**Overall Program Organization: Educational Goals/Objectives**

The Non-ACGME Obstetric Anesthesia fellowship program integrates our goals and objectives with the six core competencies established by the ACGME RRC for residency and fellowship training programs:

- Patient Care
- Medical Knowledge
- Practice-Based Learning & Improvement
- Interpersonal & Communication Skills
- Professionalism
- Systems-Based Practice

These Goals and Objectives are reviewed annually by the Vice Chair for Education, Obstetric Anesthesia Division Director and Obstetric Anesthesia Division faculty and they are distributed via intranet to the obstetric anesthesia fellow.

**Obstetric Anesthesia Fellowship**

**Program Description**

The obstetric anesthesia fellowship at Beth Israel Deaconess Medical Center (BIDMC) is a one-year fellowship designed to develop expertise in the anesthetic care of the parturient. Our fellowship provides extensive experience in all aspects of obstetrics, including high risk OB, medical consultation, and exposure to fetal surgery.

The core philosophy in the obstetric anesthesia fellowship is to train the applicant in all areas of the field. This will ensure that the future OB anesthesiologist will have the clinical, research and educational foundation required to provide the highest level of care to parturients, educate generalists and future subspecialists, as well as participate in the scientific evolution of the field. We believe that four essential components create an expert:

- Clinical
- Administrative
- Academic
- Research
Fellowship training provides the basis for continued development as a staff obstetric anesthesiologist. A fellow will be exposed to all four facets of practice, but should expect to choose two or three of these roles in which to concentrate their training.

BIDMC is a major teaching affiliate of Harvard Medical School (HMS). The labor and delivery unit is a high-risk referral center in Boston with 5000 deliveries per year. High-risk cases are drawn from the medical center volume, and from several community hospitals. BIDMC is a nationally recognized leader in Obstetrics and Gynecology, a pioneer in MEDTEAMS training, and one of the top medical centers for NIH funding. The Department of Anesthesiology, Critical Care, and Pain Management at BIDMC trains approximately 54 residents, twelve fellows, and one third of the HMS students.

**Overall Expectations in the Fellowship**

This is a one year fellowship with one fellow position per year.

1. Goals:

The overall goals of this fellowship are:

- To instill competence and refine decision making in management of the high risk parturient
- To develop critical judgment and proficiency in managing a parturient with co-morbidities
- To conduct research applicable to our experience
- To publish our data and experience

2. Curriculum design

During the OB anesthesia rotation, the fellow will be in charge of the high risk obstetrics consult service and play a key role in developing and implementing the anesthetic plan for the high risk parturient. This will include liaising with the obstetricians and other subspecialists. The fellow will be involved in providing anesthesia for the high risk parturient. In addition, the fellow will be expected to be involved in teaching the residents and medical students in labor and delivery and mentor senior residents when they assume the role of the Labor and Delivery floor manager.

The fellow will have three supervised over night call in a month. The duty hours will be monitored to comply with ACGME requirements.
3. Competency

The clinical competence and proficiency of the fellow will be achieved by setting specific learning goals and objectives as described below:

**A1. Patient Care**

Obstetric Anesthesia fellows will become competent in providing compassionate preoperative, operative and postoperative care to patients. They will develop and implement comprehensive patient care plans that are appropriate for their training level. They will gather essential and accurate information about their patients and make informed decisions about diagnostic and therapeutic interventions based on patient information, preferences, scientific evidence and clinical judgment. Fellows will be able to develop and carry out patient management plans, counsel and educate patients and family members, as well as use information technology to support patient care decisions and education.

The patient population consists of females from a mix of ethnic and socioeconomic groups. Patients include new referrals from primary physicians and surgeons, self-referred patients, and patients referred from the emergency ward or as inpatient consults. In addition, some patients are seen in follow-up. The obstetric anesthesia fellow is expected to follow, with other residents, patients on the service, participate in obstetric anesthesia cases at least three days a week, and to evaluate patients preoperatively. The fellow also oversees residents on the obstetric floors.

Residency training provides the basic skills of neuraxial anesthesia: placement of spinal injections and epidural catheters, the use and misuse of regional medications. A fellowship provides the opportunity to advance these skills. Training should evolve skills in placement of neuraxial anesthesia in any position and by any approach. This includes the midline and paramedian techniques, the sitting and lateral positions, and the all-important ‘moving-around-the-bed’ technique for the advanced laboring patient. Fellows should gain confidence in the placement of neuraxial anesthetics in the complex patient, such as those with severe scoliosis, prior surgery, spinal instrumentation, and morbid obesity.

