FIRST
Do No Harm
Quality and Patient Safety Division, Board of Registration in Medicine
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Boston Medical Center Emergency Airway Response Team (EART)

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Several years ago we experienced an event at Boston Medical Center (BMC) that prompted us to evaluate our system for responding to difficult airway events outside of the operating room. An elderly obese woman was brought to the emergency department in respiratory distress. Several attempts to intubate the patient were unsuccessful and ultimately the patient underwent an emergency cricothyrotomy. The patient was eventually decannulated and did well. Review of the case revealed several opportunities for improvement, including: a more coordinated system for summoning (paging) appropriate personnel; better utilization of experienced physicians with airway expertise; and more readily available specialized equipment for securing the airway.

There is evidence that having a designated team to address such difficult airway events can have a significant impact on patient outcomes (1). A successful emergency airway response system requires appropriate personnel, a response system, appropriate equipment, education and oversight (2). To begin the process, a working group was formed at BMC consisting of representatives from otolaryngology, anesthesia, general surgery, emergency medicine, nursing, respiratory therapy and telecommunications to develop a response system modeled in part after own our code team, as well as difficult airway response teams at other institutions (1). The working group met regularly over the course of the following year to lay the ground work for and begin implementation of the Emergency Airway Response Team (EART). Efforts focused on: determining the composition of the team; developing criteria for summoning the team; establishing a unified telecommunications system (one page to summon the entire team), developing a fully equipped airway cart to allow both non-surgical and surgical management of the airway; and educating residents, nurses and other personnel about the existence of the new EART and criteria for when to summon it.

Composition of the EART and Protocol for Response:
The most challenging aspect of the EART was developing an appropriate protocol for responding to airway emergencies. In an environment of limited resources two important questions arose: which personnel should respond and under what circumstances should the EART be summoned. In order to achieve our goal of having individuals with expertise in airway management available, we included all of the following personnel: anesthesia attending and resident on call; surgical residents and attending surgeon on call for the surgical trauma service; otolaryngology resident and attending on call; pediatric emergency medicine and pediatric intensive care attending physicians on call (pediatric airway emergencies only); surgical intensive care nurse, resource nurse, and off shift nurse manager; respiratory therapist on call; transport; and security. We designed the EART so that it could be summoned following a conventional "Anesthesia Stat Page" or "Code Blue" response, but could also be summoned directly if there was concern for impending need of a surgical airway (see protocol, page 2).

Equipment-the Mobile Difficult Airway Cart (MDAC):
Over the last two decades, we have witnessed a sharp increase in devices and techniques for the advanced management of the difficult airway. These include supraglottic devices, optical and video laryngoscopes and many others. Because there are many choices and some of the equipment can be quite expensive, development of the MDAC posed special challenges. Our focus was on choosing equipment to maximize cost-effectiveness, portability and the chance of successfully managing the airway in the least invasive manner every time. The carts we developed include: a bag-mask ventilation device; an auxiliary source of oxygen (E cylinder with > 1000psi), laryngoscope handles and blades of different types, oral airways, nasal airways; tongue depressors; endotracheal tubes; laryngeal mask airways; intubating bougies; hollow tube exchangers; dental guards; chemical end tidal CO2 detectors; surgical water based lubricant; angiocaths and syringes of various sizes; a videolarygoscope system (Glidesope®); a light source for a flexible fiberoptic bronchoscope; an intubating flexible fiberoptic bronchoscope, with the necessary accessories; and oral airway designed to facilitate oral fiberoptic intubation (e.g., Ovassapian airway). For surgical management of the airway we included a percutaneous cricothyroidotomy kit and an open tracheostomy tray. We also included a jet ventilator as a backup option. Our anesthesia technicians modified a regular anesthesia cart to hold all of this equipment. The anesthesia technicians are also responsible for checking the carts and maintaining an adequate inventory. The respiratory therapist on call or anesthesia personnel are responsible for bringing the MDAC to the site. The MDAC provides us with a highly mobile and comprehensive solution for the management of the difficult airway beyond the operating rooms.

