

On the cover: LEFT Trisha Zeytoonjian, RN, Massachusetts General Hospital and Clinical Faculty Coordinator at MGH Institute of Health Professions | RIGHT Thomas Sequist, MD, Chief Quality and Safety Officer at Partners HealthCare.



Better. Together.

Our story is, at its heart, one of collaboration. From the moment that the Brigham and Women's Hospital and Massachusetts General Hospital came together to form the foundation of Partners HealthCare, we've held to the belief that by sharing our strengths we can do more for our patients, for research and medical education, and for the community. Today, more than 20 years later, this truth continues to prove itself through a wide range of extraordinary Partners initiatives, made possible by working together – within Partners, with our neighbors, with peers across the country, and with collaborators around the world.

- 3 Chairman and CEO Letter
- 10 Focus on Global
- 18 Focus on our Neighbors
- 24 Making the Case
- 30 Update: Partners eCare
- 38 Update: Opioid Crisis
- 46 Financial Overview





“But there is one area in particular that demands more creative and collaborative solutions: the devastating opioid addiction crisis in Massachusetts.”

Dear Colleagues,

This year's annual report is about the collaboration that occurs within and across the organizations that compose The Partners HealthCare System. It happens in clinical care as we work to cure disease and improve the health of our patients – while also working to control health care costs and be efficient stewards of our resources. It happens in the research and teaching we do, and through the relationships we've built in our communities.

But there is one area in particular that demands more creative and collaborative solutions: the devastating opioid addiction crisis in Massachusetts. Every day, six people die from narcotic overdose in communities across Massachusetts. People who are afflicted by this burden suffer from a debilitating chronic illness, not a character flaw or case of bad choices. It is an illness and we must treat it the same way we treat diabetes, hypertension, or cancer. At Partners, we are doing our part to treat patients with substance use disorders. But we need to do more.

That's why we are pleased to be a founding member of the coalition responsible for RIZE Massachusetts, a nonprofit foundation with the ambitious goal of eliminating the stigma and reducing the prevalence and death rate associated with heroin addiction. In addition to making a significant financial contribution, we will be lending our expertise to the effort, bringing promising new treatments to scale, educating clinicians, testing new ideas, and tracking outcomes to demonstrate efficacy. It is our hope that in next year's annual report we will be able to describe some of the progress being made in the fight against this epidemic, which directly or indirectly touches nearly every family in the Commonwealth.

An annual report is an opportunity to reflect on the year's accomplishments and to set our sights on our next objectives. The partnerships and collaborations that happen every day between our institutions are the essence of what makes Partners a leading health care organization. Here's to more of them. People are depending on us.

Sincerely,



Edward Lawrence
Chairman, Board of Directors
Partners HealthCare



Dr. David Torchiana
President and CEO
Partners HealthCare



RESTOR HOPE



RING

Collaboration Enables Landmark Transplant

BRIGHAM AND WOMEN'S HOSPITAL

SPAULDING REHABILITATION HOSPITAL

In August 2016, a Brigham and Women's Hospital (BWH) team of 12 surgical specialists accomplished what only recently became possible: a bilateral arm transplant. With one surgery, BWH doctors restored much of the function lost by an Iraq/Afghanistan veteran in 2010, along with his hope for the future.

The 14-hour procedure could work only as a joint effort across departments and institutions. "You couldn't find a more collaborative model in patient care," said Simon Talbot, MD, Director of BWH's Upper Extremity Transplant Program, who led the surgical planning process along with David Crandell, MD, Medical Director of the Amputee Program at Spaulding Rehabilitation Hospital (Spaulding), who was responsible for the post-surgical rehabilitation. The success of the procedure also depended on the commitment of anesthesiologists, nurses, intensive care physicians, a dermatologist

Left: David Crandell, MD,
and Simon Talbot, MD.

who specializes in limb rejection, and physicians expert in immunosuppression. After the surgery, Spaulding occupational therapists and physical therapists stepped in – in partnership with BWH – to guide the patient through the months-long rehabilitation process.

The surgery itself closely followed a script the surgical team created through careful planning. Surgeons started the procedure by equipping the ends of the patient’s arm bones with plates, which were then connected to a donor’s arm bones. They attached the arteries and veins, watched for the donor hands to turn pink, then repaired the muscles and nerves, and sewed the connecting skin closed. That’s when the patient’s recovery began, closely coordinated by nurses, nurse care coordinators, and social workers at BWH and Spaulding.

The care team estimated 3–6 months of rehabilitation, including therapy to help the patient regain core and shoulder strength

and remaster daily tasks such as dressing and grooming. Overcoming challenges that included pain and limb rejection, the patient met every milestone and recently returned home.

For the physicians and care team involved, the procedure marks an important landmark in the advancement of upper extremity transplant – a medical area that has evolved significantly over the past six years. The case strengthened collaboration among the departments and specialty areas, helping to further delineate the roles of every caregiver involved. Through education sessions, Dr. Talbot has been sharing lessons learned during the surgery with colleagues across BWH and beyond. “By strengthening the bonds between specialists and the cross-pollination of innovative ideas, we have improved care for all patients impacted by limb injury,” he notes.

Below: *The sixteen-person team post surgery.*

By strengthening the bonds between specialists and the cross-pollination of innovative ideas, we have improved care for all patients impacted by limb injury.



When Amputation Becomes Treatment

BRIGHAM AND WOMEN'S FAULKNER HOSPITAL | SPAULDING REHABILITATION HOSPITAL
MIT MEDIA LAB CENTER FOR EXTREME BIONICS

Rock-climbing Maine resident Jim Ewing has had many trails named after him over the years. After a climbing-related fall two years ago, Ewing and his Brigham and Women's Faulkner Hospital (BWFH) care team became trailblazers of a different sort, completing an experimental procedure that is now known as the Ewing Amputation.

Ewing's BWFH physician, Matthew J. Carty, MD, Director of Brigham and Women's Hospital (BWH) Lower Extremity Transplant Program in the Division of Plastic Surgery and a plastic surgeon at BWFH, was the first clinician open to discussing amputation as a treatment option for Ewing's severely injured leg. "He was thorough and compassionate in a way I hadn't seen with other surgeons – he listened to me," notes Ewing.

Together with the Massachusetts Institute of Technology (MIT) Media Lab Center for Extreme Bionics and with funding from the Gillian Reny Stepping Strong Center for Trauma Innovation at BWH, Dr. Carty devised a pioneering amputation that integrates with a novel robotic prosthetic developed by the MIT Center. The procedure was completed at BWFH in July 2016 by Dr. Carty – along with other plastic, orthopedic, and vascular surgeons – and included the creation of biological pulley systems to maintain natural linkages between the muscles in the residual limb. These linkages, in turn, enable Ewing's muscles to signal his brain when the prosthetic moves, just as if it were a part of his body, facilitating natural movement, control, and sensation.



The new approach represents not only a medical technology innovation, but also a major step forward for amputations, which typically sever critical brain-muscle connections. "By reinventing the way amputations are performed, we hope to elevate them to the status of another form of limb salvage that restores as much function as possible," says Dr. Carty.

Ewing is not only walking with his robotic prosthetic, but climbing – for now, on gym walls – with far less pain.

Ewing is not only walking with his robotic prosthetic, but climbing – for now, on gym walls – with far less pain, more confidence, and the knowledge that the Ewing Amputation is poised to help other patients.

Background: Patient Jim Ewing climbing rock wall with his new prosthetic.



The innovative and successful surgery now provides Partners' surgeons with an option to help, heal, and restore patients.

New Hope for Genitourinary Loss

MASSACHUSETTS GENERAL HOSPITAL
Interdepartmental collaboration

Men who have lost genitalia to cancer, trauma, or infection have had few options for long-term relief. Though it's possible to live without an intact external organ, the loss carries a psychological burden that can be devastating. With a landmark genitourinary vascularized composite allograft (GUVCA), or penile transplant, a team of surgeons at Massachusetts General Hospital (MGH) gave new hope to one genitourinary-loss patient – and others like him.

Patient Thomas Manning had undergone a penectomy in 2012 as treatment for penile cancer. In May 2016, he underwent the 15-hour transplant operation, which culminated years of collaboration and planning between Plastic and Recon-

structive Surgery and Urology. This was completed in partnership with Psychiatry, Infectious Diseases, Nursing, and Social Work within the MGH Transplant Center. Led by surgeons Curtis L. Cetrulo Jr., MD, and Dicken S.C. Ko, MD, the team reconstructed the microscopic vascular, neural, and urologic structures of a donor organ to restore Manning's functionality. They began researching the possibility of a GUVCA transplant in 2012, building on Dr. Cetrulo's successful hand transplant surgery as well as MGH's growing track record of pioneering vascularized composite allografts. The innovative and successful surgery now provides Partners' surgeons with an option to help, heal, and restore patients.

Detox Help Through Partnership

MARTHA'S VINEYARD HOSPITAL | MARTHA'S VINEYARD COMMUNITY SERVICES

A new agreement signed November 2016 by Martha's Vineyard Hospital (MVH) and Martha's Vineyard Community Services (MVCS) grants island residents in need of detox support and other resources immediate access to two off-island treatment centers in Falmouth and Fall River. Unlike any other support service on the island, this new partnership helps reduce barriers such as cost, transport concerns, and long waiting lists for Vineyard residents needing access to these vital services. "Developing and creating access to this much needed detox program is the direct result of a collaborative effort," says Joseph Woodin, President and CEO of MVH. "I am really encouraged by these enhanced partnerships."

Harnessing Healing with Music

SPAULDING REHABILITATION HOSPITAL | MEDRHYTHMS

A new Spaulding Rehabilitation Hospital (Spaulding) partnership with Boston and Portland, Maine-based MedRhythms is making use of music's deeply rooted neural pathways to help heal brain tissue injured by trauma or illness. The Neurologic Music Therapy (NMT) Program harnesses the neuroscience of music therapy – which recognizes music as a hard-wired brain language – in therapeutic applications that address the cognitive, sensory, and motor dysfunctions triggered by stroke, conditions like Alzheimer's or Parkinson's Disease, or traumatic impact. In therapy sessions, patients engage in activities such as clapping or walking to the beat of played music, which fire the motor centers of the brain as they process the sounds of external rhythm. The activities help enhance and restore cognitive functions, including memory, attention span, and focus.