The ability to provide general anesthesia to the parturient is an essential skill and knowledge set. While the dramatic reduction of general anesthesia for cesarean delivery has likely improved maternal outcomes, it has also resulted in the loss of training in most residency programs. Fellows will have the opportunity to perform and to supervise residents in a significant number of general anesthetics.

Fetal surgery is an evolving field that carries much promise. The OB anesthesia fellow has the opportunity to take an active role in these and to act as perioperative physicians. Currently, fetal surgical cases that have been performed at BIDMC include the EXIT procedure, in-utero cord ablation, and fetal transfusion.
Teaching Approach: The Obstetric Anesthesia Fellow learns how to provide better patient care through a mentoring relationship with all the attending anesthesiologists (and residents) on the service. This is a process that is experientially-based and patient-centered. The fellow learns through active watching, listening, discerning, and doing. Fellows are critiqued by the anesthesia attending staff, other residents, and by the patients themselves. Attendings are available for questions, discussion, and consultation any time day or night, 365 days a year. In addition, issues of patient care are addressed during weekly didactic meetings that incorporate case presentations and morbidly and mortality (M&M) rounds. The fellowship is one of graduated responsibility.

Assessment: Written evaluations by faculty after each rotation. Evaluations by nurses, other residents, and patients also take place throughout the year. The fellows actively participate in weekly didactic sessions, as well as monthly M&M conferences. However, the most effective assessment of this competency occurs through the daily mentoring process of working on a busy obstetrical service, as an integral member of an obstetric anesthesia team.

A2. Medical Knowledge

The major focus of this fellowship is to help the fellow become competent in the full management of patients needing anesthesia for obstetric procedures. Although the fellows are exposed to a variety of obstetric pathologies, a primary focus of the fellowship is to instill and nurture in the fellow a thorough knowledge of the anatomy and physiology of the obstetric patient and the anesthetic implications of high-risk obstetric cases. This in-depth medical understanding should be applicable to the comprehensive management of a variety of obstetric problems, spanning the entire gestational cycle. As the year progresses, the fellow should be able to demonstrate that s/he can do the following with increasing skill and independence:

The Fellow should:

- Understand the priorities of treatment in obstetric population
- Understand co-morbid diseases in high risk parturient
- Understand assessment of fetal well being.
- Demonstrate proficiency in discussing pros and cons of various treatment options with patients, surgeons and ancillary staff or family members
- Understand the obstetric management of high-risk parturients.
- Understand fetal heart rate measurement and interpretation.
- Understand the anesthetic management and the interdisciplinary approach to the management of the high-risk parturient.
- Understand the moral and ethical issues in the care of the parturient, including maternal vs. fetal well-being.
- Understand applicable anatomy and nerve supply
• Understand pharmacology and appropriate use of local anesthetic agents
• Describe the general attributes of local anesthetic pharmacology and its relevance to neuraxial blockade.
• Understand the dosing and toxicity of local anesthetics.
• Understand the clinical signs and symptoms of local anesthetic overdose and toxicity and how to intervene in such instances.
• Discuss the principles and indications for local anesthetic adjuvants such as bicarbonate and epinephrine.
• Describe the anatomy of TAP blocks.
• Describe the steps in the safe preparation of local anesthetic agents for neuraxial and TAP blocks
• Describe the risks and benefits of regional anesthesia compared to general anesthesia.

The OB fellow gains extensive experience in teaching and supervising anesthesiology residents of all levels during their month long rotations

Fellows are able to assign topics for daily lectures that may be given by residents, fellows, or staff. Topics vary extensively, and are often drawn from the co-morbidities of one of the patients on the unit. Other topics include: journal article reviews, literature review of a point debated during the day, research ideas, etc. Fellow(s) are also expected to attend departmental Grand Rounds and M&M conferences.

As one of the three major teaching hospital of Harvard Medical School (HMS), we also have medical students on rotation through the unit. Currently, medical students spend a morning on the unit as part of their 3rd year anesthesia rotation. Also, our service offers a 4th year one-month elective open to students from HMS and from other medical schools. The average number of senior medical students is 1 to 4 students each year. Fellows actively participate in the teaching and supervision of medical students.

Teaching Approach: The mentoring relationship of the fellow with the faculty is primary to this educational process. Medical knowledge is acquired through a range of activities including daily discussions and dialogue with attending obstetric anesthesiologists, teaching at the bedside and in the operating room, individual reading and study, and through a variety of didactic conferences offered by the anesthesia department.

