leading edge

Beth Israel Deaconess Medical Center

Sox Doc
Arun Ramappa, M.D., brings a passion for medicine and baseball to his role of orthopedics consultant for the World Champion Boston Red Sox.

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Fall 2005

Dreams Really Can Come True:
Rebecca Fox and Katherine and Kristina Wolinski show their "World Champion" smiles at BIDMC's Dreamday at Fenway event.

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welcome

WELCOME TO THE FIRST ISSUE of *Leading Edge*. It is a pleasure and a privilege for us to be able to provide our friends with this inside look into the remarkable physicians and programs that make up Beth Israel Deaconess Medical Center. There are so many fascinating projects happening right now at the medical center, and we are thrilled that this newsletter will be able to inform our community about the groundbreaking research advances and the superlative patient care taking place here every day.

It is Beth Israel Deaconess's mission to provide world-class care to every patient who walks through our doors, regardless of their illness or circumstances. In order to continue providing the best quality care to the community in today's challenging health care environment, we need the ongoing commitment of the BIDMC community. Your generous support allows us to fund areas like our "heart and soul" programs (geriatrics, palliative care, social work, and our affiliated community health centers) that are essential to numerous patients but are often unfunded by insurers.

These are not the only aspects of the medical center that rely on philanthropy though. Everything we have highlighted in this newsletter—from our stellar new physicians to the groundbreaking stem cell research that could affect the lives of millions—was made possible through your continuing generosity. We are truly grateful to you for your loyalty and commitment.

Sincerely,

Paul F. Levy
President and CEO

THE Faces OF BIDMC

Mark Zeidel, M.D., became chair of the Department of Medicine on July 1, 2005.

Q What brought you to Beth Israel Deaconess?

A I was actually born at Beth Israel. I grew up in the community here. I did work here when I was a fellow. I worked with BI residents as a resident at the Brigham, and when I was a fellow I rotated over here clinically. When the opportunity to lead the Department of Medicine came up, I was out in Pittsburgh running a department of medicine there. I was excited about the idea of coming back home but also about the great strength of this department and the opportunity to make the department really lift off. Those reasons were incredibly compelling to me.

Q What do you feel is the Department of Medicine's greatest strength?

A The only asset a department has is its people, and we have absolutely fabulous faculty members in every area: wonderful teachers, wonderful clinicians, and wonderful researchers. The caliber of people is just terrific. We have a superb talent pool coursing through the medical center, and the key is to develop the talent pool and make them into the next generation of superb investigators, clinicians, and teachers.

Q What are your goals for the department?

A We obviously must deliver absolutely superb patient care. We're doing a lot; we need to do more. You can't be a superb teaching or research institution unless you're really good clinically. You have no right to teach anyone how to be a doctor unless you are a terrific doctor. We have terrific doctors here. We're going to work very hard to make sure that every time, everywhere, every way the quality of care is the highest in the world. We're very passionate about that.

Q What are some of the challenges facing the department?

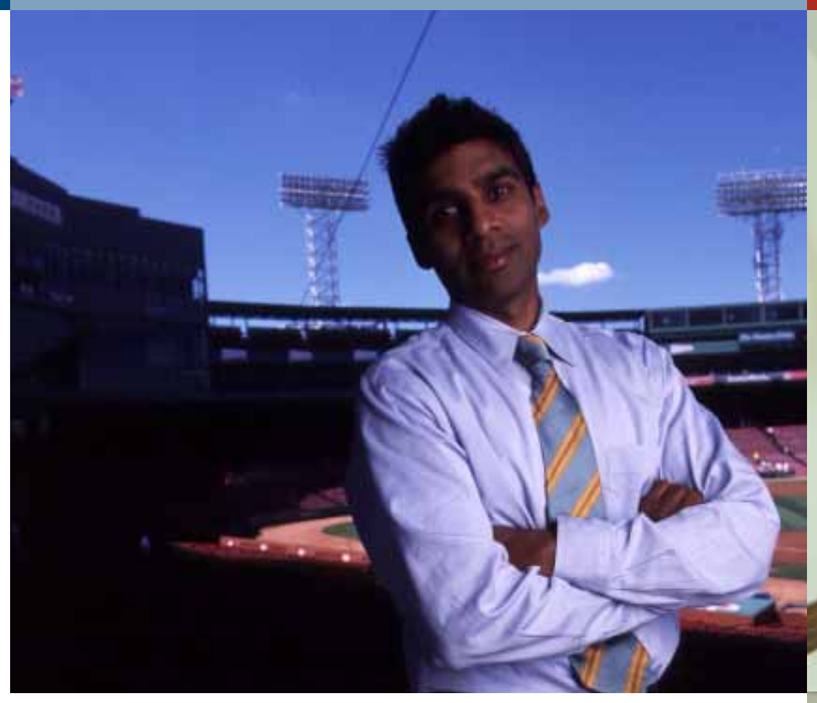
A At no hospital in Boston right now do you get an appointment right away. At this hospital, you will. We're going to work hard so that when anyone calls to be seen by any doctor, the response of the scheduler is, 'we will be happy to see you tomorrow.' There are those who feel that this cannot be done. We're going to aim for that. Bringing it down to a ten day wait is inadequate. We have to bring it down to one or two days.