The newly launched outpatient program follows on the heels of Spaulding's successful inpatient NMT program, the first of its kind in the nation. "Spaulding has always been at the forefront of technologies and treatments for people recovering from trauma," says Rob Welch, Senior Vice President of Outpatient Services at Spaulding. "With this outpatient service, we can continue music-associated rehabilitation months and years out from patients' injuries."

In therapy sessions, patients engage in activities such as clapping or walking to the beat of played music, which fires the motor centers of the brain.



FOCUS ON

GLOBAL

The Walton Global Health Administration Fellowship: Medication Safety, from Boston to Haiti

Through the Walton Global Health Administration Fellowship – developed by Brigham and Women’s Hospital (BWH) Division of Global Health Equity in collaboration with Partners in Health –, Samahel Joseph, Director of Pharmacies for Hôpital Universitaire Mirebalais (HUM) in Haiti, recently traveled to Boston to develop a medication safety improvement project for HUM. For three months, Joseph shadowed BWH pharmacy leadership to learn medication safety processes that could be adapted to meet his hospital’s more limited resources. Applying the principles he learned from the BWH team, Joseph returned home and created a simple, paper-based color-coding system to administer bedside medication at his hospital, reducing missed medication doses from 72 percent to just five percent.

93%

DECREASE IN MISSED MEDICATION DOSES



World Forum Convenes Global Neuroscience Leaders

Partners convened global neuroscience leaders in March 2017 for the World Neuroscience Innovation Forum in London. The Forum, hosted in partnership with the Francis Crick Institute, brought together top minds from the corporate, academic, government, and investment sectors, sparking new insights, therapeutic paths, and collaborations – with the ultimate aim of combating neuroinflammation and neurodegeneration.

McLean Joins Forces with Another Brain Research Leader

In September 2016, McLean Hospital joined with Israel’s Weizmann Institute of Science, a world leader in brain research, in an alliance that will further the understanding of neuropsychiatric disorders and treatments. By combining basic pre-clinical and clinical research resources in genetics, biology, bioimaging, and neuroscience, the alliance will take targeted research from the lab bench to care at the bedside.

How does a New England-based health care system make its mark in the world? By reaching out in times of need and bringing new knowledge and innovation to colleagues across the globe.



MGH Responds to Hurricane Matthew

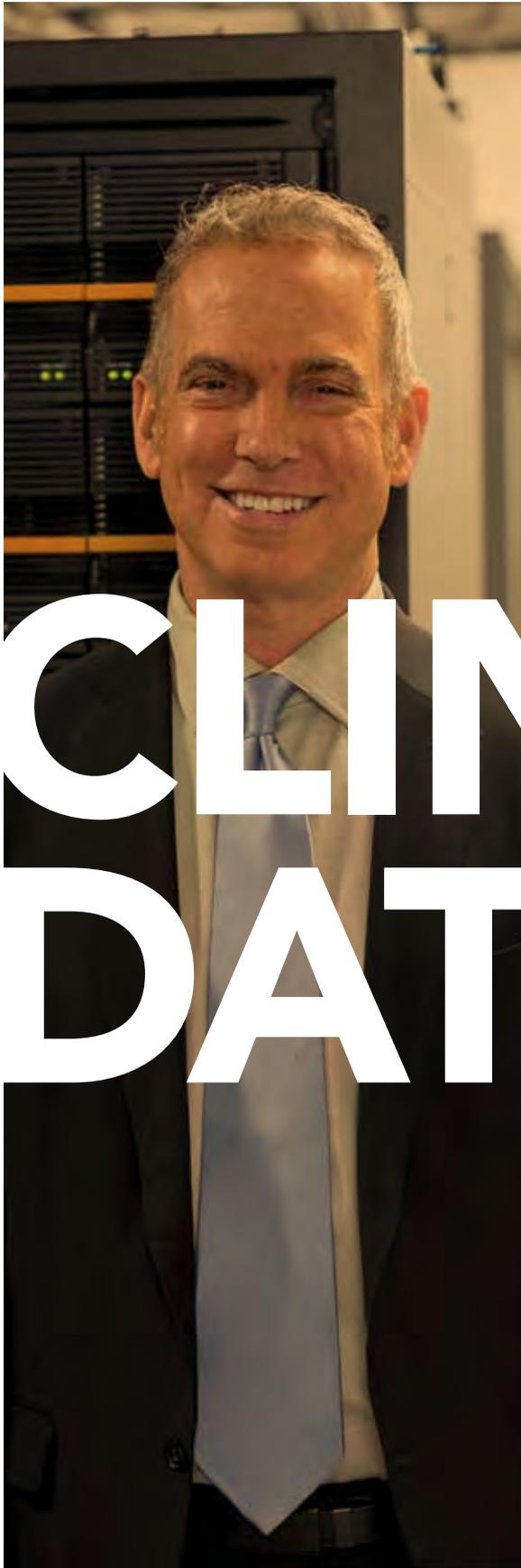
Massachusetts General Hospital's (MGH) long history of preparing for and responding to disasters was once again on display when five MGH staff members traveled to Haiti in October 2016 in the aftermath of Hurricane Matthew. "On disaster missions such as this, nurses often represent the last ray of hope for patients and their families," says Joy Williams, RN, member of MGH's Global Disaster Response Team. "We save lives while at the same time share their overwhelming emotional ride of joy and gratitude."

The volunteers worked with the St. Boniface Haiti Foundation, the International Medical Corps, and Project HOPE, touring medical facilities and coordinating aid based on need. In addition, another 10 MGH volunteers were deployed in the U.S. via the federal DMAT MA-1.

Sharing Knowledge, Passion with a Country in Need

Through the Human Resources for Health Program (HRH), a partnership between Brigham and Women's Hospital (BWH), the Rwandan Government, Harvard Medical School, and more than 20 other U.S. academic institutions, BWH anesthesiologist Jill Lanahan, MD, recently relocated to Rwanda for one year to train the next generation of anesthesiologists in the capital Kigali. Through the program, Dr. Lanahan combines didactic training for residents with clinical training in the operating room, to enhance knowledge and interest in anesthesiology among Rwanda's clinicians. Her training brings the expertise of BWH, which has more than 100 anesthesiologists on staff, to a country with only 20 anesthesiologists. By participating in the HRH program, Dr. Lanahan joins 50 other BWH faculty members who have invested in health care training in Rwanda over the last five years.





CLINICAL DATA

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Personalizing Patient Care in New Ways

THE CENTER FOR CLINICAL DATA SCIENCE

BRIGHAM AND WOMEN'S HOSPITAL

MASSACHUSETTS GENERAL HOSPITAL

Learning to recognize suspicious signs on mammograms or chest scans is a time-consuming rite of passage for radiologists-in-training. As they scour hundreds of images, they learn to spot the subtleties that separate benign nodules from more malignant markers.

These skills are critical to patient care. But what if supercomputers – trained in the same way to recognize patterns and diagnose and treat disease – could help doctors become faster and more accurate? A new initiative between Brigham and Women's Hospital (BWH) and Massachusetts General Hospital (MGH), the Center for Clinical Data Science, under the leadership of Mark Michalski, MD, Center Director, and Keith Dreyer, DO, Vice Chairman of Radiology at MGH, is working to do exactly that.

Tapping into the power of artificial intelligence, the Center works with IT companies,

Left: Keith Dreyer, DO,
and Mark Michalski, MD.

We are training these algorithms to 'see' patient data in a way that we as humans can't always appreciate.

along with industry experts and data engineers, to analyze patient data in new ways that help answer medicine's most pressing questions. Researchers are applying computational algorithms to more efficiently spot signals, make diagnoses, and observe patterns within patients' conditions. These algorithms can imitate the human brain's neural network, and in some instances, can spot trends more efficiently than human researchers. This enables physicians to streamline their interpretations of diagnostic reports such as radiology scans and achieve greater insights. "We are training these algorithms to 'see' patient data in a way that we as humans can't always appreciate," says Dr. Michalski.

Combined with genomics research underway throughout Partners, the Center's work hopes to personalize patient care by matching each patient's clinical and genetic profile to the most effective treatment option across a range of conditions. Patients can be more precisely treated with the drugs most likely to work for their variation of a disease, and patients' responses to therapy can be more closely predicted, tracked, and understood.

Currently, the Center's team is working closely with colleagues across both



Above: *The Center for Clinical Data Science team.*

BWH and MGH to identify the most pressing – and highest potential – applications for the algorithms. Drs. Michalski and Dreyer believe applied artificial intelligence will soon be a standard of care that significantly enhances patient outcomes across the Partners System. "This approach may optimize the entire care process, including diagnostic tests, treatment regimes, clinical care pathways, and overall population health," Dr. Dreyer says.

Tracking Health, From Birth

BRIGHAM AND WOMEN'S HOSPITAL | BOSTON CHILDREN'S HOSPITAL

For decades, newborn babies have had a heel-stick in the hospital, providing a drop of blood to be tested biochemically for rare diseases. Now, thanks to a National Institutes of Health (NIH) grant and a rich collaboration between Brigham and Women's Hospital (BWH) and Boston Children's Hospital (BCH), researchers are working to define how genetic sequencing can be added to these standard tests to screen for additional childhood disorders, as well as genetic changes that could affect a child's response to medications.

The BWH/BCH partnership, called the BabySeq Project, is one of four research initiatives across the country within the NIH's Newborn Sequencing in Genomic Medicine and Public Health (NSIGHT) consortium. The effort seeks to identify how this technology can be effectively and appropriately incorporated into standard newborn screening. The BabySeq Project is structured as a randomized clinical trial and is co-led by Robert Green, MD, Director of the Genomes2People Research Program at BWH and Alan Beggs, PhD, of BCH. So far, the Project has enrolled over 200 families with newborn infants. With each baby, the Project evaluates their DNA to analyze approximately 1,000 genes associated with childhood-onset diseases.

Along with genomic data from ill babies in neonatal intensive care at both hospitals and healthy babies from BWH, the researchers are gathering complementary survey information from families. Together, these data will answer three categories of questions: whether sequencing information is tied to ultimate medical outcomes in the infants as they develop; how families' behaviors may change based on the

information they receive; and whether this knowledge ultimately carries economic impact, such as greater spending on diagnostics as the children develop.