We also believe that the fellow learns when s/he teaches others. Thus, throughout the year, the fellow is assigned as an educational mentor and resource to medical students, interns, and residents. This takes place in the OR’s, and on the floors.

An extensive library of obstetric anesthesia is available to the fellow on the SOAP websites. The fellow also has access to the world-renowned Countway Library of Harvard Medical School, which includes E-Commons and all the Harvard on-line journals.
**Assessment:** There are written evaluations by multiple faculty members following each rotation. Evaluations by nurses, other residents, and patients also take place in the course of the year. The obstetric anesthesia fellow is in almost daily communication with the Program Director and other obstetric anesthesia faculty. A mid-term and final written evaluation takes place between the fellow and the program director. In addition the obstetric fellow is responsible for didactic presentations on a regular basis throughout the year. These presentations are evaluated by participants in the conference.

**A3. Practice-Based Learning and Improvement**

The Fellow should demonstrate:

- Familiarity in critical reading of evidence and successfully present topics to peers
- Competence in application of evidence based medicine
- The ability to organize a functioning obstetric anesthesiology service.
- The ability to critically evaluate the clinical literature in obstetric anesthesiology.
- The ability to teach obstetric anesthesiology to others.
- The ability to carry-out a scholarly project, including study design, recruitment of patients, carrying out of a study, analyzing and publishing the results.

Obstetric Anesthesia fellows must be competent in the investigation and evaluation of their own patient care, in the appraisal and assimilation of scientific evidence, and in the improvements of patient care. Specifically, obstetric anesthesia fellows and attendings are expected to critique personal practice outcomes and demonstrate the recognition of the importance of life-long learning in practice. They should facilitate the learning of students and other health care professionals.

The fellow is generally responsible for being the ‘floor manager,’ with responsibilities including managing the staff and knowing all of the patients on the floor. The labor and delivery floor is staffed with two attending anesthesiologists and three to four residents at various stage of training. The goal of the floor manager is to assign appropriate level cases to the residents while maintaining adequate plans for unexpected emergencies. Repetition of managing the floor leads to the acquisition of the valuable ‘sixth sense’ of OB anesthesia.

Throughout the year, the obstetric anesthesia fellow is exposed to different OB/GYN providers. Each provider takes a unique approach to the same problems, giving the fellow the opportunity to learn from a variety of practice patterns. Additionally complications, unexpected outcomes, and rare events do happen. Currently, the obstetric anesthesia service performs more than 5000 procedures per year. This means that we expect to have a number of cases that require a quality assurance review. A thorough review of complications includes reading through the chart, literature review, and often
interviews with the involved parties. An important aspect of training is to learn from others’ cases. The fellow will also teach residents how to accurately document and chart in a patient’s record to ensure all patient centered information is annotated in a clear and concise manner.

One of the cornerstones of the Obstetric fellowship is that research is an essential tool for advancing the knowledge base of Obstetric anesthesia. Of equal importance, performing research keeps the researcher on the cutting edge of the field, and results in new ideas that do not have answers. The knowledge gained in this process often leads to a questioning of the ‘facts’ as described in most textbooks. Especially important is the questioning of historical dogma that may be based on anecdotal and flimsy evidence. These situations are often found when a clinical event does not meet the expectations of the textbook.

The research goals of the fellowship are:

- Fellows will receive basic and/or advanced training in statistics and research design. This training will allow the fellow to read journal articles in a critical way.
- Fellows will participate in design of a research project, or will participate in ongoing research. This includes navigating the IRB, subject enrollment, data collection, statistical analysis, and write-up.
- Fellows will submit at least one abstract to a national meeting such as ASA or SOAP.
- A fellow should have the opportunity to submit at least one manuscript for publication from the efforts of their year.

The goal of the OB anesthesia research group is to have a continuous set of projects underway. This means we expect to have one labor project, one cesarean project, and one observational or review project actively enrolling subjects. The completion of projects is usually a fellow-driven process; screening patients, enrolling subjects, and conducting a project.

**Assessment:** The fellow’s ability to learn from previous experience and mistakes is a critical component of obstetric anesthesia education. Throughout the year, the fellow is continuously evaluated, both by others and him/herself. In addition, the teaching staff has the opportunity to observe the obstetric anesthesia fellow mature as s/he passes through the various months of their fellowship. This competency is addressed on the evaluation forms. It is also emphasized that fellows have a responsibility in teaching junior colleagues and medical students.