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Boston Medical Center's EART,

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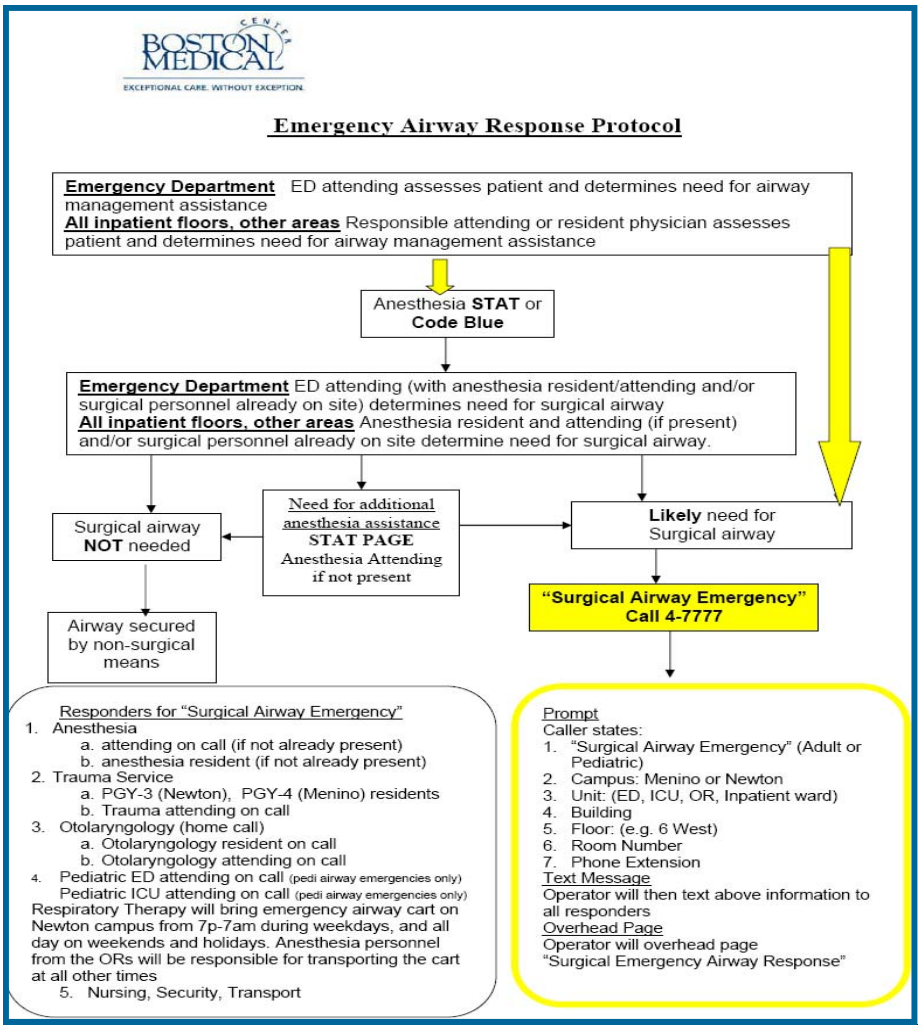
Education:

The educational initiative included all of the direct responders and additional clinical staff that the working group felt should also receive this education. Residents from Emergency Medicine, Anesthesia, Otolaryngology and Surgery were targeted for educational sessions which included live lectures at our quarterly Difficult Airway Conferences. Nurses were targeted for education as well, including nursing personnel that were not direct responders (adult and pediatric critical care nurses, emergency department nurses and clinical nurse educators) that would have potential contact with this patient population and could potentially facilitate triggering the EART. Respiratory therapists and telecommunication staff were also in this education plan. The plan for education was multi-faceted and included an electronic e-learning course (Healthstream®). The content included explanations and identification of a difficult airway, team responders and the alert system, descriptions of the advanced airway equipment and expectations of team responders. The course encouraged intensive care nurses, as part of the team, to speak up if something didn't seem right and an emergency airway seemed imminent. Informational flyers, a laminated protocol posted in all critical care areas and staff newsletters were also used. Additional in-services for direct nurse responders included a sample teaching case. The respiratory therapists were assigned the standardized e-learning course and reviewed the Emergency Airway Response Protocol. The respiratory therapists were responsible for bringing the emergency airway cart and were oriented to the cart location and their role in this team. The telecommunication service training included a review of the policy, verification of the emergency and location, activation of beepers and overhead page and critical call back to assure the team responded. Coaching of these staff to respond to the surgical airway calls was part of the operator training. All key staff were educated prior to implementation and all newly hired staff complete the e-learning course as part of their clinical orientation. Over 500 staff have been educated. We monitor each event for quality improvement purposes.

Summary/Future Plans:

Since the system went live, the EART has been utilized one to four times per month. Our goals for the future are to implement simulation training and mock airway emergencies to develop, assess and maintain competency of all personnel involved in the EART.