Ultimately, the combined information from all four NSIGHT projects will better inform best practices in clinical care and guide clinicians around the country as genomic sequencing becomes less expensive and is more frequently implemented. "Geneticists, as a rule, are big on collaboration and sharing," says Dr. Green. "With this consortium, four different projects see these questions of applied genomics through a different lens, to inform our collective understanding as this technology becomes more and more pervasive."

With each baby, the Project evaluates their DNA to analyze approximately 1,000 genes associated with childhood-onset diseases.



Above: Robert Green, MD, Director of Genomes2People Research Program, and Shawn Fayer, MS, Project Manager.

Breakthroughs, Recognized

BRIGHAM AND WOMEN'S HOSPITAL

Nearly every one of the major advances in human health over the past century is due, in parts large and small, to basic research. For one Brigham and Women's Hospital (BWH) scientist, the far-reaching impacts of his own basic research – on DNA damage and self-repair – were highlighted on the national stage. In December 2016, Stephen J. Elledge, PhD, of BWH's Division of Genetics, was recognized with the 2017 Breakthrough Prize.

The \$3 million award, said to be the largest in the world for science, recognizes "paradigm-shifting discoveries in the life sciences, physics, and mathematics." In Elledge's case, his wide-ranging contributions have impacted multiple fields in biology, providing a foundational understanding of how cells detect when their chromosomes are broken, then initiate self-repair. This insight elucidates important mechanisms in cell division, aging, cancer growth, and protein breakdown.

Dr. Elledge's frequent collaboration across Partners – from the BWH Divisions of Genetics and Infectious Diseases to the



Cancer Center at Massachusetts General Hospital – ensures that patients ultimately benefit from the discoveries. Drugs involving two of the proteins discovered are currently in clinical cancer trials.

For Dr. Elledge, who plans to apply a significant portion of the Breakthrough Prize funds to philanthropy focused on science education, the opportunity to advance medicine is its own reward. "Basic research can have a profound impact, not only in promoting scientific knowledge, but also in improving health," says Dr. Elledge. "It is deeply gratifying to be part of it."

NIH Grant Addresses Patient Diversity

PARTNERS HEALTHCARE

In October 2016, Partners HealthCare received National Institutes of Health (NIH) funding as one of four medical centers in the NIH's Precision Medicine Initiative (PMI) Cohort Program. A longitudinal effort aimed at engaging over one million U.S. participants, the program is dedicated to enhancing disease prevention and treatment by recognizing patient diversity – from lifestyle and environmental differences to genetic variation. In its selection, Partners was recognized for expertise in engaging racial and ethnic minority populations historically under-represented in biomedical research.

Accelerating Cancer Innovation

PARTNERS HEALTHCARE INNOVATION
System-wide collaboration

As the increasing pace of change in medical innovation uncovers breakthroughs poised to transform care delivery, Partners Innovation created the Disruptive Dozen project to identify and accelerate breakthroughs with the highest potential to impact patient care. The project harnesses the expertise of leading Partners physicians and researchers to review and select 12 disruptive technologies – drugs, diagnostics, or procedures – most likely to revolutionize how we understand and treat certain conditions over the next decade.

In 2016, the Disruptive Dozen highlighted the top 12 “game-changing” innovations in one of medicine’s most pressing and promising areas: cancer research and care. After filtering the pool of technologies down from 34 nominations, the selection committee announced the official 2016 Disruptive Dozen during a panel presentation at the World Medical Innovation Forum. The selected innovation areas include nanotechnology, mHealth, single-cell molecular profiling, and epigenetics – all expected to play a critical role in near-term cancer discovery. In 2017, the World Forum and Disruptive Dozen will recognize leading-edge innovation in cardiovascular and cardiometabolic disorders. The third annual World Medical Innovation Forum will be held this May in Boston, Massachusetts.

Technology as Treatment

MCLEAN HOSPITAL
INSTITUTE FOR TECHNOLOGY IN PSYCHIATRY

To harness the potential of technology to transform psychiatric care, in June 2016 McLean Hospital launched the Institute for Technology in Psychiatry (ITP). The Institute will provide key services to McLean Hospital investigators and clinicians who want to implement “smart technology” – smartphones, wearable devices, and tablets – to advance mental health care and research.

For clinical care, the ITP will focus on using digital tools, such as Internet-based therapy, telecommunications, and apps, to enhance treatment and monitor progress. For research, the Institute will identify new ways that technologies can quantify normal and abnormal behavior, and standardize how patients are tracked through research.

The partnership is bringing leading minds in technology and science together to improve the lives of those affected by psychiatric illness. “The goal is to ensure that new approaches are being tested in ways that are grounded in real-world mental health treatment settings,” says Justin T. Baker, MD, Scientific Director.



Background: Participants at the 2016 World Medical Innovation Forum.

FOCUS ON OUR

NEIGHBOR

MGH Institute of Health Professions Fellows Build Community Connections

As Albert Schweitzer Fellows, three MGH Institute of Health Professions (MGH IHP) students are spearheading projects to address unmet community health needs. Through the competitive program, the MGH IHP Fellows are working with at-risk students in Chelsea, creating a dance program for children in Charlestown, and establishing a mind-body wellness program for Boston's Chinese community. "As health care providers, we must advocate for the communities we serve," says Esther Jarvis, a Fellow and nurse practitioner student. To date, 39 MGH IHP students have been named as Fellows in the prestigious program, which is dedicated to addressing health inequities.

*Right: Stephanie Campbell, Valerie Rucker, Esther Jarvis.
Photo credit: Karen A. Spiller/The Albert Schweitzer Fellowship.*



BWH Health Equity Grants Reduce Socioeconomic Health Barriers

With grants awarded to 14 local nonprofits, the Brigham and Women's Hospital (BWH) Center for Community Health and Health Equity is helping to address the economic and social issues that can compromise good health within the community. A total of \$1.9 million over three years was pledged to organizations working to improve the wellness of children and adults through various initiatives in five Boston neighborhoods.

RS

The work we do at our hospitals and laboratories every day is life-changing. So are the partnerships that bring better health directly to the people in our own neighborhoods.



MGH Program Adapts Care to Meet Autism Patients' Unique Needs

With the goal of improving care to patients with autism spectrum disorder (ASD), the new Autism Care Collaborative (ACC) at Massachusetts General Hospital (MGH) is enhancing and individualizing care for children and adults with the disorder. Among other ACC interventions, an Autism Care Questionnaire identifies strategies to personalize the care for each patient, while a trained navigator acts as a liaison and resource for patients and staff to integrate the use of ASD-friendly care strategies hospital-wide.



With Project Bread, NWH Delivers Nutrition for Community's Children

More than 400,000 Massachusetts children benefit from free or low-cost school meals. When summer comes, however, good nutrition is harder to find. With the Summer Food Service Program, in partnership with Project Bread, Newton-Wellesley Hospital (NWH) is working to keep children and families well-nourished during the summer months by delivering healthy breakfasts, lunches, snacks, and dinners to low-income children in Waltham.

NWH Project Provides Mental Health Resources for Local Adolescents

As awareness of the mental health issues faced by adolescents grows within Partners' communities, a new Newton-Wellesley Hospital (NWH) initiative, The Resilience Project, is providing mental health resources for students at six local high schools. Through NWH's Division of Child and Adolescent Psychiatry, trained professionals work closely with schools and families to help prevent and manage mental health problems.



SHATTE STIGMA

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Exhibit Demystifies Mental Illness

MCLEAN HOSPITAL

COMMUNITY PARTNERS

One in five Americans will experience mental illness – yet stigma and shame remain persistent barriers to their treatment. A McLean Hospital campaign, launched in December 2016 in collaboration with several mental health advocacy organizations, is flying directly in the face of those barriers with an art exhibit installed at Boston’s busy Logan International Airport.

“Deconstructing Stigma: A Change in Thought Can Change a Life,” a 235-foot gallery installed in the corridor between terminals B and C, features more than 40 oversized images and stories from people impacted by all forms of mental illness – from entertainers such as Howie Mandel and Rick Springfield, to a variety of everyday people, including a fashion designer, a mother-of-two, a psychologist, and a hair dresser. The exhibit uses powerful quotes such as, “You’re no different than me,” and, “I’m not crazy for feeling this way,” to draw attention to the misconceptions

ngStigma.org

that so often accompany mental health conditions. The quotes are accompanied by personal stories that humanize the experience of mental illness while shedding light on the challenges individuals and families face in seeking care. Together, they convey one critical, collective message: mental illness can affect anyone.

“This initiative is going to empower,” said participant Darryl “DMC” McDaniels, founding member of Run-DMC, at the exhibit’s December opening. McDaniels tells his story through one of the exhibit’s displays. “When people see these stories, they’re not going to be afraid [of mental illness].”

More than 1,000 travelers see the exhibit each day, and the campaign’s messages have reached more than a million people via its website, DeconstructingStigma.org, Twitter, and national media articles. Plans are underway to take the exhibit’s messages to the national stage through similar exhibits at other airports.



With Volunteering, a True Contribution

MASSACHUSETTS GENERAL HOSPITAL
Interdepartmental collaboration

At Massachusetts General Hospital (MGH), the pink jackets identifying volunteers have also become symbols of Partners’ commitment to helping everyone reach their potential.

A new partnership welcomes people with disabilities to contribute, meaningfully and visibly, to the hospital community. Helen Weiner, LICSW, Advocacy Advisor of the Down Syndrome Program, works closely with Jackie Nolan, Director of the Volun-

A new partnership welcomes people with disabilities to contribute, meaningfully and visibly, to the hospital community.





teer Department, to help identify how to meet the needs of individuals with Down syndrome in their capacity as volunteers by adjusting the registration systems, preparing them for interviews, and providing a buddy program with seasoned volunteers. At this point, volunteers Ben Majewski and Ned Reichenbach have joined the program, bringing enthusiasm and determination to roles such as manning the patient book cart. More volunteers are expected to join the program and extend its reach to other areas of the hospital.