Q How do you see philanthropy helping the department?

A The areas where we really need help are in research and teaching. We need to create endowed chairs. We need to have support for programs like cancer, geriatrics, and infectious diseases where we may not be able to get money from our corporate sponsors, but we need help to develop programs. And then we also need further investment in teaching, which has always been well supported here. We are leading in every area of medicine, so there are opportunities for donors to get really involved in all of them. n

Sox Doc:

Worth an arm and a leg



MOST RED SOX FANS can only shake their heads and sigh when a player goes down with an injury. Arun Ramappa, M.D., actually gets to do something about it. In addition to being an orthopedic surgeon at Beth Israel Deaconess, Ramappa is also the orthopedic consultant to the Boston Red Sox, studying and treating the shoulder, elbow, and knee injuries common in baseball.

When he came to BIDMC in the fall of 2004, Ramappa had recently finished a fellowship in sports medicine at the Steadman Hawkins Clinic in Colorado, a leader in sports medicine and orthopedics. It's no coincidence that he ended up in a city known for both its world-class medicine and its passion for baseball. He says, "During the process of interviewing, at the various places that I interviewed around the country, one of the key parts of my decision making process was to ascertain how feasible it would be for me to be involved with helping to care for a baseball team."

Even though there was no opening for an orthopedist at the Red Sox when Ramappa interviewed at BIDMC, he was drawn to the energy of the medical center's orthopedics department. "I wanted to join a practice where I'd be able to be in an environment of young, vibrant surgeons and colleagues, where the highest quality care is provided, teaching is emphasized, where pushing the envelope is emphasized—a place like this," he states. "In particular, I was drawn by Mark Gebhardt, who is the chairman of our department. I knew what kind of leader he was, and what kind of vision he has. That was one of the main reasons why I came, because I saw the opportunity here."

> "It's a very young, vibrant department... They're not only great colleagues, but also wonderful people."
>
> —Arun Ramappa, M.D.

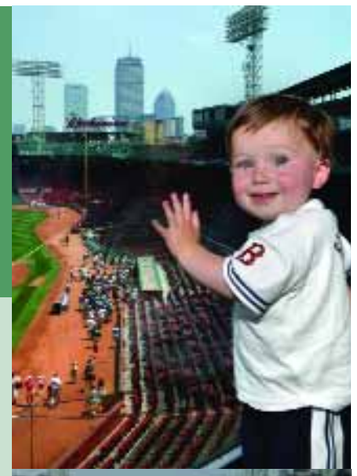
Since Gebhardt joined the medical center in 2003, the Department of Orthopedics has grown dramatically. Nationally and internationally recognized orthopedic surgeons have joined the department, including experts in sports medicine and shoulder surgery, joint replacement, trauma surgery, and orthopedic oncology.

Ramappa is quick to praise his colleagues. "It's a very young, vibrant department, and it's a pleasure to work among such talented individuals. They're not only great colleagues, but also wonderful people."

In addition to his orthopedic duties, Ramappa is also the co-director of medical research for the Red Sox. He and his colleagues are studying common baseball-related orthopedic problems, such as rotator cuff injuries, labral tears of the shoulder, and elbow ligament injuries in the hopes of ascertaining what sorts of issues players are inclined to experience and determining methods to prevent and more effectively treat both chronic and acute injuries. Their goal is to improve player performance and increase career longevity.

