



Yale Medicine Annual Report **2019**

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Message from the CEO



I am pleased to report that 2019 was another year of sustained growth for Yale Medicine. Patient volumes continued to increase, as did clinical income, and our patient satisfaction scores maintained their steady growth.

But above all, 2019 was a year in which we took bold and far-reaching steps to position Yale Medicine for a strong and vibrant future. We launched the YM CARE Center, which is transforming the way patients and referring providers access our services. We continued to broaden our presence in lower Fairfield County and are providing services to a growing number of patients in that region. Our expanding telehealth programs are bringing Yale Medicine physicians into patients' homes through their electronic devices, and are enabling doctors at community hospitals around the state to consult with YM specialists.

Perhaps most significantly, we have been working with Yale New Haven Health on a variety of fronts to better integrate our administrative and clinical operations, in order to provide patients with a single standard of care and a streamlined and seamless health care system. You will read about several of the integration initiatives in this report. As you will see, due to the size and scope of our enterprises, these initiatives are extremely complex and will take time to complete. But all parties are deeply committed to the long-term goal of creating an integrated health care system, in order to benefit our patients and ensure the success of our organizations well into the future.

We moved forward with a number of other strategic priorities in 2019 as well. The Yale Child Study Center (CSC) opened a spectacular new clinical facility that befits its international reputation for treating and advancing understanding of the mental health needs of children and families. The new facility was meticulously designed to provide innovative, welcoming, patient-centered spaces for children and families and to support the work of CSC clinicians.

The Yale Center for Clinical Investigation (YCCI) also had a strong and eventful year, with the appointment of two new co-directors, a record number of participants from underrepresented populations taking part in clinical trials, and the launch of one of the largest DNA sequencing projects of its kind.

It was also a breakthrough year for Yale Medicine's online visibility and digital marketing efforts, another area that is critical to the long-term growth and success of the practice. The number of unique visits to the YM website grew by an impressive 185% over the past year. A growing presence in Google search results, a new media outreach initiative, and other projects bode well for continued digital success in 2020.

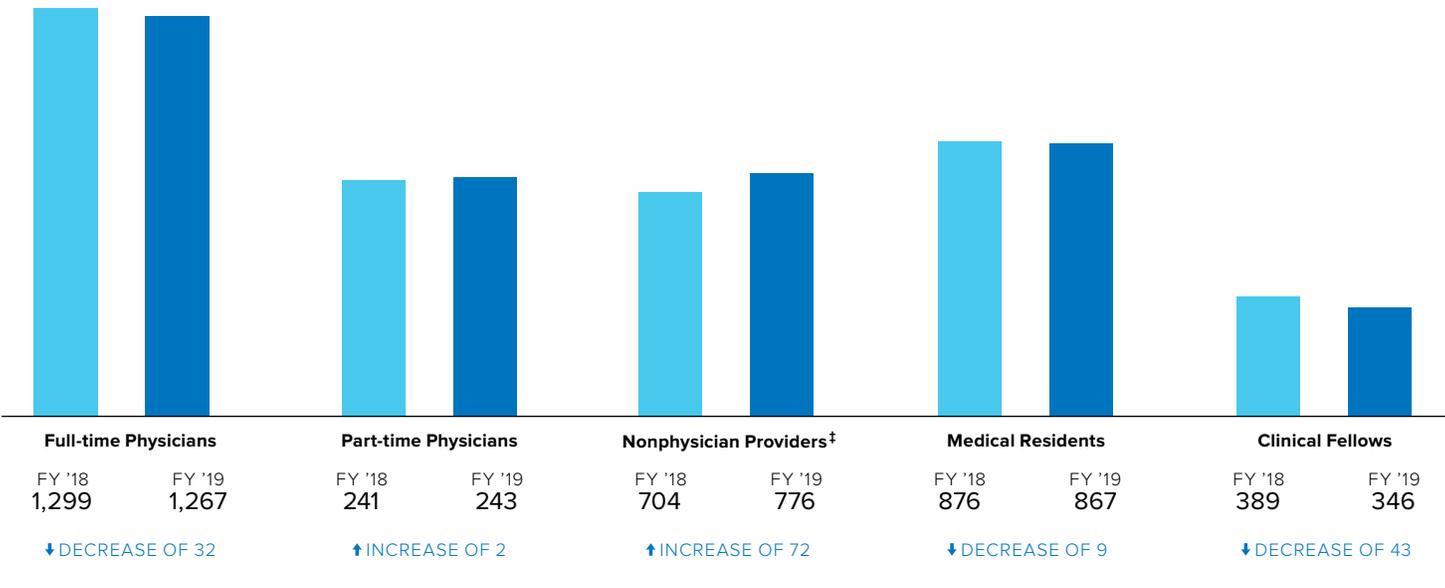
I encourage you to take some time to read this Annual Report, as it showcases some of the significant achievements and strategic initiatives that took place in 2019 and that will lay a strong foundation for Yale Medicine's future. On behalf of the practice leadership and the YM Board, we are honored to serve and grateful to faculty and staff for your hard work over the past year. As always, if you have any questions, thoughts, or concerns, please give me a call or send an e-mail. I wish you a very happy and productive 2020.