The Program's champions say it's a natural extension of the MGH Down Syndrome Program, which integrates state-of-the-art resources with compassionate, comprehensive care for individuals. "This partnership validates the vision of full potential and all that is possible for someone who has an intellectual disability," says Weiner.

Above: MGH volunteers Ned Reichenbach and Ben Majewski.

Care Circle Expands Support

NEIGHBORHOOD HEALTH PLAN

For at-risk individuals – which include the top five percent of Neighborhood Health Plan's (NHP) members – complex health needs, emergency room visits, lengthy hospital stays, and underuse of behavioral health services contribute to rising costs, and often, poorer outcomes. With an innovative program called Neighborhood Care Circle, NHP seeks to remove the social barriers that these members often face in receiving timely, coordinated care by connecting them with physical, psychological, addiction, and social resources in their community. With the help of a Neighborhood Care Circle team that includes a medical, social, and behavioral health care manager, a community health worker, and as appropriate, a recovery specialist, dietician, and rehabilitation nurse, members receive a wide range of support – from transportation to assistance securing safe housing. Early data indicate that the interventions are helping both to enhance well-being and lower health care costs among these patients.

WHY QUALITY AND COST ARE PART OF THE SAME CONVERSATION

MAKING T



Partners is committed to making health care better, here and across the globe. We are facing critical questions about the future of health care head-on, acting as advocates at the state, national, and global level, while also looking at our own practices and costs. We believe good public policy can be made only with accurate facts, and that the goals of cost containment and quality care are, in fact, complementary.

Torch Makes His Pitch

Citing carefully researched data on cost, quality, and affordability, Partners HealthCare CEO David Torchiana, MD, sat down with *CommonWealth Magazine* to explain our economic value. During the interview, Dr. Torchiana reviewed the challenges of the complex health care payment system and the painful implications of a ballot question that would have instituted price controls on hospitals. He noted that Massachusetts' health care cost growth has stabilized in recent years and that aggressive interventions could have negative long-term consequences.

Above: *Partners HealthCare*
CEO David Torchiana, MD.

Facts About Health Care Costs

There's no question that health care costs must be controlled. At Partners, we're actively doing our part by delivering patient care through new payment models like accountable care organizations, shared risk arrangements, and population health management.

While there's still much more to be done, Massachusetts is making progress. Commercial health care spending has held at two percent or less for the last four years, out-of-pocket medical expenses are among the lowest in the U.S., and, relative to median household income, commercial health care spending premiums in Massachusetts are low compared to other states.

THE CASE

Understanding Partners' Market Power

Partners provides care to approximately 22 percent of the eastern Massachusetts marketplace based on inpatient hospitalizations. Every one of our major hospitals has a competitor within a few miles, and when you compare Boston teaching hospital prices to those of competitors around the country, we're on the low end of the spectrum.

22%

APPROXIMATE CARE PROVIDED
BY PARTNERS TO EASTERN
MASSACHUSETTS MARKETPLACE

Distinguishing Quality

Partners puts patient care first. When asked in a standard national government survey, "Would you recommend this hospital to friends and family?" Massachusetts General Hospital (MGH) was in the 97th percentile and Brigham and Women's Hospital (BWH) in the 90th. These are surprisingly high numbers given that academic medical centers typically score lower than community hospitals because of their size and complexity. Who's a better judge of our quality than the patients who have experienced our care?

First, Do No Harm

As 2016 came to a close, Dr. Torchiana took to the *Boston Globe* op-ed page to make a stand on the current state of Massachusetts health care costs, calling for a measured, informed path forward as the Commonwealth considers price variation in health care. "When you add it all up, our health care system is one of our state's greatest assets across multiple dimensions – affordability, access, quality and scientific and economic productivity," Dr. Torchiana wrote.

Doing Our Part

In this unpredictable health care landscape, we will continue to hold ourselves accountable to our patients and to the Commonwealth, be transparent with our efforts to guide policy, and play a leading role in conversations that directly affect our patients. Through megaphones like our Connect With Partners blog, as well as our relationships with patients and policymakers alike, Partners will advocate for the best patient care, cutting-edge research, innovative and collaborative teaching, and continue addressing the needs of the communities we serve.



LEARNING TEAMS



MGH

Lessons in Collaboration for Care

MASSACHUSETTS GENERAL HOSPITAL

MGH INSTITUTE OF HEALTH PROFESSIONS

HARVARD MEDICAL SCHOOL

As the benefits of team-based care for patients become more widely recognized, a new educational approach at the MGH Institute of Health Professions (MGH IHP) is showing future clinicians how to practice collaboratively through hands-on experience.

As part of Interprofessional Dedicated Education Units (IPDEUs) on Massachusetts General Hospital (MGH) inpatient floors, MGH IHP students studying a range of disciplines – nursing, occupational therapy, physician assistant studies, physical therapy, and speech-language pathology – learn together in teams with students from Harvard Medical School. Under the direction of MGH nurse and rehabilitation clinician instructors, the students review patient records, observe care encounters and communication with patients' families, and participate in activities such as patient mobilization and assessment of speech or swallowing. The patients they observe are

Left: MGH IHP students.



often medically complex, which helps shed light on how clinicians across the health professions share roles and responsibilities for care in an acute setting.

Each interprofessional experience concludes with a facilitated debriefing session,

during which all students reflect on what they observed, and the implications for interprofessional practice. Taken together, the IPDEU experience provides real-world exposure to the critical – and often unexpected – aspects of working together to ensure that hospitalized patients receive the most appropriate, safest, and highest quality care.

“These experiences not only prepare us to work with colleagues in complementary disciplines, but also to ask better questions of our patients and each other,” says Sarah Curtis, MS speech-language pathology student. “Nothing can match real-life opportunities to see compassionate and collaborative care in action for patients.”

Bringing Chronic Care Home

PARTNERS HEALTHCARE AT HOME | CENTER FOR POPULATION HEALTH

As key trends – an aging population, escalating care costs, and the proliferation of mobile medical technologies – intersect, Partners HealthCare at Home’s innovative clinical programs are redefining care for conditions like heart failure and upper respiratory infections in older patients. These programs, such as the Partners Mobile Observation Unit (PMOU), are aimed at delivering high-quality care management to patients with chronic illnesses.

PMOU, supported by Partners HealthCare at Home and the Center for Population Health, began as a Massachusetts General Hospital (MGH) pilot in the spring of 2013 with 16 patients. Today, it’s a Partners-wide program, providing coverage to 623 patients over the past year. Physicians can deploy a nurse practitioner to the patient’s home to perform an evaluation, run

diagnostics, and create a treatment plan. Along with similar programs such as the more intensive “Home Hospital” Program piloted at Brigham and Women’s Hospital (BWH) and MGH, the PMOU has gained traction among nurses and case managers involved in Partners’ care management and population health initiatives.

By eliminating complex transportation, long wait times, and hospitalization risks, these advanced at-home programs have already had a tremendous impact on both patient satisfaction and care affordability for high-risk seniors. “These programs have taken care accessibility for our frailest geriatric patients to the next level, by acting as our eyes and ears in the home setting,” says Ardeshir Hashmi, MD, Medical Director of MGH Senior Health.

Personalizing Care with PROMs

PARTNERS HEALTHCARE
System-wide collaboration

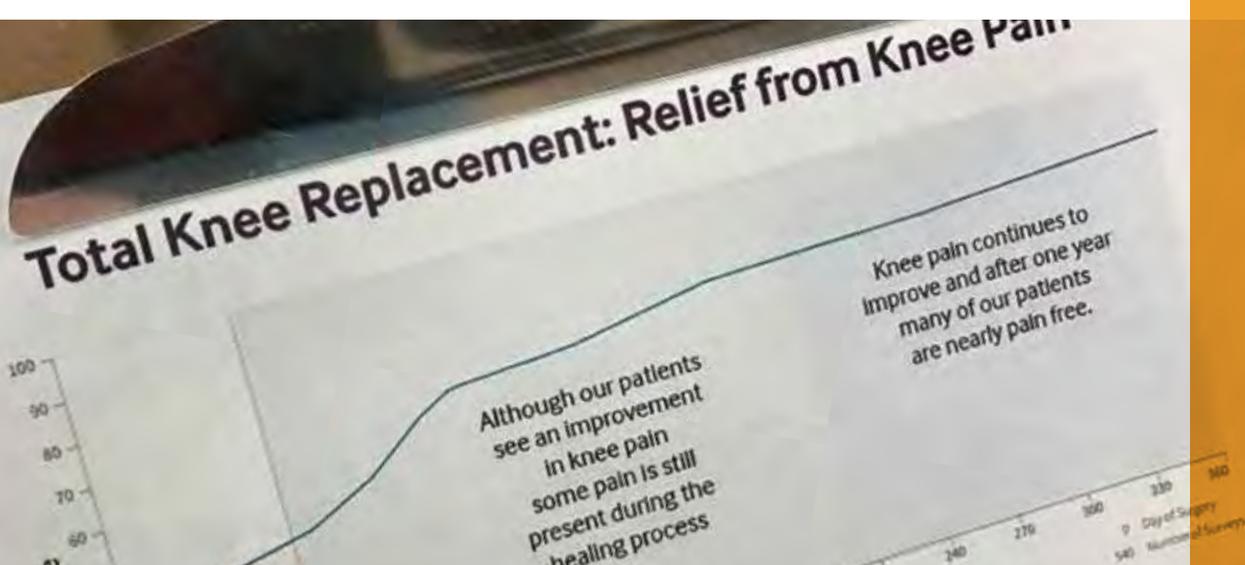
Patient-Reported Outcome Measures (PROMs) are now being used as a critical tool across the Partners network, both to enhance personalized patient care and better track and understand trends and outcomes related to certain conditions.

The surveys, completed as part of routine appointments in the clinic, ask patients to report and score their symptoms in detail. This standardized information ultimately allows for richer conversations at the point of care, so physicians can better match patients with appropriate care options based on their specific conditions. Now in use across 68 Partners clinics in 26 specialties, the 215,000+ PROMs responses collected so far are helping to inform care in orthopedics, urology, radiation oncology, and psychiatry, among other areas. When aggregated, PROMs data can also shed light on outcome variations, and why some patients respond to certain treatments better than others.