BOSTON MEDICAL CENTER
EXCEPTIONAL CARE. WITHOUT EXCEPTION.

Emergency Airway Response Protocol

Emergency Department ED attending assesses patient and determines need for airway management assistance
All inpatient floors, other areas Responsible attending or resident physician assesses patient and determines need for airway management assistance

Anesthesia **STAT** or **Code Blue**

Emergency Department ED attending (with anesthesia resident/attending and/or surgical personnel already on site) determines need for surgical airway
All inpatient floors, other areas Anesthesia resident and attending (if present) and/or surgical personnel already on site determine need for surgical airway.

Surgical airway **NOT** needed

Need for additional anesthesia assistance **STAT PAGE** Anesthesia Attending if not present

Likely need for Surgical airway

"Surgical Airway Emergency" Call 4-7777

Airway secured by non-surgical means

Responders for "Surgical Airway Emergency"
1. Anesthesia
   a. attending on call (if not already present)
   b. anesthesia resident (if not already present)
2. Trauma Service
   a. PGY-3 (Newton), PGY-4 (Menino) residents
   b. Trauma attending on call
3. Otolaryngology (home call)
   a. Otolaryngology resident on call
   b. Otolaryngology attending on call
4. Pediatric ED attending on call (pedi airway emergencies only)
   Pediatric ICU attending on call (pedi airway emergencies only)

Respiratory Therapy will bring emergency airway cart on Newton campus from 7p-7am during weekdays, and all day on weekends and holidays. Anesthesia personnel from the ORs will be responsible for transporting the cart at all other times
5. Nursing, Security, Transport

Prompt
Caller states:
1. "Surgical Airway Emergency" (Adult or Pediatric)
2. Campus: Menino or Newton
3. Unit: (ED, ICU, OR, Inpatient ward)
4. Building
5. Floor: (e.g. 6 West)
6. Room Number
7. Phone Extension

Text Message
Operator will then text above information to all responders

Overhead Page
Operator will overhead page
"Surgical Emergency Airway Response"

1. Berkow LC, Greenberg RS, Kan KH, Colantuoni E, Mark LJ, Flint PW, Corridore M, Bhatti N, Heitmiller ES. Need for emergency surgical airway reduced by a comprehensive difficult airway program. Anesthesia & Analgesia 2009:109:1860-9.
2. Showan AM, Sestito JA. Organization of personnel and resources for airway management in the hospital and office environment. Crit Care Clin 2000;16:527–39.

Radius Specialty Hospital "FALLS" Acronym

S Safety/side rails
T Toileting
O Oxygen
P Pain/positioning/pumps
F Fluids
A Alarms
L Low/locked beds
L Lights
S Status

Sturdy Memorial Hospital
Palliative Care: A Unique Approach to Program Development

Karen Messier MSN, RN, AOCN *Oncology Program & Clinical Manager*

Linda Shyavitz *Chief Executive Officer*

Quality improvement in patient care is always the top priority at Sturdy Memorial Hospital in Attleboro, Massachusetts. The entire organization continuously evaluates delivery of patient care and services in an effort to enhance quality.

In 2010, a standard review of our mortality data demonstrated the need to improve end of life care planning at our hospital. We observed that several patients who had died received no hospice services prior to death although they would have been appropriate. Moreover, a review of the 2001-2005 Dartmouth Atlas of Health Care report for percent of Medicare decedents enrolled in Hospice during the last six months of life placed us in the tenth percentile with just 14.7% of decedents enrolled.

In response to the recognized need for improvement in end of life planning for patients and families dealing with life threatening illness, we launched our Palliative Care Initiative.

Our initial approach was to establish a task force and develop a plan. The goal we set was to: improve palliative care for our patients and the residents of our service area communities by enhancing professionals and patients' knowledge and skills for optimizing quality of life when end of life is reasonably predictable due to disease or other infirmity.

Introducing the concept of palliative care is not without barriers or challenges. This is particularly true in that we did not want to immediately refer the patient in need of palliative care services to an unfamiliar team. Rather, we wanted their primary care physicians to identify and facilitate palliative care services just as they would provide diagnostic or therapeutic services. The primary care physician in most cases has the long term relationship with the patient and should remain the leader in assisting the patient through the process of their chronic illness to the end of life.

Our palliative care initiative hopes to achieve introduction of the concept to patients and families through the primary care physicians early on, allowing time for education of patients and families about the disease trajectory, for arranging services to support the patient as needed and for identifying patient wishes related to end of life.