**A4. Interpersonal and Communication Skills**

The Fellow will demonstrate:

- Communication skills that result in effective information exchange with patients, families, and other physicians
- Proficiency in discussing pros and cons of various treatment options with patients, surgeons and ancillary staff or family members
- The ability to effectively listen
- The ability to coordinate with multiple teams to facilitate delivery of patient care

Fellows are expected to learn to communicate effectively with other health care professionals, counsel and educate patients and their families, and to effectively document practice activities.

Management of the ‘high-risk’ service, while providing continuity of care is a very important task during the fellowship. We see approximately one consultation each week. Most often these are parturients with a medical, obstetric, or psychiatric problem that can make their anesthetic care more challenging. Some examples include: peripartum cardiomyopathy, placenta accreta, or von Willebrand’s disease. The fellow is expected to keep track of the high-risk parturients, construct plans for their eventual appearance on L&D, ensure that all required consultations or tests are conducted, and be present for their delivery when possible.

These skills are refined as the fellow progresses through training by interacting with faculty, patients, other residents, and members of the health care team. This interaction leads to a daily process of feedback. Again, a close one-on-one mentoring approach takes place throughout the year. The fellow both observes and is active in developing interpersonal relations with multiple people, including patients, faculty members, medical students, administrators, and residents. These interactions take place in a multitude of levels and settings, including the OR, on rounds, in didactic sessions, as well as in the halls and over coffee.

**Assessment:** Assessment of the fellow takes place via observation and evaluation by faculty, other residents, as well as other health care professionals. This competency is also addressed on the evaluation forms. Patients are asked to evaluate the fellow several times over the course of the year. Another assessment takes place when the fellow gives presentations. These presentations are evaluated by the participants.

**A5. Professionalism**

The Fellow will demonstrate:

- A commitment to carry out professional responsibilities
- An ability to obtain an informed consent

Obstetric Anesthesia fellows should develop a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diverse patient populations. They are expected to maintain high standards of ethical behavior and demonstrate a commitment to continuity of patient care and sensitivity to age, gender, and culture of patients and other health professionals. They should demonstrate a
commitment to ethical principles pertaining to provision or withholding of care, confidentiality, informed consent, and business practices.

Some of this is accomplished through the observation of teaching faculty and other residents, and some through the experience of interacting with patients, families, and other health professionals. Topics in ethics and professionalism are addressed directly in the BIDMC Resident/Fellowship Orientation, and through selected Grand Rounds topics and discussions. Throughout the year, fellows are also invited to meetings on medical ethics and professionalism sponsored by the BIDMC GME office, within the department.

These professionalism skills are evaluated by the faculty and by other members of the health care team.

**A6. Systems-Based Practice**

The Fellow should demonstrate:

- An understanding of the economic issues in obstetric anesthesiology.
- An awareness and responsiveness to the larger system of health care and effectively call on system resources to provide optimal care
- An understanding of the practice of high quality, cost-effective patient care
- Knowledge of risk-benefit analysis
- An understanding of the role of different specialists and other health care professionals in overall patient management.

We have been leaders in the field of team training. BIDMC was the lead hospital in a multi-center, national study on the influence of interdisciplinary teamwork on obstetric outcomes. In addition, the anesthesia department is heavily involved in team training through the Center for Medical Simulation, one of the first and most advanced high-fidelity simulators in the country. The OB anesthesia fellow will learn, and then help teach, the concepts and practical application of teamwork skills. S/he will be one of the primary team members interacting with the other services and will attend frequent team meeting throughout the day to ensure that the team members know about concerning anesthesia related issues that the anesthesiologists understand the important obstetric issues, and that staffing, communication and coordination of care are optimized.

The obstetric anesthesia service at BIDMC is a dynamic, evolving service, and the evolution of care in the obstetric and nursing fields often requires alterations of our practice. Once or twice a year a policy is changed to meet these demands. The OB anesthesia fellow would be expected to acquire and learn the scientific evidence behind any proposed policy changes. S/he will learn to write concise, thorough and effective policies, guidelines, and recommendations.
System-based practice is learned throughout the fellowship via a variety of venues. Fellows are exposed to obstetrical faculty who practice in both academic and private settings. They work with providers involved in the care of both private practice and indigent patients. This varied experience helps the fellow become aware of multiple and diverse approaches to obstetric anesthesia and the institutional mechanisms that impact patient care. This subject is also included in the Orientation sessions and other conferences throughout the residency as well as being part of Grand Rounds presentations.

**Assessment:** These skills are evaluated by faculty on a quarterly basis, as well as several times a year by other residents, patients, and other members of the health care team.