Neil Wagle, MD, Partners Associate Chief Quality Officer, says PROMs have become increasingly valuable in patients' day-to-day care. He points to one recent patient who considered prostatectomy following elevated PSA and an indeterminate biopsy. When Dr. Wagle showed the patient PROMs reporting post-prostatectomy complications experienced by other patients, "he understood why I recommended active surveillance and made a better, more informed medical decision as a result."

Wagle's team is expanding opportunities for patients to access and learn from PROMs data with the launch of a new website called Care Decisions. This new site allows patients to view actual data from previous Partners' patients to better understand care options and make more informed treatment decisions.

When aggregated, Patient-Reported Outcome Measures data can also shed light on outcome variations, and why some patients respond to certain treatments better than others.



PARTNERS

Implementation Update

Nearly five years into the implementation process, Partners eCare now enables more than 68,000 clinicians and staff to share information securely across the Partners system, using the Partners eCare clinical and revenue cycle applications to improve quality, safety, and efficiency. In 2017, Partners eCare should go live at 15 physician practice groups, specialty care facilities, and hospitals, spanning Northampton, MA, to Cape Cod and the Islands.

Using Partners eCare to Tackle the Opioid Crisis

New tools added to Partners eCare in 2016 are supporting the Partners Opioid Steering Committee in developing best practices and educational materials to help providers proactively mitigate opioid abuse in our communities. These tools will soon include a system-wide opioid registry, a central location where information regarding a patient's chronic opioid therapy can be documented, and additional functionality supporting the ability of providers to manage medications and safely prescribe to patients with acute pain.

Making Partners eCare More Inclusive

With custom Partners eCare features, Partners providers are able to create more welcoming, personalized experiences for patients based on their unique profiles. In one new section, providers can capture a patient's self-reported sexual orientation and gender identity, enabling the provider to offer patient-centered care and gather further data that will help close gaps for diverse patient populations.

eCARE

Integrating Partners eCare and Population Health Management

Clinical registries within Healthy Planet, a Partners eCare population health management application, provide real-time, consolidated patient information to drive population health initiatives. These data allow population health managers to support the primary care provider, care team, and patient, and provide targeted population health interventions to improve the delivery of care.

Empowering Research Through Partners eCare

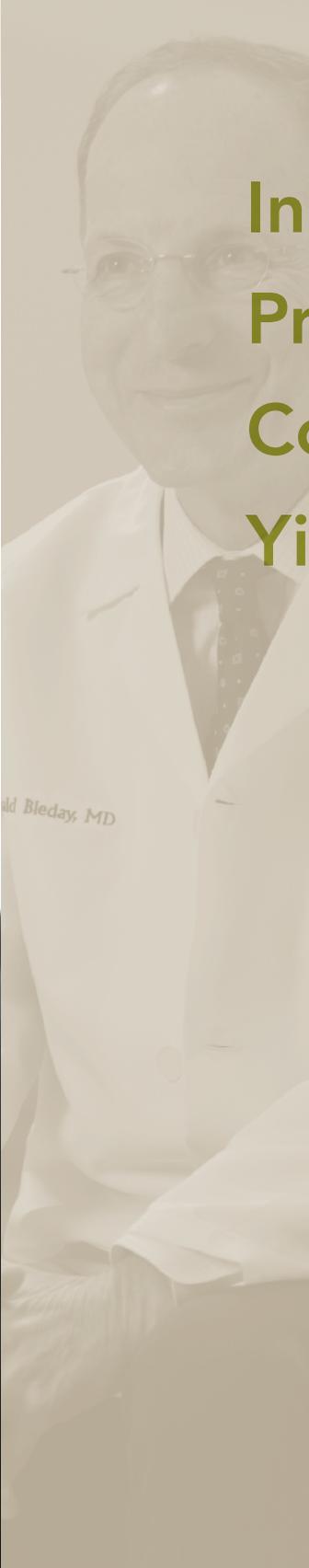
Partners eCare is supporting research by forging connections between researchers and patients. Through the platform, patients can document their willingness to participate in certain types of research studies, creating a large pool of potential subjects. Alerts notify providers in selected departments when patients fit a particular profile, to improve their chances of joining potentially life-saving studies and drug trials.





QUALITY CARE

Y



In Clinical Program, Collaboration Yields Quality

PARTNERS HEALTHCARE

BRIGHAM AND WOMEN'S HOSPITAL

MASSACHUSETTS GENERAL HOSPITAL

NORTH SHORE MEDICAL CENTER

When nine hospitals and 6,000 physicians come together in a single health care system, new opportunities to enhance patient care become achievable. Through the Clinical Collaboration Program, physicians, nurses, and pharmacy leaders from across the Partners system have dedicated themselves to realizing these opportunities by focusing care teams on common goals.

The program brings together clinical leadership committees in 17 key specialty areas.

The program brings together clinical leadership committees in 17 key specialty areas – from neurology and general surgery to palliative care and infection control – to share best practices, promote innovation that enhances quality and safety, and pursue transparency and data sharing.

Left: *Liliana Bordeianou, MD, Marc Rubin, MD, and Ronald Bleday, MD.*



The Program's leaders say this kind of focused collaboration leading to measurable change – and patient benefits – defines the best of an integrated delivery system like Partners.

The committees, several of which have existed for more than a decade, meet monthly or quarterly, often in the early evening after patient care sessions are completed. Specifically, the committees engage in three key project areas:

Designing clinical pathways: Improving clinical workflow, the committees identify new protocols tied to patient care, then roll them out to each Partners site, often with the support of the Partners eCare team using the system-wide electronic medical record.

Measuring performance: Tapping the clinical expertise of the committees, the program defines metrics in each specialty area to be used in Partners eCare, and which metrics can drive improvement.

Tailoring technology to meet patient needs: The committees identify specific tools in Partners eCare to ensure high-quality, safety-focused care that keeps Partners ahead of national guidelines.

One committee, the Colorectal Surgery Collaborative team, led by North Shore Medical Center's Marc Rubin, MD, Massachusetts General Hospital's Liliana Bordeianou, MD, and Brigham and Women's Hospital's Ronald Bleday, MD, recently examined practices and outcomes in colorectal surgery to speed recovery and reduce clinical infection and readmissions rates. The team examined the full spectrum of care across Partners hospitals, including practices such as using antibiotics and fasting before surgery. As a result, they made changes to conventional practices – providing nutrition the morning of surgery, re-dosing antibiotics, and managing fluids differently – that measurably improved system-wide patient care. Similar enhancements were also achieved in sepsis and stroke. The Program's leaders say this kind of focused collaboration leading to measurable change – and patient benefits – defines the best of an integrated delivery system like Partners.

"In our unique learning environment, patients benefit from the collective knowledge of our experts, across the entire spectrum of care," says Thomas Sequist, MD, Chief Quality and Safety Officer.

Managing Cancer Pain, with an App

PARTNERS CONNECTED HEALTH | MASSACHUSETTS GENERAL HOSPITAL

For patients with cancer, pain is a common symptom that can be complicated by the side effects of oral chemotherapy. Managing these dynamics is a challenge for patients and their care providers, leading to pain crisis and expensive hospital utilization. A new mobile application developed by Partners HealthCare Connected Health in collaboration with the Massachusetts General Hospital (MGH) Division of Palliative Care & Geriatric Medicine, ePAL, is designed to help keep cancer pain and its associated complications in check by putting pain management directly in patients' hands between clinic visits.

The app, funded by the McKesson Foundation's Mobilizing for Health Initiative, coaches patients from the MGH Division of Palliative Care to improve their pain

control and reduce hospital utilization by addressing barriers to pain management. In addition to pushing daily pain management tips, ePAL prompts patients to assess and monitor their pain levels three days per week, then guides them through their symptoms. Patients with persistent or worsening pain are connected directly with the Division for further assessment.

In partnership with the Dana-Farber Cancer Institute, Partners Connected Health has also developed a separate mobile app to support cancer patients through the complexities and side effects of oral chemotherapy. Together, the apps offer an accessible, proactive approach to common challenges faced in cancer care.

Self-Expression as Therapy

MCLEAN HOSPITAL | EDI INSTITUTE

With technology providing more modes of communication than ever before, clinicians at McLean Hospital are applying one innovation to help patients express themselves in therapeutically beneficial ways. In collaboration with the EDI Institute, patients are given priority access to Expressive Digital Imagery® (EDI) in the hospital's various programs. The EDI technology lets patients create images on mobile devices for therapeutic self-expression. The work helps patients convey complex feelings, thoughts, and experiences that patients and clinicians say are inaccessible through words alone.



Along with improving patient outcomes, the pilot partnership will help broaden the use of the technology across the country in additional therapeutic settings. "This expanded partnership will help us to better understand how this technology opens new avenues of communication between our patients and clinicians," says McLean Hospital President and Psychiatrist in Chief Scott L. Rauch, MD.

Above: EDI imagery from a patient at McLean Hospital.



Reducing Bias with Awareness

PARTNERS HEALTHCARE
System-wide collaboration

Over the past two years, Partners formalized our commitment to valuing and promoting diversity across our organization with the creation of our Diversity and Inclusion Office. The Office is currently working to address a lesser-known driver of discrimination in health care: unconscious bias.

“Partners in Diversity, Partners in Inclusion” is a one-day education experience designed for Partners’ senior leadership team. The experience empowers leaders across corporate and care departments to develop action plans which are used to collaboratively address barriers, helping to hold everyone accountable for success. With more than 500 leaders participating, the program is helping Partners reach a critical mass of employees to bring about sustainable change across the System.

Complementing these efforts are hospital-wide initiatives designed for employees who deliver care. “Our goal is to teach caregivers how their minds work,” says Joseph Betancourt, MD, the Director of the Disparities Solutions Center at Massachusetts General Hospital. “By understanding that in health care, characteristics of a patient do intersect with care decisions, we can better address disparities and continue having open, honest dialogue about our work.”

Above: Dani Monroe, Chief Diversity and Inclusion Officer at Partners HealthCare.

Keeping Care Accountable

PARTNERS HEALTHCARE
System-wide collaboration

At Massachusetts General Hospital, once-unthinkable remote email or video chat consultations between cardiologist Jason Wasfy, MD, and his patients are now routine. “There are conditions – high cholesterol, for example – that I can treat without physically examining the patient,” he says.