Ramappa is a lifelong baseball fan, having grown up in Florida following teams such as the Red Sox, Yankees, and Cubs during spring training. He says of baseball, "I always found it very intriguing. It's so synonymous with summer. It's such an American game. Some people find it slow, but I find it a thinking man's game. I don't think there's a sporting event that's more engrossing than a closely played playoff baseball game." He recounts a story of being called in to the hospital during game three of last year's ALCS and receiving game updates while in the operating room. Even after that game, he says, "I really believed, looking at the lineup, at the match ups, that the Red Sox were going to go to Game 7. Fortunately, the best team won." n

Dreamday *at* Fenway



On June 26, 2005, roughly 3000 of BIDMC's friends braved soaring temperatures to take part in a Red Sox experience available to only a select few of even the most ardent fans. Guests of all ages got the chance to try their skills in the batting cages, visit the Red Sox dugout and clubhouse, meet Sox legends Luis Tiant, Jim Rice, and Tommy Harper, and get photographed with the 2004 World Series trophy. The event was an opportunity to thank the BIDMC's most loyal supporters and to introduce new friends to the medical center. n

CyberKnife:

Honing in on cancer with new technologies

IT SOUNDS LIKE SCIENCE FICTION: a machine that targets tumors anywhere in the body and destroys them without surgery. But this technology, known as the CyberKnife System, is very real and now located at Beth Israel Deaconess Medical Center.

The CyberKnife works by delivering concentrated beams of radiation from many angles to only the tumor site. Since its radiation is targeted directly to the tumor, exposure and damage to surrounding healthy tissue is minimized. The CyberKnife's advanced guidance system uses X-rays and image-guided cameras to precisely monitor and confirm the tumor's location before delivering the beam of radiation. This amazing accuracy allows the machine to treat tumors in difficult-to-reach areas such as the brain, spine, lung, and pancreas, including tumors that were previously considered untreatable because of the surgical risks.

The new Keith C. Field CyberKnife Center houses this remarkable machine. Gloria Adelson Field, Keith Field's widow, says of the CyberKnife, "It's amazing. It's a shame that the hospital didn't have it at the time my husband had to go daily for 37 days, for over seven weeks, for radiation. Since the CyberKnife only targets the tumor and doesn't damage other parts of the body, he might have been alive today. Meanwhile, hopefully it will save many other lives in the future. Amazingly, a cousin of ours was one of the first to be treated with it."

After losing her husband to lung cancer, Mrs. Field began the Keith C. Field Cancer Treatment Fund. The CyberKnife's purchase and the creation of its new center were made possible through the generosity of Gloria Field's brother and sister-in-law, Sheldon G. Adelson and Miriam Adelson, M.D., and other family and close friends. When the Adelsons heard about the possibility of bringing the CyberKnife to BIDMC, they felt that it would be a golden opportunity to honor their brother-in-law's memory. Says Mr. Adelson, "We knew that this technology would help many people live longer and better lives. We're glad to know that Keith's memory will live on in such a meaningful way."

Mrs. Field and her husband were patients of Beth Israel Deaconess for many years. She says that she has been very pleased with the quality of care that they received, and she continues to receive, and hopes that the Cyber-Knife will bring hope and healing to many patients who are in need of this novel technology. n