Sincerely,

A handwritten signature in black ink, appearing to read "Paul Taheri MD, MBA". The signature is fluid and cursive, with a small flourish at the end.

Paul Taheri, MD, MBA
CEO, Yale Medicine

Facts and Figures



Clinical Workforce*†

Includes all credentialed providers. *Approximately 2,600 staff members support YSM's clinical mission. †Includes advanced practice registered nurses, physician assistants, licensed nurse midwives, certified nurse anesthetists, licensed clinical social workers, audiologists, and other health care providers.

Operations



A Year of Continued Growth

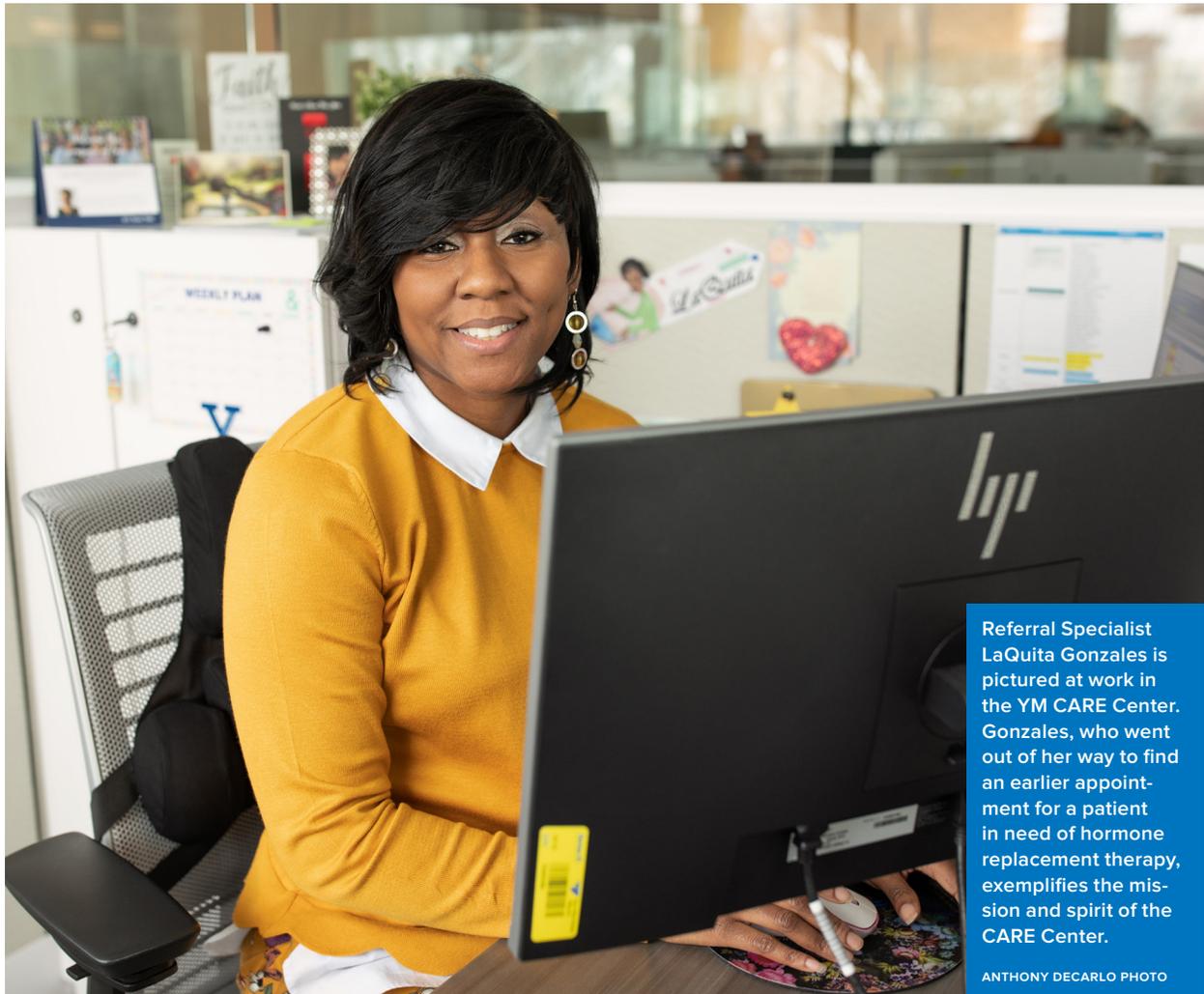
In 2019, Yale Medicine moved forward with a number of significant initiatives to help optimize our clinical activity and improve the patient and provider experience—enhanced patient access, geographic expansion, telehealth, digital marketing, and more. These ongoing efforts helped the practice achieve strong and sustained growth over the past year.