Wasfy’s telehealth visits are just one example of the 26 new Partners programs formed through our participation as a Pioneer Accountable Care Organization (ACO), a five-year initiative of the Centers for Medicare & Medicaid Services. A new payment model designed to promote high-quality care, ACOs tie Medicare payments and incentives to quality outcomes and overall cost reductions enabling new modes of care such as electronic interactions and home visits. “It allows us to customize services to the specific needs of patients, rather than base how we are delivering the service to what is paid for in a fee-for-service system,” says Timothy Ferris, MD, a primary care physician and Senior Vice President of Partners Center for Population Health.

Other ACO-associated programs implemented since Partners joined the initiative four years ago include diabetes education initiatives and a team-based care model that gathers primary care physicians, nurses, and psychologists weekly to better integrate mental health with primary care. The ACO initiatives have added up to cost reductions of \$31.5 million and improvements across quality measures such as hospital readmissions among the 84,000 Medicare patients in our care.

Internet Therapy Removes Barriers

MCLEAN HOSPITAL | PARTNERS HEALTHCARE
System-wide collaboration

For patients with mild to moderate depression, barriers to in-person treatment with mental health providers include limited insurance coverage, long wait times to see a provider, and even practical issues like work conflicts or transportation. With a new pilot program, Partners primary care practices are experimenting with reducing these barriers by offering patients Internet-based cognitive behavioral therapy (iCBT) that can be undertaken from the comfort of their home.

The six-to-ten week iCBT course is designed to deliver online learnings in an easily accessible format for patients with low to moderate depression. First developed in Australia, this tool was brought to Partners by the research team at McLean Hospital that established its efficacy in the U.S. In the iCBT pilot, patients who may benefit from the program are identified through five primary care practices at Brigham and Women's Hospital, Massachusetts General Hospital, and Newton-Wellesley Hospital. Efforts to educate patients about the potential benefits of iCBT will soon be augmented by vidscrips – patient education videos featuring Partners providers speaking about topics related to a patient's treatment, which patients can access directly on smartphones or other web-enabled devices.

By appealing to patients who seek an alternative to face-to-face therapy and overcoming the typical barriers to treatment, the online course and vidscrips aim to improve outcomes for patients.

Brent Forester, MD, Chief of Geriatric Psychiatry at McLean Hospital and Medical Director of Behavioral Health for Partners Center for Population Health, explains that Internet-based CBT offers a user-friendly approach for the treatment of behavioral health conditions.

"We are learning from our pilot that patients find the experience to be both educational and therapeutic. They benefit greatly from the remote behavioral health coaching that iCBT offers," he says. "Technologies such as iCBT will likely be in high demand and expand the opportunities for cost-effective therapies to reach our patients with depression and, eventually, other behavioral health conditions."

A New Hospital for Nantucket

NANTUCKET COTTAGE HOSPITAL

To build the island's first new hospital since 1957, Nantucket Cottage Hospital's capital campaign achieved significant progress in 2016 with a \$10 million commitment from the Percelay family – the largest single gift in Nantucket's history. Having won regulatory support, including Department of Public Health endorsement, the project began in earnest by clearing a portion of the property to make way for the dynamic, new 106,000 square-foot facility that should break ground spring 2017. With opening anticipated in the summer of 2018, the hospital will transform care for residents and visitors – and create a foundation for the future, providing enhanced services, privacy, and safety; better provider access; and innovation throughout the building.

UPDATE

OPIOID CR

Committee Promotes Safe Prescribing of Opioids Across Partners

To tackle the urgent challenge of opioid abuse in the state and coordinate Partners' efforts with newly enacted state legislation, a new Partners Opioid Steering Committee was launched with more than 30 members across Partners in May 2016. The Committee is charged with standardizing safe prescribing practices and system-wide tools to monitor the chronic use of opioids throughout clinical care.



Hack-a-thon Event Unleashes Innovation to Fight Opioid Epidemic

In September 2016, Massachusetts General Hospital and the Consortium for Affordable Medical Technologies (CAMTech), in partnership with GE, brought together 220 leading minds to brainstorm new ideas for opioid prevention and treatment during a three-day "hack-a-thon." Participants presented 18 innovations; five winning innovations, including a mobile unit to treat opioid use disorder and an alert system for patients to discard expired medications, were recognized with \$1,000 prizes, and its creators may have the opportunity to further develop their ideas.

Initiative Increases Ready Naloxone Availability

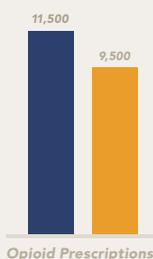
When naloxone is needed during an opioid overdose, time is of the essence – and Brigham and Women's Hospital (BWH) is working to ensure it's readily available. Individuals who need the treatment can now obtain it without a prescription at BWH Outpatient Pharmacy locations. In addition, BWH security officers now carry it as a standard protocol and are trained to administer it if they encounter a patient or visitor in need of this lifesaving medication.

Cooley Dickinson Takes Community-Focused Approach

To tackle the problem of opioid addiction at the community level in Western Massachusetts, Cooley Dickinson Health Care has taken a comprehensive approach coordinated by an Opioid Task Force formed in 2016. The Task Force views addiction as a treatable disease, with a range of coordinated initiatives launched to address the over-prescribing of opioids, educate providers and the public, and support people in recovery.

More Guidelines, Fewer Prescriptions:

Since new prescribing guidelines came into effect 18 months ago, opioid prescriptions have declined from 11,500 to 9,500 per month throughout Brigham and Women's Hospital and Brigham and Women's Faulkner Hospital practices.



CRISIS

As a crisis persists across New England and the country, we've strengthened our united front to help patients throughout our communities overcome opioid addictions.

Vidscrips Provide Critical Overdose Help When It's Needed Most

Naloxone prescriptions, used to reverse opioid overdoses, are regularly provided to patients who are at risk for overdose. Although the instructions for naloxone use are relatively straightforward, they aren't always remembered when they're needed. Massachusetts General Hospital clinicians are now seeking to change that by providing instructions using vidscrips – recordings with video links – that patients can download on their smartphones for repeated viewing and timely access.

Emergency Department Protocols Provide Continuous Care for Addiction

New protocols developed for the Emergency Department (ED) at Massachusetts General Hospital are providing opioid-addicted patients with more sustained support and care. With the protocols, patients are treated in the ED for opioid crises and withdrawals until they can be transitioned to a bridge clinic. This outpatient clinic then provides short-term care until patients are connected with community-based options to help them recover from withdrawal and addiction.

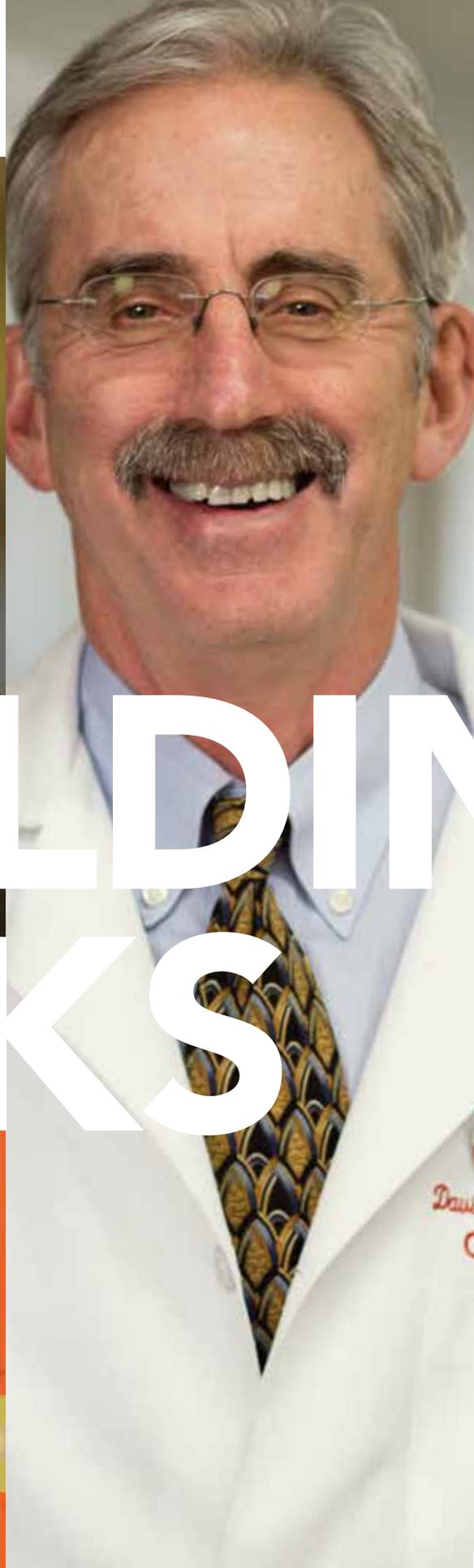
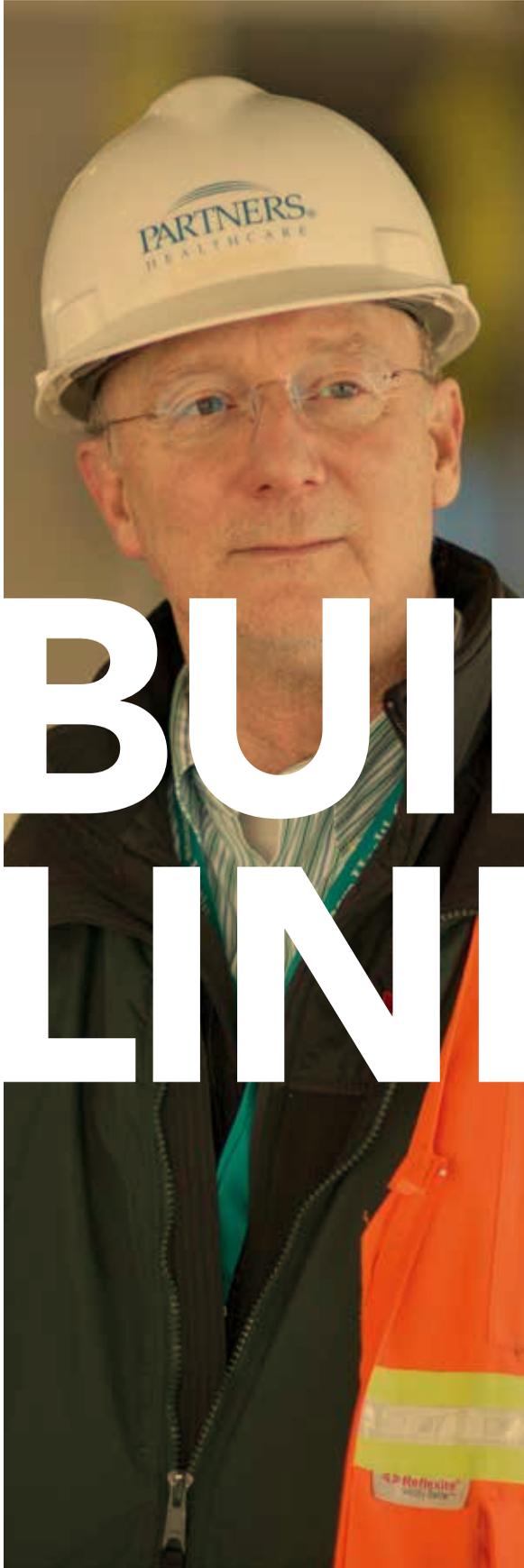
BWH/BWFH Mobilizes Hospital Leaders in Response to Opioid Crisis