planned giving

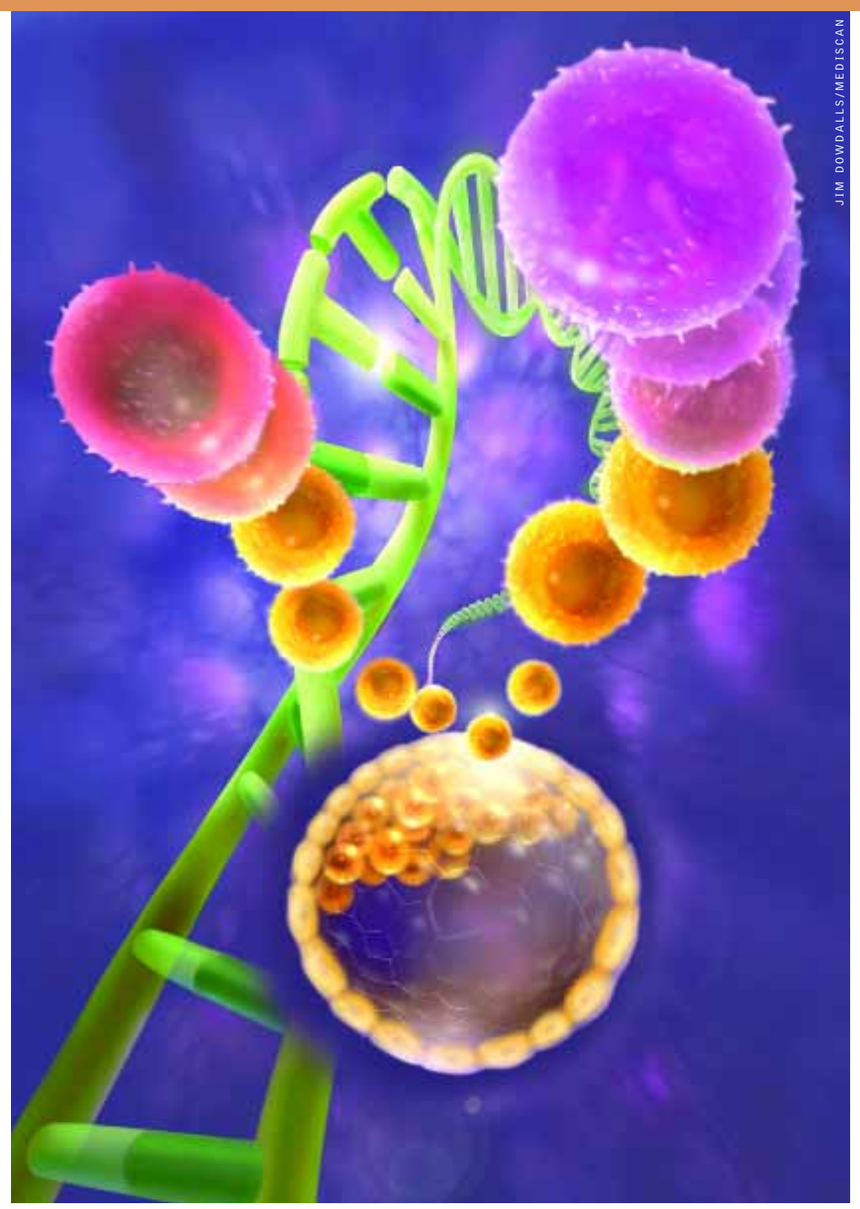
Can I make a planned gift to BIDMC that pays *me* income?

Bequests are one type of planned gift, but there are also types of gift plans that pay you income for the rest of your life. BIDMC life income gifts often offer higher income than bank CD or stock dividend rates. A life income gift also offers you an immediate tax deduction, an annual income for life, and the knowledge that you have made a gift to support the medical center's important work.

For more information on life income gifts or to request a sample calculation to fit your circumstances, contact: Greta Morgan, Director of Planned Giving, at 617-667-7395, or gmorgan@bidmc.harvard.edu.

Cell High

Stem cell research soars to new heights as scientists work to unleash its clinical potential



JIM DOWDALLS/MEDISCAN

Embryonic stem cells—illustrated here during their initial development—have the capacity to transform themselves into many different cell types. BIDMC researchers hope a better understanding of this process will lead to a new era in medical treatment.

"It's just a completely undefined cell," says Bing Lim, M.D., Ph.D. "But it's got a lot of potential." Lim, a hematologic researcher at BIDMC for almost two decades, is referring to the embryonic stem cell's capacity to differentiate into virtually any cell in the body. Yet, he could just as easily be describing stem cells' promise to transform the way we treat some of the most complex and serious diseases of our time. While this enigmatic and sometimes-controversial cell has enticed basic scientists at the medical center for years, its recent thrust into the limelight has reinvigorated hopes that their work will get the attention—and support—necessary to understand what makes a stem cell tick and ultimately realize its clinical potential.

Stem cells are the wellspring from which all the body's tissues arise. As cells in our body are damaged or die off, they are replenished in a process of division and differentiation that we are only beginning to appreciate. The term "stem" comes from the branching of a plant or tree, representing the paths a cell might take in becoming one with a specific structure and function. At the "roots," the cell is embryonic and has unlimited potential for what it might turn into, but once it's ventured out on a branch, say of the nervous or cardiovascular system, there's no going back—it can only become a cell within that system. In some of the body's tissues, this slightly more "grown-up" cell, with the ability to transform itself into even more specific cell types, is called an adult stem cell.