The importance of total administrative support along with 100% acceptance and participation of physicians cannot be overemphasized. Developing a plan is essential in order to remain focused on the goal and to provide the road map for reaching the goal. In May 2011, our task force, led by our CEO Linda Shyavitz, decided on the approach we should take to build the foundation necessary to implement palliative care.

Objectives:

1. Medical Community
    - A. Education of the medical community regarding the importance of this goal. Ensure their support for and commitment to it.
    - B. Teach physicians the skills they need to both intelligently and thoughtfully work with patients on plans for palliative care and to communicate with patients about the need for such plans.
    - C. Develop new or make available existing programs, materials, and resources to support physicians in their efforts.
2. Public
    - A. Educate the public regarding the importance of chronic disease management, palliative care and quality end of life planning.
    - B. Develop new or make available existing programs, materials, and resources to support patients in their management of chronic diseases, as well as in end of life planning with their physicians.

Initiation of educational efforts began in the Fall of 2011, with a formal presentation to the entire medical staff by Lachlan Forrow MD, a leading expert on the topic of palliative care. This lecture was followed by task force representatives meeting with the chiefs of service to describe the goal and objectives of this initiative. The department chiefs then led discussions during business meetings on palliative care to seek out physician thoughts and opinions, and identify knowledge deficits and educational needs.

Department meetings yielded feedback from physicians related to barriers for implementation and knowledge deficits surrounding palliative care resources. Similar themes were identified across departments despite the differences in their specialties. The departments of Medicine, Surgery, Family Practice, Gynecology, Emergency Medicine and Anesthesia were involved.

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Sturdy Memorial Hospital Palliative Care

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Our findings triggered development of the following programs, materials and resources which were or soon will be provided to the physicians:

A. Discussions related to:

1. Broaching the subject of palliative care with patients and families, how and when one might have the difficult conversation and identifying barriers preventing physicians from discussing palliative care.

2. Pain management including the utilization of interventional techniques, pharmaceuticals, and radiation.

B. Screening tool which provides methods to identify patients appropriate for palliative care considering basic disease processes and functional status.

C. A short list of experienced professional consultants to advise physicians as needed on broaching the topic of palliative care with appropriate patients.

D. An inventory of community palliative care and hospice resources with single points of contact.

Public Education:

Plans are underway for the hospital to reach out to the community to begin public education on palliative care. This process will begin in May 2012 at the Foundation Dinner Meeting with the return of Dr. Lachlan Forrow as the keynote speaker. Additional lectures will be scheduled through local organizations, utilizing the expertise of our own hospital staff. Moreover, a representative of the community agency will be asked to join the task force in the spring.

Our program to date has certainly not been fully developed or implemented. This project is a multi year initiative that must be built upon education, knowledge and physician participation. We will continue to support physicians in their efforts to improve care provided to patients with chronic illness in need of palliative care. This will be accomplished through continuous re-evaluation of physician needs for information, education and resources.

Chronic disease management and palliative care are part of the health care continuum. We are committed to involving our entire medical community in this process.

References

Byock, I., Twohig, J., Merriman, M., Collins, K. (2006). A report on innovative models of palliative care. *Journal of Palliative Medicine, 9* (1): 137-146.

Petasnick, W. (2011). End of life care: The time for a meaningful discussion is now. *Journal of Healthcare Management, 56* (6): 369-372.

"Hospital-Hospice Partnerships in Palliative Care: Creating a Continuum of Service" December 2001. *A joint project of the National Hospice and Palliative Care Organization and the Center to Advance Palliative Care*. Retrieved from http://www.nhpco.org/files/public/NHPCO-CAPCreport.pdf

Ambulatory Surgery Center (ASC) Update

An important first step in development of the new ASC/QPSD partnership has been completed. Each licensed ASC has submitted a PCA Plan, documenting a facility specific program for quality and patient safety.

The ongoing review of Semi-Annual and Annual reports and Safety and Quality Reviews of adverse incidents, are essential tools for the QPSD and for the ASCs. Through collaboration in the confidential review of reports, data gathering and use of available resources for research and feedback, the QPSD is in a unique position to support ASCs, as it does hospitals, in promoting effective practices and systems for quality improvement, patient safety, peer review, risk management and credentialing practices, as contemplated by the Patient Care Assessment Regulations.

The dramatic shift in surgical care to the ambulatory setting is predicted to continue in the next decade with the promise of increased challenges to ASCs and their dedicated staff. The QPSD is committed to providing the tools and guidance to achieve best practice. Workshops will be planned to assist ASCs in the reporting and review process, introduce the online reporting system, present related research findings and special topics, and to continue the dialogue.