- In 2019, across all locations, Yale Medicine saw an increase of nearly 9% in completed patient visits over the prior year.
- Visit volumes at the Yale Physicians Building (YPB) rose by 8%, from 139,452 in 2018 to 150,577 in 2019. Perhaps most notably, completed patient visits at Long Ridge Medical Center (LRMC) in Stamford increased by 23% over the past year, reflecting YM's efforts to expand its presence in lower Fairfield County. LRMC visits grew from 11,267 in 2018 to 13,839 in 2019.
- Patient satisfaction (Press Ganey) scores experienced a modest rise, from 93.0 in the fourth quarter of 2018 to 93.2 in the fourth quarter of 2019.
- Yale Medicine's bump rate (the provider-initiated cancellation rate) dropped by an impressive 63% over the past year, from a rate of 0.8 in 2018 to 0.3 in 2019, better than many of our peers nationally.

These metrics are a reflection of the collective efforts of many—efforts which lay a strong foundation for continued growth in 2020 and help position the practice for long-term success in the rapidly changing health care landscape.

For more information, please contact Chief Operating Officer Maryam Saeri at maryam.saeri@yale.edu.

Yale Medicine CARE Center



Referral Specialist LaQuita Gonzales is pictured at work in the YM CARE Center. Gonzales, who went out of her way to find an earlier appointment for a patient in need of hormone replacement therapy, exemplifies the mission and spirit of the CARE Center.

ANTHONY DECARLO PHOTO

YM CARE Center: An Exciting New Era in Patient Access

In early September 2019, Referral Specialist LaQuita Gonzales received a call from a patient who, in his words, was feeling “pretty desperate.” He had been receiving testosterone injections every two weeks for the past 20 years. But for a number of reasons, his hormone replacement therapy had been interrupted for a significant period of time, and he could not get an appointment with a new provider (his previous one had retired) for another three months. In the meantime, he was suffering from weight loss, low energy, and dramatic mood swings.

Gonzales told the patient that she would try to get him an earlier appointment so he could resume his much-needed therapy as soon as possible. To his surprise, she called him back that same day to advise that she had found a cancellation and gotten him an appointment two months earlier than his original appointment.

“She personally invested herself in helping me. She worked through her lunch break to get me an earlier appointment. I thought that was pretty extraordinary customer service,” the patient said. “She was working as hard as she could to make sure every patient was getting the kind of attention they needed.”

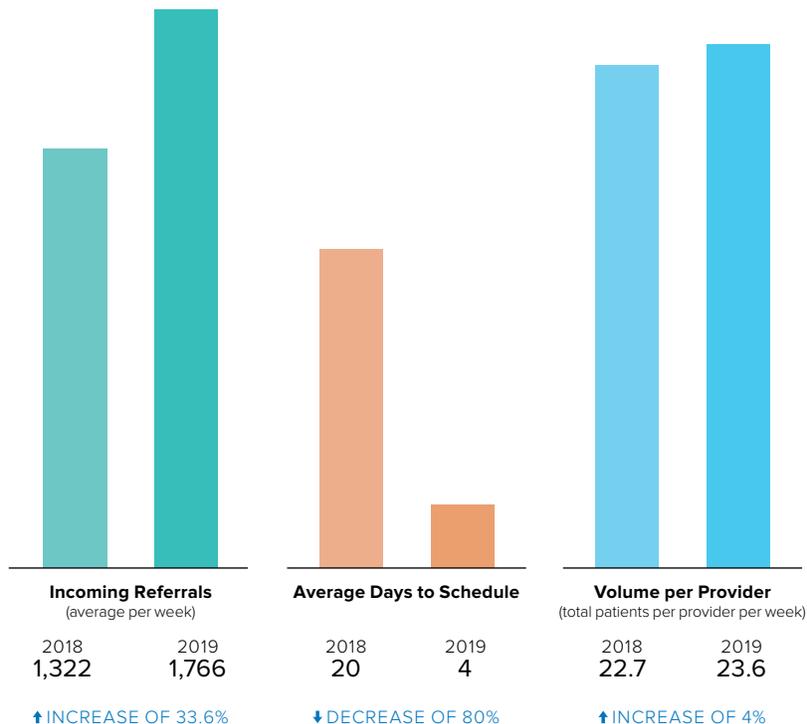
Gonzales embodies the mission and spirit of the YM Coordination, Appointment, Referral & Engagement (CARE) Center, which launched in early 2019 with the goal of providing simple, supportive, and coordinated access to Yale Medicine’s world-re-

nowned physicians. Through a single point of entry, patients and referring providers have access to specialty-specific staff like Gonzales, who assist them with such services as ambulatory appointment scheduling, nurse triage, referral management, and care coordination.

The CARE Center is the result of collaboration and dedication amongst numerous partners across Yale Medicine, Yale University, and Yale New Haven Health. The center is located in newly renovated space at 25 Science Park and operates from 7 a.m. to 7 p.m., Monday through Friday ([for more on Yale Medicine’s presence in Science Park, see page 21](#)).

Yale Medicine departments and sections are systematically transitioning to the CARE Center in three phases. Phase 1 departments/sections were integrated into the CARE Center between January and June 2019. Phase 2 departments/sections are following

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Performance Metrics

during that same timeframe in 2020, by the end of which two-thirds of the practice—approximately 1,000 providers—will have been integrated into the CARE Center. Phase 3 will follow the same timetable in 2021.