With a dedicated effort called the Brigham Comprehensive Opioid Response and Education (B-CORE) Program, Brigham and Women's Hospital (BWH) and Brigham and Women's Faulkner Hospital (BWFH) are regularly gathering care providers, pharmacists, hospital leadership, and other non-clinical teams – including the Patient-Family Advisory Council and Partners HealthCare Information Systems – to focus care across BWH/BWFH on safe opioid prescribing and reducing opioid harm. B-CORE's Prescribing and Addiction task forces are working to adapt Partners-wide prescribing guidelines and establish a bridge clinic to meet the needs of the BWH and BWFH patient population.

Drop-Off Bins Provide a Place to Part with Prescriptions

New bins at Brigham and Women's Hospital (BWH) Outpatient Pharmacy locations now provide patients with a place to safely and conveniently dispose of unused or expired prescriptions, including opioid medications, no questions asked. Data from the CDC show that many people with opioid use disorder initially gain access to these medications after they have been prescribed to relatives or friends. This BWH initiative helps to break that addiction cycle by reducing opioids' easy availability in medicine cabinets.





BUILDING LINKS



ING

Creating a Healthier North Shore

NORTH SHORE MEDICAL CENTER

INTERDEPARTMENTAL COLLABORATION

Campus consolidation and restructuring, already underway at North Shore Medical Center (NSMC) to improve patient care, will enhance care coordination, and provide a more cost-effective health care resource for the North Shore community. The detailed plan describes a multi-stage restructuring project that will bring hospital-based services together into a single, state-of-the-art facility on the NSMC Salem campus.

The consolidation, which integrates the Union Hospital campus in Lynn into the Salem setting, will help better align efficient, effective care with the health needs of North Shore residents by:

Consolidating NSMC's hospital-based medical, surgical, and behavioral health services into a single, aligned campus.

Converting the former Spaulding Hospital North Shore to a 90-bed Center of Excel-

Middle: David J. Roberts, MD,
new NSMC CEO.



lence in Behavioral Health aligned with Massachusetts General Hospital, which will add 24 new beds for psychiatric services to the region, along with critically needed inpatient and community-based addiction treatment.

Expanding outpatient primary, specialty, urgent care, and behavioral health services throughout the North Shore Physicians Group (NSPG) offices, which will continue to provide services through their location on the Union Campus.

Building a new Emergency Department and two family-centered inpatient units at NSMC Salem Hospital, with private rooms and amenities.

Investing in community initiatives to address health needs of underserved populations, including obesity, addiction, and other conditions.

Ultimately, the more integrated NSMC network will be better poised to enhance care and treatment for all patients – particularly complex patients for whom better coordination and closer management can help prevent unnecessary hospitalizations.

“We believe that this plan offers a more sustainable model for providing an exceptional system of high-quality, accessible health care to local patients and families for years to come,” says David J. Roberts, MD, who succeeded Robert Norton as President of NSMC in April 2017.

Ultimately, the more integrated NSMC network will be better poised to enhance care and treatment for all patients.

Above: Shelly Bisegna, Director of Project Management and Real Estate, and Mary Jo Gagnon, Senior Vice President, Operations.

Specialty Care, Close to Home

NEWTON-WELLESLEY HOSPITAL

MASSACHUSETTS GENERAL HOSPITAL

Through two collaborative programs with Massachusetts General Hospital, Newton-Wellesley Hospital (NWH) is helping to meet its goal of providing greater access to high-quality, specialty care closer to their patients' homes.

One program, the Elfers Cardiovascular Center, which opened at NWH in October 2016, brings leading-edge prevention, diagnosis, evaluation, treatment, and rehabilitation for cardiovascular disease from the downtown hospital setting to a welcoming, 20,000 square foot center. Equipped with an electrophysiology suite, an interventional radiology/peripheral vascular suite, testing centers, and physician offices, the Center shortens the trips patients must take in order to access care.

The Vernon Cancer Center, a newly expanded partnership with the Mass General Cancer Center, will provide access to subspecialty cancer services, specialists, and medical oncology physicians through a patient-centered care model. The collaboration will also ease access for patients to the many clinical trials underway through the Mass General Cancer Center.

Together, the changes make it easier and more cost effective for NWH patients to access the care locally. "Many of our cardiovascular and cancer patients are elderly, have complex medical problems, or are undergoing challenging treatments," says Jodi Larson, MD, Chief Quality and Experience Officer at NWH. "These collaborative centers deliver the care our patients need without the added burden of a longer commute."



Together, the changes make it easier and more cost effective for NWH patients to access the care locally.

Partners Builds New Partnership

MASSACHUSETTS GENERAL HOSPITAL

WENTWORTH-DOUGLASS HOSPITAL

Building on a partnership that has brought Massachusetts General Hospital (MGH) TeleStroke, trauma and acute care surgery, and specialized cancer care to patients in Dover, New Hampshire since 2008, Wentworth-Douglass Hospital recently became the newest member of the MGH family. With the new partnership, approved in January 2017, the 178-bed acute care facility officially joins the Partners network.

"Wentworth-Douglass has long been known for its outstanding care and commitment to community," says Peter L. Slavin, MD, MGH President. "Together, we look forward to continuing to grow, shape, and strengthen our already successful and thriving relationship to benefit patients in the region."

Reducing the Costs of Readmissions

SPAULDING REHABILITATION NETWORK

Hospital readmissions, particularly in the post-acute setting, drive an estimated \$40 billion in annual provider cost, and, as a result, have become a quality metric for both hospitals and the Centers for Medicare and Medicaid Services. Recently, Spaulding Rehabilitation Hospital (Spaulding) researchers undertook studies to highlight the drivers and determining factors of readmissions, with the ultimate goal of reducing their incidence and the high costs associated with them.

One study with Harvard Medical School examined the link between readmissions and stroke, the leading cause of disability in the U.S. and a significant driver of acute care readmissions. With a retrospective data review, Spaulding researchers determined that functional status better predicted the likelihood of readmissions compared to data models based on patients' ages and comorbidities – suggesting that function-based interventions may reduce readmissions risk.

The study helped enhance the medical community's growing awareness of hospital readmissions and the context in which they should be understood. "Assessing individual hospitals' readmissions rates adds accountability, but it is important to make fair comparisons between institutions that account for differences in the patient populations they care for," says Jeffrey Schneider, MD, Medical Director of Spaulding's Burn and Trauma Rehabilitation Program and research principal investigator.

A New Space for Medical Transformation

BRIGHAM AND WOMEN'S HOSPITAL

With the new Brigham and Women's Hospital Building for Transformative Medicine, which opened in October 2016 at 60 Fenwood Road, clinical care and research across 15 locations have now come together in a single site dedicated to medical innovation. The state-of-the-art spaces within the building's 380,000 square feet are designed to keep patient care efficient and comfortable, with dedicated laboratories, advanced-imaging and infusion rooms, and clinical space for patients enrolled in clinical trials. By bringing together leading clinicians and scientists across the neurosciences, orthopedics, rheumatology, immunology, and musculoskeletal health, the new building will help to accelerate advances in patient care as it streamlines care and fosters collaboration.

Announcing Brigham Health

BRIGHAM HEALTH

Brigham and Women's announced the launch of Brigham Health, a new brand name that better captures its compassionate, leading-edge models of care and breakthrough therapies, both locally and globally. Brigham Health replaces the previous parent corporation name of Brigham and Women's Health Care and encompasses both Brigham and Women's Hospital and Brigham and Women's Faulkner Hospital, as well as the Brigham and Women's Physicians Organization, all of which will retain their names. "Brigham Health reinforces that we are not just one point on a map, or even one point of discovery," says Elizabeth G. Nabel, MD, President of Brigham Health. "By unifying all we do under Brigham Health, we can continue reaching outward."



Partners, Assembled

PARTNERS HEALTHCARE

With a 13-story building that opened in June 2016 at Assembly Row in Somerville, Partners colleagues are now working together in new, more efficient ways. The building has consolidated operations previously scattered at 14 office locations throughout Greater Boston, reducing high-cost leases and other operational costs associated with multiple sites. Once all of the move-ins are completed, the Assembly Row space will bring together most of Partners' 4,500 employees, from key support functions, including finance, human resources, information systems, communications, and legal. All told, the consolidation is expected to save Partners more than \$10 million annually in operational costs. Additional cost savings and efficiencies will be realized through shared resources and the elimination of unnecessary redundancies.

In addition to streamlining operations efficiency, the move is already fostering closer collaboration among departments by creating a more united culture and enhanced employee engagement. With more face-to-face interaction, fewer organizational silos, and a shared sense of community, employees are now better positioned to fulfill Partners' goals for the future.

The Assembly Row space will bring together most of Partners' 4,500 employees.





Financial Overview

Overview

For 2016, Partners reported a loss from operations of \$108 million (-0.9% margin), compared to a gain from operations of \$106 million (0.9% margin) for 2015.