> "Every kind of cell in the brain sort of makes a decision: OK, I'm done, I should stop dividing now, and control of that decision is the key to understanding how we can make the brain regenerate."
>
> —Christopher Walsh, M.D. Ph.D.

Understanding just how the stem cell makes this progression to maturity is one of the biggest hurdles this field faces in making the leap from the lab to the patient. BIDMC's vision is to kick off a new era of regenerative medicine in which diseased organs and tissues can be restored using living replacements cultivated from stem cells. However, being able to manipulate these cells for therapeutic purposes will require fundamental knowledge of how they manage the process themselves. "It's not just the understanding of how the cells differentiate, but also the engineering component," notes Lim. "The engineering component is a whole different aspect: how to organize the cells and how to put them together in a way to form the kind of tissues that become useful."

BIDMC researchers are looking at the complex combination of growth factors and chemical and genetic signals that drive the process. Intrigued by how drug protocols for leukemia were conceived as a resident, Lim began to study the basic biology of hematopoietic stem cells—those found in the bone marrow—and has led his lab in the discovery of a number of novel genes that control their function. Christopher Walsh, M.D., Ph.D., a BIDMC neurogeneticist, has a similar interest in what drives the process of stem cell division and differentiation in the brain. His lab has also uncovered new genes, which are vital in determining how neural stem cells create the normal size and structure of the cerebral cortex. "Every kind of cell in the brain makes a decision: OK, I'm done, I should stop dividing now," says Walsh, "and control of that decision is the key to understanding how we can make the brain regenerate."

Regenerating brain tissue was once the stuff of science fiction, but today stem cell science seems to offer the potential for making medical fantasy a reality. "It seems fantastic to me still, but it does seem to work in our animal models," says James Morgan, M.D., Ph.D., a cardiovascular specialist at BIDMC, of using stem cells to build new muscle in damaged hearts. Four years ago, Morgan told a fellow who wanted to experiment with stem cells in his lab's heart failure models not to waste too much time with the idea. In the end, the results were "so spectacular," Morgan recalls, that today stem cell research is 95 percent of what his lab does. "I can really see how this therapy is potentially much more effective than anything we have available today," he says, "and what gets me out of bed and keeps me working in this often-frustrating area is that fact that if we as a group, all of the scientists working in this area, can turn this into a clinically applicable tool, it's going to help an awful lot of patients."

> "I don't think any scientist would argue that this is a fascinating field to be entering at this point in time."
>
> —Volney Sheen, M.D., Ph.D.

It was just this versatility that appealed to Roberta S. and Stephen R. Weiner, who recently made a $6 million gift to BIDMC, a portion of which will support stem cell research. Cancer. Parkinson's. Heart failure. The Weiners have known people touched by them all. "It pulled at our heartstrings," says Roberta Weiner. "We were fortunate in our lives to be able to do this financially. We feel blessed, and if we can help by focusing in on one area that can help so many, why not?" The Weiners hope that their contribution will be a leadership gift, inspiring other donors to follow suit and give this area a much-needed shot in the arm financially. Controversy over the source of embryonic stem cells has resulted in restrictions in federal funding for stem cell science and made the field fiercely competitive. "Very often, you can't get funding until you get the results, and then by the time you get the results, the funding is almost used up," laments Lim. "It's a Catch-22 situation." Experts fear that the promise of stem cell research may be left behind by researchers understandably abandoning the field for greener pastures. For now, private donations may be stem cell science's best hope.

Volney Sheen, M.D., Ph.D., a young neurobiologist who started out in Christopher Walsh's lab, knows personally what a difference private dollars can make. A $500,000 gift from Carol and Julian Cohen allowed him to stay at BIDMC and start his own lab, which focuses on generating and studying human neural stem cells involved in congenital brain disorders. "It just kind of snow-balled from there," says Sheen, who has been able to build upon the Cohen's generosity with other sources of funding, including a young investigator grant from the Arnold and Mabel Beckman Foundation. For his part, Sheen seems—as do many of his fellow BIDMC stem cell researchers—unfazed by the controversy and competition. He and Walsh hope with additional resources to develop embryonic stem cell lines for a range of neurogenetic disorders that they study so they don't have to be so reliant on the very limited amount of brain tissue available to them. "I don't think any scientist would argue that this is a fascinating field to be entering at this point in time," he notes.