Annual Quality and Patient Safety Division (QPSD) Update

Ambulatory Surgery Center Reporting

In 2011, the QPSD initiated its authority to oversee Ambulatory Surgery Centers (ASCs). We are pleased to say we have received Patient Care Assessment Plans from every licensed ASC in the Commonwealth and are also receiving a number of Safety and Quality Review Reports (SQRs). For more information on our work with ASCs, please see the article entitled "ASC Update " on page 4 of this newsletter.

Quality and Patient Safety Committee

We have a new member on our Quality and Patient Safety Committee (QPSC): Dr. Sigar Nigwekar. A list of the current QPSC members is below. The committee members give many hours of their time: visiting hospitals, participating in our workshops, and providing guidance and expertise to our ongoing work. We appreciate their commitment.

Mortality Review Analysis

The QPSD engaged the work of JSI Research and Training Institute, Inc. to help us analyze the information hospitals submitted to us concerning their mortality programs. We are excited to soon share the valuable lessons learned from this mortality program analysis.

RCA Workshop

The QPSD is co-sponsoring a second root cause analysis (RCA) workshop with the Massachusetts Society for Healthcare Risk Management, the Massachusetts Hospital Association and the Massachusetts Medical Society on June 14, 2012. The all day workshop will be held in Marlborough at the Courtyard Marriott. Six CPDs for risk management have been approved and CEUs have been applied for. Registration will open by April 30th; the QPSD will be sending out registration information. Participants of the workshop will specifically be able to:

- Describe how to use investigation techniques to uncover root causes contributing to adverse patient events.
- Indentify frequent shortcomings of root cause analyses and how to strengthen incident investigations.
- Describe why action plans are often ineffective at controlling risks and what can be done to formulate stronger interventions.
- Recognize and resolve latent conditions that adversely affect patient safety.

High Value Health Care Organizations

As a reminder, the QPSD is looking forward to receiving your articles demonstrating your experience with one of the habits of a high value organization. The original request can be accessed at http://www.mass.gov/eohhs/docs/borim/physicians/invite-articles-high-value-healthcare.pdf. Articles should be targeted to 1500 words and submitted to Jennifer Sadowski at Jennifer.Sadowski@state.ma.us by June 1, 2012.

QUALITY AND PATIENT SAFETY COMMITTEE MEMBERS

Peter Paige, MD (Chair) *ED Physician, Chair BORM, Chair QPS Committee*

Susan Haas, MD, *Obstetrician/Gynecologist, Vice-Chair QPS Committee*

Nicolas Argy, MD, JD, *Radiologist*

Janet Nally Barnes, RN, JD, *PCA Coordinator*

James Bono, MD, *Orthopedist*

Deborah DeMarco, MD, *Associate Dean, GME*

Kimberly Eisenstock, MD, *Internist*

Diane Hanley, RN, MS, BC, *MA Board of Nursing*

John Herman, MD, *Psychiatrist, Former Chair BORM & PCA Committee*

Mark Hershey, MD, *Anesthesiologist*

Sigar Nigwekar, MD, *Resident*

Sophia Pasedis, Pharm D, RPh, *MA Board of Pharmacy*

Dinish Patel, MD, *Orthopedist, Former Chair BORM & PCA Committee*

Marc Rubin, MD, *Surgeon*

Arthur Russo, MD, FACP, *Chief Medical Officer*

Robert Schreiber, MD, *Long Term Care Specialist*

Nicola Truppin, JD, *Patient Representative*

Reminder: The Quality and Patient Safety Division's Health Care Facility Review (HCFR) reports are intended for and should be provided to the health care facility's governing board, administrative and medical staff leadership.

Safety and Quality Review Corner

The Event

A patient undergoing a spiral endoscopic procedure sustained an esophageal tear during withdrawal of the helix over-tube.

The Hospital's Response

The hospital convened an expert panel to review this case and another complication associated with the spiral endoscopic procedure. Spiral endoscopies were stopped until resolution and implementation of risk reduction strategies were completed.