PHASE 1 YIELDS POSITIVE RESULTS

Now that the CARE Center has been operational for about a year, the extent of its impact on the practice, patients, and providers is becoming apparent.

“Staff are extremely professional and a pleasure to work with, and the CARE Center is well organized—which has yielded positive early results for our department,” said Clifford W. Bogue, MD, chair of the Department of Pediatrics, which was part of Phase 1.

Alla Vash-Margita, MD, chief of Pediatric and Adolescent Gynecology, agrees that the YM CARE Center provides significant advantages for patients and providers.

“I appreciate the fact that CARE Center personnel are devoted to specific clinical services, such as pediatric gynecology—this gives staff opportunities to get to know patients and parents, thus providing personalized care,” Dr. Vash-Margita says. “Staff has been amazing in terms of efficient communication with the nurse and providers and making sure nothing falls through the cracks.”

Dr. Vash-Margita also loves the fact that the CARE Center is open extended hours, weekdays from 7 a.m. to 7 p.m. “It’s a great thing for working parents,” she says.

Metrics reveal significant performance improvements across Phase 1 departments. As of December 30, 2019, the number of incoming referrals across these areas had grown by approximately 34% year-over-year. In addition, the number of visits per provider per week in the Phase 1 departments increased by about 4.5% year-over-year. More than one-quarter of the visit growth is attributable to new patients.

At the same time, the number of patients waiting to be scheduled decreased by approximately 62% from December 2018 to December 2019; the time to schedule an appointment went down by 81% during that same period. Those metrics are a reflection of streamlined workflows, a new, more reliable phone system, and a suite of technologies that enable greater efficiency and accuracy.

“With state-of-the-art technologies and consistent processes, we have been able to streamline and simplify the appointment scheduling experience for patients and referring providers,” says Tina Tolomeo, senior director of patient access. “Additionally, our proactive clinical outreach program has eased the transition process for patients discharged from the hospital or emergency department, ensuring person-

alized follow-up within 48 hours of discharge. This includes the scheduling of any subsequent specialty appointments that may be required.”

“Everything we do, we do with the patient at the forefront,” Tolomeo says, “further strengthening Yale Medicine’s commitment to compassionate and quality patient care.”

For more information, please contact Chief Operating Officer Maryam Saeri at maryam.saeri@yale.edu or Senior Director of Patient Access Tina Tolomeo at tina.tolomeo@yale.edu.

Child Study Center



A Welcoming New Space for Children and Families

In the waiting room of the renowned Yale Child Study Center (CSC), a wide tree rises amid the sleek, modern furniture and colorful walls, its branches reaching toward the ceiling. In another room, mossy green carpeting, a picnic table, and paintings of woodland creatures beckon visitors to imagine a trip to the forest. Another room features shelves lined with rows of enticing new books, inviting children to enjoy adventures in reading.

In September 2019, the CSC's clinical practice moved into a newly renovated building at 350 George St. that provides whimsical, fun-filled spaces for children; bright, comfortable waiting areas and quiet nooks for families; and work spaces for clinicians that encourage collaboration and innovation.

"The facility is absolutely beautiful. It's just a nice place to come to work every day," says Nancy Close, PhD, clinical director of the CSC's Parent and Family Development Program. "It feels like it honors the

people who work here as well as the people who come here for help. It communicates that this is a place where you will be cared for."

The new facility brings all of the CSC's clinical operations together under one roof, thereby making it easier for families to access services and promoting increased interaction and collaboration among clinicians. Previously, the CSC's clinical programs have been scattered over three different sites in New Haven, a confusing arrangement that at times required families

to go to multiple locations for different services. The move to 350 George St. consolidates those services in a single location that was meticulously designed to provide warm, welcoming, patient-centered spaces for children and families.

EASIER TRANSITIONS, EXCITED CHILDREN

The consolidation has already benefitted patients and families in many ways, according to CSC clinicians. One example is clients transitioning from IICAPS (Intensive In-home Child and Adolescent Psychiatric Service), which provides services to families in their homes. Prior to the move, IICAPS had been based at a CSC facility on York Street. Families that chose to access CSC outpatient services after the at-home services came to an end would have had to go to a new location on Temple Street for outpatient care, “and they would have to learn a whole new process, figure out parking, meet new staff,” says Virginia J. Zecchini, LCSW, clinical coordinator for IICAPS. Now that IICAPS and outpatient services are all based at 350 George St., the transition is much simpler “and the clients can see that we all work closely together. It helps them feel that they’re just going to another part of the same family.”

Another benefit for families are the child-friendly waiting areas for both patients and siblings. Many parents who bring a child in for services often come to the CSC with other children, who have to keep themselves occupied while their sibling is being seen. Often, families found themselves squeezed into small waiting areas as children passed the time on their electronic devices.

But now children who are waiting for a sibling can pick out a favorite book to read in the Book Nook; play Hide and Seek in the large waiting room with the tree in the middle; or explore themed nooks that invite kids to pretend they are in the forest, at the beach, or on a river.