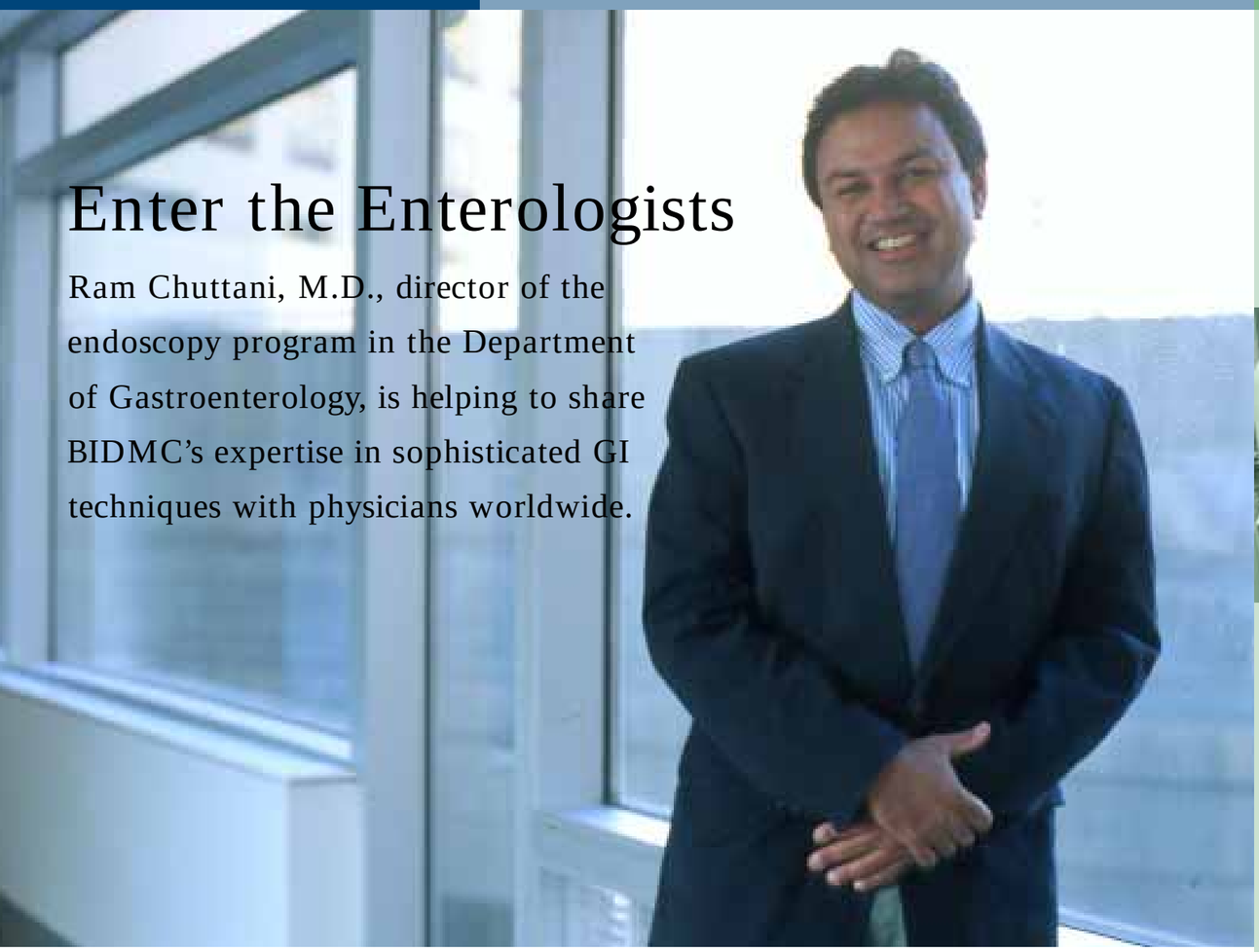
> "I can really see how this therapy is potentially much more effective than anything we have available today."
>
> —James Morgan, M.D., Ph.D.