Findings from the investigation resulted in the following practice changes:

- Spiral endoscopy will only be performed by a Gastroenterology (GI) attending physician, with advanced therapeutic endoscopy training. Assistance will be provided by a GI Fellow.
- A protocol was developed, outlining all aspects of the procedure. The protocol delineates the role of the GI Attending physician, GI Fellow, GI Nurse, GI Technologist and Anesthesia Attending physician.
- A checklist accompanies the protocol and outlines the critical steps during the procedure, including: generous lubrication of the over-tube; hyperextension of the neck; transient de-flation of the endotracheal tube cuff during insertion of the over-tube in the esophagus; air removal; abdominal counter pressure; and clockwise rotation of the spiral over-tube (resulting in the pleating of small bowel over it).
- All GI staff members now undergo formal training on all new endoscopic procedures.
- A screening protocol for patient risk assessment for spiral endoscopy was developed. The procedure will not be performed on elderly patients with small body habitus.
- The operating room vendor policy was revised to include all ambulatory procedures performed in areas outside of the operating room.

We would like to hear about your "Close Call" Events

Some health care facilities are including descriptions of their close call events (sometimes referred to as near misses or good catches) in their Semi-Annual Reports, or submitting them in Safety and Quality Review reports. This provides an opportunity for health care facilities to describe events or process variations that did not affect the patient, but had the potential to cause serious injury. Health care facilities can demonstrate that their quality and patient safety systems are designed to not only identify these types of events, but to respond to them with improvement measures that will prevent recurrence.

Related Resource: Wu AW. The Value of Close Calls in Improving Patient Safety. Joint Commission Resources 2011.

Sleep Study Centers

Patients undergoing sleep studies sometimes have significant co-morbidities. Health care facilities should review their Sleep Study Center patient selection criteria, medical oversight, minimum requirements for staff training/education, and EKG monitoring protocols. Please ensure that Sleep Study staff have clearly defined activation triggers for the Rapid Response Team (RRT), and conduct periodic mock codes to maintain knowledge and skills, including location of emergency equipment.

Quality and Patient Safety Division Notes

The Massachusetts General Hospital reported that it had developed End of Life Discussion guidelines for patients in one of its ICUs. The guidelines use evidence-based practices of communication, decision-making and care of the patient and family in the ICU, when the goals for the patient's care are changed from cure to comfort.

Based on "lessons learned" from Safety and Quality Review reports, the QPSD recommends that hospitals routinely review their Massive Transfusion Protocols, and re-educate hospital staff on its implementation. Hospitals with obstetrical services should review the maternal hemorrhage recommendations contained in the Betsy Lehman Center Obstetrical Expert Panel Report: http://www.mass.gov/eohhs/docs/dph/patient-safety/ob-expert-panel-final-report.pdf.

When including information about credentialed providers in your SQR, please refer to the QPSD Guidelines for collection, analysis and reporting of Performance Data. Submission of this information should evidence of review of the provider's involvement in a case. The guidelines are available in the QPS section of the Board's website.

We have received reports of complications (lacerations/perforations) associated with robotic surgery. Please review your privileging criteria for these procedures and ensure that you have policies to guide safe practice, including criteria for patient selection for these procedures.

Ambulatory Surgical Centers: Please review your policies for patient risk assessment, preoperative evaluations and discharge processes to confirm that they are consistent with evidence-based standards, and that you have mechanisms to ensure that these policies are routinely followed by all staff.

The QPSD expects that hospitals are reviewing their bariatric surgery programs, relative to the research comparing the volume of cases performed to the quality of outcomes. (For additional information see the Leapfrog Group Bariatric Surgery Fact Sheet: http://www.leapfroggroup.org/media/file/FactSheet_BariatricSurgery.pdf.)

The QPSD continues to see cases of wrong site (level) spinal surgery. We are interested in learning whether any hospitals have implemented protocols that have been effective in reducing or eliminating these events. Please let us know if you would like to share your protocols and experience.

Save the Dates: *Ambulatory Surgery Center Workshop* will be held on June 21st, from 2pm to 4pm at BORM offices in Wakefield (and Webinar). A *Root Cause Analysis Workshop* is scheduled for June 14th (all day), Courtyard Marriott, Marlborough. More information to follow.

PCA Coordinators: The QPSD depends on you to ensure that this newsletter is circulated to your health care facility's quality and risk management staff, as well as medical and administrative leadership.

CONTACT THE QPSD

To be added to the QPSD Newsletter and advisory mailing list, update hospital contact information, submit an article, request an SQR form, or obtain additional information, contact QPSD: Jennifer.Sadowski@state.ma.us or (781) 876-8296.

Send mail to Massachusetts Board of Registration in Medicine, QPS Division, 200 Harvard Mill Square, Suite 330, Wakefield, MA 01880.

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