“Families have remarked on how good it feels to come in here. There’s just a lot of whimsy here,” says clinical psychologist Jessica Mayo, PhD, who is the Young Child Clinical Coordinator for the CSC. She spoke of one mother of four whose children now excitedly head to the Book Nook while their sibling is receiving care. “It’s made it so much less stressful for the mom,” Mayo says.

What has made the 350 George St. project so successful is the fact that everyone who works at the CSC had an opportunity to provide input, says Erin Warnick, PhD, lead of clinical operations for the Child Study Center and the CSC’s point person for the project. The process included a number of community workshops for CSC staff and the creation of a space planning committee with representation from all CSC stakeholders.

“We really took the time to talk to people and listen to what they needed, and that enabled us to design the space in a way that supports our work,” Warnick says. “The goal was not just to move from one place to another place. We looked at how we can improve our settings, how we can improve the experiences of both families and clinicians, how we can we bring people together in new ways.”

Bringing people together in new ways is something that Zecchini, the clinical director for IICAPS, has seen firsthand. Now, when IICAPS staff and trainees are in the office at 350 George St., they have the opportunity to run into colleagues with whom they may be sharing a case, Zecchini says. In the past, when they were in a different location from other CSC staff, that would not have been possible.

“Now that we are in the same location, we can share information much more quickly than before. It makes collaboration much easier than in the past,” says Zecchini.

Approximately 225 people work in the CSC’s new clinical facility, including physicians, psychologists, social workers, and staff. The CSC’s clinical trainees in psychology, social work, and child psychiatry are also located in the new building. The CSC’s research programs will continue to be located at 230 South Frontage Road.

In addition to providing outpatient and home-based services, the 350 George St. location houses the CSC’s Center for Emotional Intelligence and the MOMS Partnership (serving mothers with mental health needs). The CSC provides care to about 3,000 families annually, with about 60,000 clinical visits per year.

Linda Mayes, MD, chair of the Child Study Center, says it is great to see the excited look on children’s faces as they walk through the doors of the new space. “I think it’s the respect they feel when they walk in. Our new space is not only beautiful, but in that beauty it conveys our respect and care for the families coming to us.”

For more information, please contact Child Study Center Chair Linda Mayes, MD at linda.mayes@yale.edu.

Integration



Creating a Single Standard of Care and a Seamless Health Care System

Those who work in health care in the New Haven area know that there are a number of different provider organizations and delivery networks, including Yale Medicine and Yale New Haven Health System, which comprises Yale New Haven, Bridgeport, Greenwich, Lawrence + Memorial, and Westerly Hospitals and Northeast Medical Group (NEMG).

But most patients are unaware of those distinctions. When they go to a doctor or hospital for care, they generally view their providers as a single entity that can be described with one word—Yale.

With that in mind, Yale Medicine and YNHHS have embarked on a long-term effort to integrate their administrative and clinical operations, while remaining

separate entities. The goal is to provide patients with a single standard of care across the system, and to improve efficiency with seamless connections between the various organizations.

“If you step back and look through the eyes of the patient, they don’t see Yale New Haven Hospital or Yale School of Medicine. We are all Yale to them,” says

Richard D'Aquila, MPH, president of Yale New Haven Health System. D'Aquila adds that YM and YNHHS are "looking at every opportunity to work more closely together when it benefits patients, improves efficiency, reduces confusion, and delivers better outcomes."

D'Aquila and Yale Medicine CEO Paul Taheri, MD, have been spearheading the integration efforts, and many individuals and committees have been planning and implementing specific initiatives to better align the two entities. Recent examples include the successful launch of the YM CARE Center, which offers simplified access for patients and is jointly funded by YM and YNHHS; a number of joint appointments that report to both organizations, such as chief quality officer and chief information officer; and the development of a joint project management office. In addition, D'Aquila and Dr. Taheri are overseeing an effort to merge duplicative committees and administrative infrastructure in order to avoid redundancies.

The integration efforts are now moving forward with several complex, far-reaching initiatives, including one program to better coordinate recruitment and onboarding of new physicians, and another to develop standard protocols to treat specific diseases and conditions across the system.

Deployment of Clinical Services (DoCS) Committee Members

Yale Medicine Members

Fred Borrelli
Henry Cabin, MD
Kim Moriarty
Peter Schulam, MD, PhD (co-chair)
Yollanda London

NEMG Members

Aimee Derry
Richard Goldstein, MD, PhD (co-chair)

Delivery Network Members

Greg Buller, MD (Bridgeport Hospital)
Diane Kelly (Greenwich Hospital)
Denise Fiore/Oliver Mayorga, MD
(Lawrence + Memorial Hospital)

Yale New Haven Health Members

Bill Aseltyne
Rich Lisitano
Brett Perrone

A COORDINATED APPROACH TO PHYSICIAN RECRUITMENT

Recruiting a new physician may seem like a fairly straightforward task. But there are many related decisions and actions that must be taken every time a physician is hired, and they often fall through the cracks. In addition, each YM department and each YNHHS delivery network has traditionally handled recruitment on its own, creating fragmented processes.