Fascinating and full of promise, but few would argue too that we have a long way to go before stem cell science will have a major clinical impact. But for many researchers that's just what makes the field so compelling. "In science, you realize that the fastest route to something that you really, really want is unfortunately not the route that you thought was the more direct one," smiles Walsh. "You usually have to get lost before you get to where you want to go." He believes the bulk of stem cells' scientific import will come from the creation of new technologies and new insights into particularly knotty biological questions. "We're thinking about things we weren't thinking about ten years ago because of this research," agrees Morgan. "And that's how science does its dance." n

annual fund

Beth Israel Deaconess Medical Center's Annual Fund raises unrestricted dollars to support annual operating costs, fund treatment for patients unable to pay for their care, and allow the medical center to continue providing world-class patient care. It also supports specific projects, including creating continuing education scholarships for nurses, performing groundbreaking cancer research, expanding BIDMC's minimally invasive surgery suites, educating the next generation of physicians, and much more.

To learn more about the Annual Fund, please contact: Cheryl Crounse, Director of Annual Giving, at 617-667-7361 or ccrounse@bidmc.harvard.edu.



Enter the Enterologists

Ram Chuttani, M.D., director of the endoscopy program in the Department of Gastroenterology, is helping to share BIDMC's expertise in sophisticated GI techniques with physicians worldwide.

Ask Ram Chuttani, M.D., if anything exciting is happening in the Department of Gastroenterology and he happily replies, "Everything!" From employing pioneering technologies at the leading edge of nearly every aspect of GI disorders, to teaching novel therapies to gastroenterologists from around the world, to developing new, state-of-the-art facilities, Beth Israel Deaconess's GI program is at the forefront of medicine.

One type of advanced gastroenterology procedure in which BIDMC excels is the endoscopic retrograde cholangiopancreatography (ERCP), a procedure used to diagnose and treat diseases of the gallbladder, biliary system, pancreas, and liver. Chuttani estimates that BIDMC performs the second largest volume of advanced GI procedures (specifically ERCP) in the country. In addition, over 26,000 total endoscopic procedures are performed here annually, making BIDMC one of the largest volume centers in the United States. The skill and success of the medical center's gastroenterologists can be measured in the department's complication rates, which are significantly lower than the national average. For example, the published complication rate for ERCP averages around 8 percent, while at BIDMC it is just 2.6 percent. This statistic is all the more remarkable when taking into account that the medical center handles some of the toughest cases in the country, which would presumably increase the complication rate.

Beth Israel Deaconess's position as a leader in endoscopic procedures led Chuttani to initiate the Harvard Live Endoscopy Course six years ago, which then expanded to the Boston International Live Endoscopy Course. The course, which is generously sponsored by Boston Scientific Corporation and Olympus Corporation, features hands-on training simulations in endoscopy techniques and live satellite transmission of over 60 complex endoscopy cases performed by Chuttani, Douglas Pleskow, M.D., fellow colleagues at BIDMC as well as other major Boston hospitals, and international experts. Now one of the premier endoscopy courses in the world, the weekend-long course attracts physicians from all over the United States and around the globe. This year, a live satellite transmission featuring pioneering endoscopic techniques will be broadcast from Tokyo, Japan. Says Chuttani, "It's very exciting. This year, we're also going to transmit the conference to Brazil, so that South American gasteroenterologists can participate."

> Now one of the premier endoscopy courses in the world, the weekend-long Boston International Live Endoscopy Course attracts physicians from all over the United States and around the globe.

The annual conference grew out of smaller seminars that Chuttani first started when he was at Boston Medical Center. When he came to Beth Israel Deaconess in 1995, Chuttani and Pleskow began inviting five to ten new physicians biweekly to view the innovative procedures taking place in the department. Chuttani credits these conferences with building the department's reputation in the Boston medical community and beyond. He says, "The physicians who came were extremely appreciative that we taught them new techniques and how to manage difficult cases. This helped us build strong connections with the community physicians. Physicians got to know us not just for how well we did cases but also for how we talked and interacted with their patients and their patients' families. It made a huge impact."