Deficit of revenues over expenses was \$249 million in 2016 compared to a deficit of \$92 million in 2015, a change of \$157 million.

Total assets increased by \$835 million (6%) to \$15.9 billion at September 30, 2016 while total net assets (assets minus liabilities) decreased by \$578 million (-10%) to \$5.5 billion.

Revenue

Operating revenue increased by \$794 million (7%) to \$12.5 billion from \$11.7 billion in 2015. Net patient service revenue (NPSR) increased by \$254 million (3%) to \$7.6 billion in 2016. Premium revenue increased \$475 million (23%) to \$2.5 billion in 2016. Other revenue, which includes management services and other non-patient revenue sources, increased \$6 million (0.9%) to \$648 million for 2016.

Net Uncompensated Care Costs

For 2016, Partners' hospitals, community health centers, and physicians experienced a 10% increase in Medicare, Medicaid and Health Safety Net (HSN) shortfalls to \$1.4 billion, due to government reimbursements that failed to pay the full cost of providing care to Medicare, low-income, and uninsured patients. Government payers represent approximately 51% of our gross patient service revenue.

Expenses

Operating expenses for 2016 increased by \$1.0 billion (9%) to \$12.6 billion. Labor costs rose by \$332 million (6%) to \$6.0 billion. Medical claims insurance expense increased \$365 million (22%) to \$2.0 billion in 2016. Supplies and other expenses increased by \$184 million (8%) to \$2.5 billion in 2016. Interest expense was \$133 million in 2016, an increase of \$17 million (14%).

Research

Partners' total research expenditures in 2016 were \$1.5 billion, an increase of \$48 million (3%) from 2015. Approximately \$778 million (50%) of Partners 2016 activity was funded by the National Institutes of Health and other federal agencies. Direct research revenue increased \$37 million to \$1.2 billion, while indirect research revenue (recovery of overhead expenses) increased \$11 million to \$348 million. The overhead recover rate stayed flat at 29.2% for both 2015 and 2016. As of September 30, 2016, Partners had approximately \$3.0 billion in committed future research funding.

Philanthropy

Partners depends on private fundraising to support its mission of excellence in patient care, research, education, and community programs. Total gifts and pledges for Partners were \$467 million in 2016. From a cash standpoint, the System collected \$438 million in cash gifts and pledge payments. Approximately \$101 million (22%) of cash collections were for capital and unrestricted support – a significant increase over last year.

Liquidity And Capital Resources

Partners' sources of liquidity are cash flow from operations, cash and equivalents, investments, and a credit facility. Cash flow from operating activities for 2016 was \$270 million compared with \$410 million generated in 2015. Unrestricted cash and investments at September 30, 2016 totaled \$6.0 billion. Additionally, Partners maintains a \$150 million credit facility.

In 2016, investing activities used \$782 million compared to \$820 million in 2015. Capital expenditures were \$1.1 billion and \$1.2 billion in 2016 and 2015, respectively.

For 2016, net cash provided by financing activities was \$718 million. Partners issued revenue bonds with proceeds of \$100 million and \$424 million in March 2016 and January 2016, respectively, to finance certain capital projects and to refinance existing debt. In addition, Partners issued taxable notes with proceeds of \$225 million in September 2016, the proceeds of which were used to make a voluntary contribution to Partners' pension plans. Total debt outstanding amounted to \$5.0 billion as of September 30, 2016.

Partners believes it has the necessary financial resources, operating cash flow, and borrowing capacity to fund working capital needs, capital expenditures, and other business requirements for the near term.

Consolidated Balance Sheets

Excerpts from financial statements (in thousands of dollars) as of September 30, 2016 and 2015

	2016	2015
Current assets:		
Cash and equivalents	\$ 827,683	\$ 621,568
Investments	1,069,006	1,354,636
Current portion of investments limited as to use	1,588,787	1,590,203
Patient accounts receivable	881,993	878,033
Other current assets	633,921	629,337
Total current assets	5,001,390	5,073,777
Investments limited as to use, less current portion	3,069,175	2,832,744
Long-term investments	1,136,528	1,061,176
Property and equipment	5,881,927	5,328,782
Other assets	823,852	781,214
Total assets	\$ 15,912,872	\$ 15,077,693
Current liabilities:		
Current portion of long-term obligations	\$ 441,018	\$ 398,990
Accounts payable and accrued expenses	2,001,150	1,791,689
Current portion of accrual for settlements with third-party payers	63,195	53,066
Total current liabilities	2,505,363	2,243,745
Long-term obligations, less current portion	4,608,114	3,994,034
Accrual for settlements with third-party payers, less current portion	7,443	41,977
Interest rate swaps liability	510,172	404,062
Other long-term liabilities	2,807,423	2,341,073
Total liabilities	10,438,515	9,024,891
Net assets:		
Unrestricted	4,060,285	4,707,662
Temporarily restricted	790,886	765,562
Permanently restricted	623,186	579,578
Total net assets	5,474,357	6,052,802
Total liabilities and net assets	\$ 15,912,872	\$ 15,077,693

Complete financial statements available upon request.

Consolidated Statements of Operations

Excerpts from financial statements (in thousands of dollars) for the fiscal years ended September 30, 2016 and 2015

	2016	2015
Operating revenue:		
Net patient service revenue, net of provision for bad debts	\$ 7,571,548	\$ 7,317,918
Premium revenue	2,508,924	2,034,420
Academic and research revenue	1,731,772	1,671,225
Other revenue	647,887	642,082
Total operating revenue	12,460,131	11,665,645
Operating expenses:		
Compensation and benefit expenses	5,987,168	5,655,073
Supplies and other expenses	2,508,630	2,325,085
Medical claims and related expenses	2,017,773	1,652,538
Direct academic and research expenses	1,363,580	1,316,283
Depreciation and amortization expenses	557,542	493,505
Interest expense	133,317	116,703
Total operating expenses	12,568,010	11,559,187
(Loss) income from operations	(107,879)	106,458
Nonoperating gains (expenses):		
Income (loss) from investments	61,102	(37,258)
Change in fair value of interest rate swaps	(106,110)	(110,315)
Gifts and other, net of expenses	(96,124)	(50,874)
Total nonoperating gains (expenses), net	(141,132)	(198,447)
Deficit of revenues over expenses	(249,011)	(91,989)
Other changes in net assets:		
Change in net unrealized appreciation on marketable investments	200,042	(224,616)
Funds utilized for property and equipment and other	48,772	39,675
Change in funded status of defined benefit plans	(647,180)	(639,167)
Decrease in unrestricted net assets	\$ (647,377)	\$ (916,097)

Complete financial statements available upon request.

Consolidated Statements of Changes in Net Assets

Excerpts from financial statements (in thousands of dollars) for the fiscal years ended September 30, 2016 and 2015

	Unrestricted	Temporarily Restricted	Permanently Restricted	Total
Net assets at October 1, 2014	\$ 5,623,759	\$ 855,954	\$ 463,774	\$ 6,943,487
Increases (decreases):				
Income from operations	106,458	–	–	106,458
Income (loss) from investments	(37,258)	(46,460)	55	(83,663)
Change in fair value of interest rate swaps	(110,315)	–	–	(110,315)
Gifts and other	(50,874)	8,029	116,449	73,604
Change in net unrealized appreciation on marketable investments	(224,616)	(36,351)	(2,313)	(263,280)
Funds utilized for property and equipment and other	39,675	(15,610)	1,613	25,678
Change in funded status of defined benefit plans	(639,167)	–	–	(639,167)
Change in net assets	(916,097)	(90,392)	115,804	(890,685)
Net assets at September 30, 2015	4,707,662	765,562	579,578	6,052,802
Increases (decreases):				
Loss from operations	(107,879)	–	–	(107,879)
Income (loss) from investments	61,102	(21,616)	37	39,523
Change in fair value of interest rate swaps	(106,110)	–	–	(106,110)
Gifts and other	(96,124)	39,875	44,093	(12,156)
Change in net unrealized appreciation on marketable investments	200,042	30,170	(340)	229,872
Funds utilized for property and equipment and other	48,772	(23,105)	(182)	25,485
Change in funded status of defined benefit plans	(647,180)	–	–	(647,180)
Change in net assets	(647,377)	25,324	43,608	(578,445)
Net assets at September 30, 2016	\$ 4,060,285	\$ 790,886	\$ 623,186	\$ 5,474,357

Complete financial statements available upon request.

Consolidated Statements of Cash Flows

Excerpts from financial statements (in thousands of dollars) for the fiscal years ended September 30, 2016 and 2015

	2016	2015
Cash flows from operating activities:		
Change in net assets	\$ (578,445)	\$ (890,685)
<i>Adjustments to reconcile change in net assets to net cash provided by operating activities:</i>		
Change in funded status of defined benefit plans	647,180	639,167
Change in fair value of interest rate swaps	106,110	110,315
Depreciation and amortization	557,542	493,505
Provision for bad debts	127,798	129,051
Net realized and change in unrealized appreciation on investments	(344,727)	307,782
Restricted contributions and investment income	(129,649)	(172,749)
Other	64,133	49,814
<i>Increase (decrease) in cash resulting from a change in:</i>		
Patient accounts receivable	(131,758)	(127,108)
Other assets	(46,306)	(123,201)
Accounts payable and accrued expenses	28,712	35,530
Settlements with third-party payers	(30,561)	(41,066)
Net cash provided by operating activities	270,029	410,355
Cash flows from investing activities:		
Purchase of property and equipment	(1,102,280)	(1,197,849)
Proceeds from sales of investments, net	319,990	401,472
Cash acquired through affiliations	-	(23,343)
Net cash used for investing activities	(782,290)	(819,720)
Cash flows from financing activities:		
Payments on long-term obligations	(70,499)	(71,353)
Proceeds from long-term obligations	745,258	612,359
Deposits into refunding trusts	(86,032)	(140,066)
Restricted contributions and investment income	129,649	172,749
Net cash provided by financing activities	718,376	573,689
Net increase in cash and equivalents	206,115	164,324
Cash and equivalents at beginning of year	621,568	457,244
Cash and equivalents at end of year	\$ 827,683	\$ 621,568

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