A group of physicians working with the YNHHS Office of Strategy Management studied the problem for about a year, and in October 2019, the DoCS (Deployment of Clinical Services) Committee was born. The DoCS Committee includes representation from YM, NEMG, YNHHS, and a number of hospitals within the health system. The committee's mission is to assess every potential physician recruitment within all of the organizations and consider a wide range of factors, including: How does the position align with existing programs and service lines? Is there office space and clinical space for the new physician? What are his or her IT needs? Will the physician need ancillary staff, such as an advanced practice provider (APP)?

The goal is to create a coordinated, standardized process for hiring new physicians across the system, and to anticipate their needs before they arrive. The DoCS Committee will not have input into who is hired, but it will ensure that newly recruited physicians have the necessary infrastructure and support to succeed. In addition, the committee will strive to take a more strategic and less reactive approach to physician recruitment, in order to better respond to the needs of the enterprise and support a single signature of care.

"Our charge is to develop a recruitment strategy that is more coordinated, more transparent, and more agile," says Peter Schulam, MD, PhD, co-chair of the DoCS Committee. "We owe it to our patients to provide a more consistent, coordinated care pathway, and this is an important step on that journey."

Dr. Schulam also serves as chief innovation and transformation officer for YNHHS, as well as chair of urology at YM and chief of urology at Yale New Haven Hospital. In addition to Dr. Schulam, the DoCS committee is co-chaired by Richard Goldstein, MD, PhD, vice president and chief medical officer of NEMG. The committee is supported by a team led by Evan Coleman, director of the Enterprise Project Management Office.

"An incredibly powerful result of DoCS is having YNHHS, YM, NEMG and the delivery networks conversing together to speak not only of individual recruitments but also of longer term goals and program development," says Dr. Goldstein.

CREATING COMMON STANDARDS OF CARE

Another complex and ambitious integration initiative involves the development of “Integrated Care Models” (ICMs), which provide standardized protocols for specific conditions and procedures across all ambulatory practice sites affiliated with YM, NEMG, and the YNHHS delivery networks. The goal is to create common clinical and operational standards and a single signature of care spanning all ambulatory locations.

“At the end of the day, we want to minimize unnecessary variation in care and improve patient outcomes,” says Rogerio Lilenbaum, MD, former chief medical integration officer for ambulatory services for YNHHS, NEMG, and YM. Dr. Lilenbaum has been leading the ICM initiative, together with Maribeth Cabie, PharmD, director of clinical redesign for YNHHS.

Every six months, four medical conditions and/or procedures are identified and selected for ICMs based on a variety of factors, including input from stakeholders and the potential for meaningful impact on patients. Teams of about 15-20 people are created for each condition, including physicians and operational leaders from across the various delivery networks with expertise in the particular condition. Together they set guidelines and goals for the integrated care model; gather input; review evidence; analyze best practices; and ultimately develop shared standards and protocols for the given condition.

To date, there have been two six-month cycles, or “waves,” of ICMs, with each wave focusing on four conditions. The conditions addressed in each wave are as follows:

WAVE ONE:

- Pediatric Asthma
- Abnormal Mammogram
- Colonoscopy
- Abnormal PSA Levels

WAVE TWO:

- Anticoagulation for Atrial Fibrillation (AFib)
- Incidental Thyroid Nodules
- Pediatric Obesity
- Low Back Pain

In each case, the teams set specific, measurable standards that are likely to have a significant impact on patient care. For example, the ICM on mammography requires that when a woman has suspicious findings on a mammogram, a biopsy must take place within seven days. That is now standard practice across all ambulatory sites in the system.

The ICM on pediatric asthma set a goal of reducing the number of Emergency Department visits by children

with uncontrolled asthma. The team created a scoring tool that quantifies how well-controlled a child’s asthma is, thereby removing subjectivity from the assessment and ensuring that clinicians across the system are using the same tool to make that determination. Working closely with Information Technology Services (ITS), the team also developed a standard template for determining necessary changes in a child’s treatment regimen.

Both the scoring tool and the template for changing treatment regimens have been embedded into Epic. Embedding these ICM standards and decision support tools in the electronic medical record is relatively uncommon and innovative, Dr. Lilenbaum says.

After each ICM is implemented, the teams track the data, gather feedback, and continue to make modifications as needed.

“This is a truly collaborative process that has engaged and aligned different physician practices and different delivery networks to develop a care signature for the entire enterprise,” Dr. Lilenbaum says.

For more information about the DoCS Committee, please contact Peter Schulam, MD, at peter.schulam@yale.edu.

For more information about Integrated Care Models, please contact Yale Medicine CEO Paul Taheri, MD, at paul.taheri@yale.edu.

Clinical Expansion



Marc Kosak, left, senior vice president of operations for Greenwich Hospital, and Craig Tifford, MD, YM regional medical director for Fairfield County, stand outside the new clinical facility at 500 West Putnam Ave. in Greenwich.

ROBERT A. LISAK PHOTO

YM's Growing Presence in Lower Fairfield County

Yale Medicine continued expanding its presence in the competitive Lower Fairfield County market in 2019 in order to enhance access for patients in that region. Working in partnership with Greenwich Hospital (part of the Yale New Haven Health system), YM extended its hours and broadened its offerings in Stamford and launched an array of new services in Greenwich.