This collaborative spirit extends into the plans for the department's expansion. The planned Center for Advanced Endoscopy, in addition to offering the latest technology and treatment, will also "be a focus of teaching, and research, where we will have a large conference room where physicians from around the world will be able to watch, with our patients' permission, as we do these advanced procedures. Hence, they will be able to learn these new technologies and take them back to their home countries." n

Sunny Hill Horse Farm Event hosted by Woody Tanger

On May 31, 2005, philanthropist and businessman Howard "Woody" Tanger hosted a dinner party for 150 guests at

his Needham home to showcase the renovation and expansion plans for BID-Needham Hospital (BIDN). The event also highlighted the extensive expertise of BIDMC and BIDN in minimally invasive surgery and allowed attendees to view an operation and to hone their own surgical skills using virtual reality simulators.

The Mary E. Lunn Heritage Society Luncheon

The Mary E. Lunn Heritage Society (MELHS) recognizes those donors who are helping to ensure a future of lasting excellence for Beth Israel Deaconess by including the medical center in their estate plans. On June 21, 2005, BIDMC hosted a luncheon at the Harvard Club of Boston for MELHS members featuring Louis Caplan, M.D., chief of the division of cerebrovascular disease at BIDMC. Caplan spoke about the risk factors for stroke.

upcoming events

September 26, 2005: Annual Meeting of the BIDMC Boards

September 29, 2005: Fundraising Auction for Judy's Hope

October 17, 2005: New Board Member Orientation

November 4, 2005: BID-Needham Annual Gala

March 12, 2006: BIDMC in Palm Beach

For more information on these and additional upcoming events, please call our events hotline at 617-667-7348.

ASK THE

Expert

Q I am a 37-year old woman who gets terrible headaches and wonder if they might be migraines. What causes migraines, how do I know if I suffer from them, and what should I be doing to treat them if I do?

The Expert: Michael Ronthal, M.D., has been a general neurologist at Beth Israel Deaconess for more than 25 years. In addition to his clinical responsibilities, Dr. Ronthal has a passion for medical education and has won numerous teaching awards.

A Broadly speaking, there are two types of headaches: primary and secondary. Migraines fall into the primary, or "benign," category, which accounts for the vast majority of headaches and also includes stress, sinus, and cluster headaches. Although these conditions may be quite debilitating, we refer to them as benign because they aren't quite so serious as secondary headaches, which are caused by an underlying pathological condition in the brain such as a tumor or hemorrhage.

Migraine is characteristically an intermittent throbbing headache, often on one side of the head and associated with an aura (typically visual hallucinations of shiny lights or zig-zag lines). Despite a broad gap in our understanding of what causes migraine, we know it involves a chemical-electrical problem in the brain, which influences blood flow, first constricting and later dilating the brain's arteries. This vascular involvement is most likely the source of the painful throbbing sensation. The aura represents a cortical dysfunction, which may or may not be associated with the headache. Rami Burstein, a researcher here at BIDMC, has done some really interesting work on the pathophysiology of migraine, which he believes involves the hypersensitization of neurons in the brain.

The first issue for someone who suspects migraine is an accurate diagnosis. Diagnosis depends heavily on history, but abnormal findings on physical examination are also important. Migraine is common and usually familial. As many as 20 percent of the adult female child-bearing population have migraine, and an association with fluctuating levels of estrogen is likely what makes women more susceptible. No test exists for migraine, but the headaches do tend to have certain characteristics that set them apart from other types, including intermittent attacks, throbbing pain, aura, photosensitivity, skin sensitivity, nausea, and vomiting. Even if you experience some of these symptoms, however, it is important to consult a neurologist to properly diagnose, and subsequently treat, migraine and to ensure that this is not a secondary headache.

If you are diagnosed as having migraine, a variety of approaches may be recommended depending upon your history and symptoms. For one, adjusting your daily activities to avoid common triggers—stress (or conversely the abrupt relief of stress), irregular meals, certain foods, and erratic sleep patterns—is always a good start. Symptomatic treatment of the headache can range from ibuprofen, which *does* work, to a new class of synthetic drugs called triptans, which are remarkably effective if taken early before the hypersensitivity that Rami studies kicks in. If the headaches are very frequent and disrupting normal life, a variety of drugs can be used prophylactically to reduce their frequency. There's even evidence now that the cosmetic phenomenon Botox improves migraine pain.

You don't need to suffer—consult your doctor! n

Have a medical question of your own? Send it to: "Ask the Expert" at amolloy@bidmc.harvard.edu.