D [redacted] F [redacted] Latc2	: Thyroidectomy, total or complete for thyroid mass	