"I am very excited about Yale Medicine's future in the Fairfield County marketplace and look forward to the execution of our planned expansion in the region," says Craig Tifford, MD, YM's regional medical director for Fairfield County and an orthopedic surgeon specializing in sports medicine. "We are a world famous, world class organization, and we are delighted that patients in this part of Connecticut and nearby Westchester County now have access to Yale's exceptional level of medical care."

LONGER HOURS AND TRANSPLANT MEDICINE

Yale Medicine made its first foray into Lower Fairfield County in 2016, with the opening of a multispecialty practice at Long Ridge Medical Center in Stamford focusing on musculoskeletal care, with services in orthopaedics, neurology, neurosurgery, physiatry, and rheumatology.

In October 2019, YM Orthopaedics extended its hours at Long Ridge Medical Center to enable the provision of after-hours and weekend orthopaedic urgent care services. The center is now open until 8 p.m. Monday through Friday, and from 8 a.m. to noon on Saturday. (Previously, the center closed at 5 p.m. on weekdays and did not have Saturday hours).

In addition to providing after-hours services, Long Ridge Medical Center began offering a number of new specialties and sub-specialties in 2019. Most notably, Yale Medicine Transplant, Nephrology, and Hepatology joined the Long Ridge practice, and patient interest has been high, Dr. Tifford says. He notes that the center is the only medical facility in Lower Fairfield County providing pre- and post-transplant care. The Stamford site also now provides specialized care for several rare diseases, including Gaucher disease and Wilson disease.

In addition, Yale Medicine hired a full-time orthopaedic foot and ankle surgeon, Sean Peden, MD, for Long Ridge Medical Center in 2019, and it is actively recruiting for a full-time joint replacement surgeon at the Stamford location. In early 2020, YM will begin reconfiguring the space at Long Ridge Medical Center to create an even greater number of exam rooms to accommodate additional clinical expansion.

STRATEGIC EXPANSION IN GREENWICH

In nearby Greenwich, as the partnership between Yale School of Medicine (YSM) and Greenwich Hospital deepens, the two institutions are exploring broadening their academic alignment by creating a YSM “branch campus” at the hospital. Topics under discussion include making Greenwich Hospital a teaching and rotation site for YSM students and residents, and expanding clinical trial opportunities in Greenwich.

In the shorter term, Greenwich Hospital is helping Yale Medicine expand its footprint in Greenwich and in

Westchester County, NY, with an array of new specialties. In the fall of 2019, the hospital opened a bright and modern new medical facility at 500 West Putnam Ave. in Greenwich that is now home to a Yale Medicine Heart and Vascular Center and a Pediatric Sub-Specialty Center at which a number of YM physicians practice.

Among the YM specialties now available in Greenwich are medical oncology, therapeutic radiology, neurology, neurosurgery, and urology. Plans by YM Otolaryngology and Ophthalmology to open an eye and ear center in Greenwich are currently in development, and discussions are underway to establish a YM Orthopaedics center in Greenwich as well.

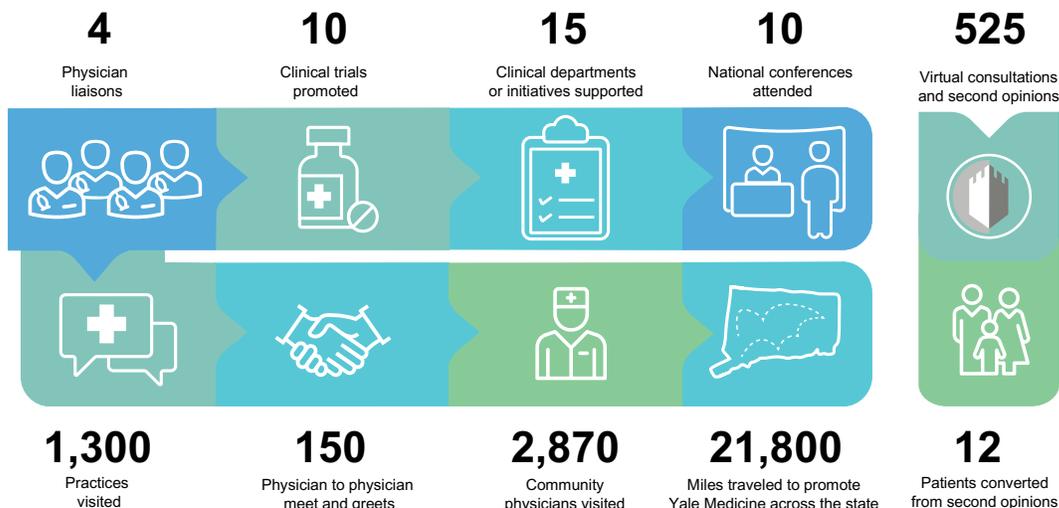
For more information, please contact Chief Strategy Officer Kimbirly Moriarty at kimbirly.moriarty@yale.edu.

