Massachusetts General Hospital improves quality of care and realizes financial benefits worth over $1M

MetaVision enabled MGH to meet PQRI and other quality initiatives, bill 100% of its anesthesia procedures, and realize financial benefits worth more than $1M over a 16-month period

Hospital Profile

MGH is the third oldest hospital in the US – it was MGH physicians who first demonstrated the use of a general anesthetic, in 1846 - and is consistently ranked among the top five hospitals in the country by *U.S. News & World Report.* The 900-bed medical center admits over 47,000 patients, records 83,000 emergency room visits, and performs 37,000 operations annually. The Hospital's five multidisciplinary care centers are renowned worldwide for innovations in the treatment of cancer, digestive disorders, and heart disease, and in transplantation and vascular medicine. MGH is the original and largest teaching hospital of Harvard Medical School, and nearly all staff physicians serve on the faculty. With an annual research budget of nearly $550 million, MGH conducts the largest hospital-based research program in the United States.

The Need

Already familiar with AIMS technology, MGH required a system with the flexibility to meet their changing needs over time. The hospital sought a system which would provide a complete and accurate anesthesia record, advanced clinical decision support, and data continuity across the continuum of care. As a major research center, MGH also required a system with proven capabilities to support research. In addition, the hospital aimed to use the technology to maximize revenue capture and improve adherence to pay-for-performance initiatives.

> "*MV-OR has become a key building block in the information technology infrastructure of our department. We have found that the flexible architecture of iMDsoft's MV-OR product allows us to match the clinical documentation process to our varied clinical work flows both in the Operating Room and in non-OR locations. This flexibility eases our staff's documentation burden, improves the quality and completeness of that documentation and allows us to respond to the changing healthcare regulatory environment easily and efficiently.*"

Stephen Spring
Administrative Director for Finance and Information Technology, Massachusetts General Hospital

At a Glance

Hospital Profile

> 900-bed medical center, ranked #5 in the US
> Performs 37,000 operations annually
> Offers care in virtually every specialty and subspecialty of medicine and surgery
> Largest hospital-based research program in the US

The Need

> Improve quality of anesthesia documentation
> Increase revenue capture from anesthesia procedures
> Reduce administrative overhead

iMDsoft Solution

MV-OR™, *iMDsoft*'s Anesthesia Information Management System (AIMS)
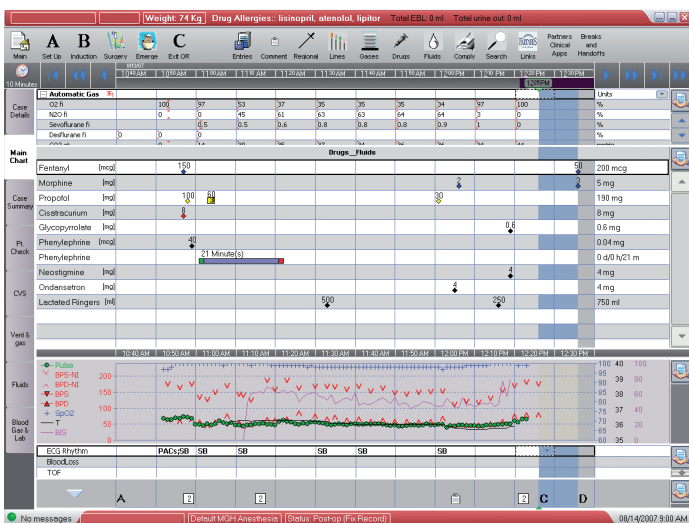
Results

Overall improvements:

> Improved patient safety, protocol compliance, and quality reporting
> Increased % of anesthesia billable procedures to 100%
> Maintained billing efficiencies worth more than $400,000 per annum
> Drug cost savings of $700,000 over 16 months
> Enabled reporting on PQRI standards worth up to $70,000 per annum

*i***MD***soft* Solution

MGH conducted an extensive evaluation of the available solutions and found MV-OR to most closely meet the hospital's requirements. A major factor in the hospital's choosing MetaVision was the system's flexibility to adapt to the institution's complex workflow. With Microsoft-based architecture, MGH foresaw their smooth transition to MetaVision, which was completed in April 2005.

MV-OR provides a comprehensive anesthesia record, including accurate tracking of events, medications, and procedures. It ensures that all billable events are registered and seamlessly integrates with the existing hospital billing system to maximize revenue capture.

MetaVision's Event Manager provides MGH with smart decision support. The hospital uses this tool to assist in the early detection of significant changes in the patient's condition, sending alerts of potential critical events during surgery. MGH has also configured Event Manager to send alerts that promote improved protocol compliance and cost savings. MGH has also benefited from MetaVision's ability to share data across the continuum of care, facilitating access to patient data during the entire perioperative process. Furthermore, MetaVision assists MGH in realizing its research goals. The system's architecture allows analysts and clinicians to review and analyze data from hundreds of charts instantaneously. Through MetaVision, MGH can quickly and easily access data on, for example, performance of basic anesthetic interventions within their database of over 100,000 anesthetics.

MGH MetaVision Main Screen Anesthesia Chart

Results

Adherence to quality measures

Using MetaVision, MGH can easily meet the PQRI measures relevant to the perioperative environment, regarding the Timing of Antibiotic Prophylaxis, Perioperative Temperature Management, and Central Venous Catheter (CVC) Insertion. This translates into $60,000-$70,000 in additional reimbursements per annum.

In the case of PQRI measure 20 (Timing of Antibiotic Prophylaxis), the hospital was able to implement a reminder to physicians and a mechanism for tracking and reporting on this measure within two days – much more quickly than would be expected of an academic institution of this size and complexity. A hospital must report whether or not the antibiotic was administered in 90-95% of cases to meet the threshold for reimbursement. MGH now reports on this action in 99% of cases, easily meeting the threshold.

Following a directive from the Joint Commission, MGH identified three safety measures that physicians needed to meet for accreditation. These related to appropriate checking of blood pressure, ET CO2, and correct case sign-off. Using MetaVision reminders, all of these measures are consistently met by physicians, achieving a 99% success rate. In the case of blood pressure checks, prior to MetaVision, 6% of all cases had a blood pressure "gap" – a time when blood pressure should have been taken but wasn't remembered. The hospital configured a reminder in MetaVision, prompting doctors to perform these procedures at the appropriate time.[1]

Improved financial performance

MGH implemented an extensive research and education program examining the safety and effectiveness of drug alternatives (higher vs. lower cost). Once staff awareness had been raised, the hospital set up specific alerts within MetaVision for drug optimization during long surgeries. Running for a period of 16 months, the program saved the hospital $700,000. The introduction of an AIMS to MGH led to the hospital increasing its revenue from billing by $400,000 per annum. This improvement has been consistently maintained using MV-OR. MetaVision, together with the MGH proprietary billing system, results in 100% of anesthesia records being fully billable. Combined with the $60,000- $70,000 in additional reimbursements per annum through meeting PQRI measures, the hospital realized over $1M in a 16-month period.

1. McCormick, J., 2009, Mass General 'AIMS' To Improve, *Information Management Online*
   Jesse M. Ehrenfeld, M.D., Warren S. Sandberg, M.D., Ph.D., 2006, Incidence of Intraoperative Gaps in Patient Monitoring during Anesthesia, *ASA Annual Meeting Abstracts Online*

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