

# TOWARD MEANINGFUL USE OF THE EMR: DEVELOPMENT OF AN ANESTHESIA DATA WAREHOUSE FOR QUALITY IMPROVEMENT, ADMINISTRATIVE REPORT AND RESEARCH – THE OPERATION ROOM (OR) DATAMART

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**Introduction:** Electronic medical records (EMR) have been increasingly integrated into the perioperative health care environment. In 2008, 44% of the 140 US academic anesthesia departments reported using an anesthesia information management system (AIMS). However most of these systems are proprietary and not particularly well suited for quality improvement initiatives or clinical research. Moreover, most exist as “silos” which do not communicate well with other information technology systems within the health care environment. To overcome these barriers, we have developed an anesthesia data warehouse - “OR Datamart.” The datamart is a highly integrated, near-real time database that contains nearly all pertinent perioperative health care information. More importantly, the datamart is queryable, which is greatly facilitating quality improvement, administrative, and research initiatives.

**Methods:** The OR Datamart is a Microsoft SQL based database storing pertinent data from source electronic systems in a near-real time fashion. All relevant perioperative data for a single tertiary care academic medical center are captured and stored without pre-processing.

**Results :** In phase 1 of OR Datamart development, we obtained all relevant data from the perioperative environment from the year 2003 (limited data in 1999-2003) to present. For the year 2010, we captured clinical data from 648 anesthetizing locations including 103 full operation rooms which have average approximately 50,000 surgical cases per year. For each included year, the datamart contains information on approximately 300,000 unique procedures, 20,000,000 documented events, 1,900,000 data points related to fluid

**Conclusions :** We have developed a near-real time integrated OR Datamart that contains clinical and administrative data on all patients who received anesthetic care at a single academic medical center. This system utilizes EMR data to facilitate quality improvement initiatives, administrative and clinical reporting as well as clinical research.