Yale Medicine Physician Outreach Overview—CY 2019

Yale Medicine’s Physician Liaison Program plays a critical role in the success of clinical expansions like those in lower Fairfield County and throughout the state, by cultivating and supporting new referral sources. YM’s physician liaisons connect community physicians and their staffs with Yale Medicine specialists, provide them with information on new programs and services, and assist in the resolution of service-related issues.

In 2019, Yale Medicine’s four physician liaisons traveled throughout Connecticut, visiting 1,300 practices and 2,870 community physicians.

“Our Yale Medicine physician liaison team is available to help referring physicians navigate through the referral process, address specific issues or concerns, and help facilitate communication between referring physicians and YM specialists,” says Frank Mennone, manager of the Physician Liaison Program. “Our knowledgeable team is happy to assist physicians with any questions that may arise and to help make the referral process go as smoothly as possible.”



Clinical and Translational Research



YCCI: A Year of Transition and Growth

2019 was a year of transition for the Yale Center for Clinical Investigation (YCCI), with the retirement of its founding director, Robert Sherwin, MD, after 44 years of service at Yale. But it was also a year of exciting new developments, including the appointment of two new co-directors, a record number of participants from underrepresented populations taking part in clinical trials, the launch of one of the largest DNA sequencing projects of its kind, and the introduction of electronic consent.

YCCI is Yale's hub for clinical and translational research, providing a wide range of services to support faculty research as well as programs to educate the next generation of clinician scientists. Under Dr. Sherwin's leadership, YCCI became one of the first 12 recipients of the NIH-funded Clinical and Translational Science Award (CTSA) in 2006. Yale's CTSA has been renewed twice, in 2011 and 2016, and YCCI is now preparing to apply for its third renewal.

After an extensive search for a successor to Dr. Sherwin, the YCCI Executive Committee selected Brian Smith, MD, and John Krystal, MD, as co-directors of the program. Drs. Smith and Krystal have been among the most active clinical chairs and researchers engaged in the CTSA, including assisting Dr. Sherwin in planning and writing Yale's first CTSA application. Dr. Smith is deputy dean for scientific affairs (clinical departments)

and professor and chair of the Department of Laboratory Medicine, with a secondary appointment in biomedical engineering. Dr. Krystal is the Robert L. McNeil, Jr. Professor of Translational Research; professor of psychiatry, neuroscience, and psychology; chair of the Department of Psychiatry at YSM; and chief of Psychiatry and Behavioral Health at Yale New Haven Hospital.

"There is no doubt that this is the most exciting era that we have seen in translational medicine research," says Dr. Krystal. "We are very fortunate to build on the foundation established by Dr. Sherwin. We now face exciting new opportunities arising from new technologies and the creative ideas and energy of our young scientists. Dr. Smith and I look forward to working closely with the YCCI team, our new dean, and scientists across the medical school to capture the opportunities that will emerge with the hoped-for renewal of our CTSA grant."

Dr. Smith expresses similar sentiments. “YCCI, under Dr. Sherwin’s leadership, has been a transformative force at the medical school, providing the infrastructure for dramatic growth in clinical trials, particularly investigator-initiated trials, and for nurturing a team translational science environment that includes investigators from across the entire university (School of Nursing, School of Engineering, School of Public Health, the Faculty of Arts and Sciences, and the School of Medicine).”

In addition to the appointments of Drs. Smith and Krystal, Eric Jose Velazquez, MD, was named deputy director of clinical trials innovation for YCCI, joining five other deputy directors. Dr. Velazquez is the Robert W. Berliner Professor of Medicine (Cardiology); section chief of the Division of Cardiovascular Medicine; chief of Cardiovascular Medicine at Yale New Haven Hospital; and physician-in-chief of the Heart and Vascular Center at Yale New Haven Health.

2019 HIGHLIGHTS

In Fiscal Year 2019, YCCI supported more than 900 faculty investigators by providing one of its portfolio of services about 4,300 times. This portfolio includes a comprehensive range of services supporting all aspects of clinical research, such as grant applications, budget development, recruiting subjects, complying with monitoring and reporting requirements, and much more.

FY19 was also a successful year for YCCI’s recruitment efforts, with a record 27,000 individuals participating in clinical trials. Perhaps most significantly, 30% of those participants were from historically underrepresented populations, which is also a record for Yale, says Tesheia Johnson, YCCI deputy director and chief operating officer. YCCI does extensive community outreach and engagement, through its Cultural Ambassadors program and other initiatives, to recruit members of underrepresented groups for clinical trials.

YCCI’s recruitment efforts have been enhanced in recent years by the growing popularity of MyChart, which allows users to create a volunteer profile and register to be considered for clinical trials. In addition, YCCI has been partnering with Yale Medicine’s physician liaisons to distribute information about clinical trials to community physicians.

In one of the newest recruitment tools—known as “Direct to Patient”—researchers can leverage the wealth of information in Epic by building queries with very specific criteria to identify studies in which particular patients may be interested. When the system identifies a potential match, an automatic message is sent to the eligible patient through MyChart to ask if they are interested in learning more about the trial. Patients who choose to decline or not respond will not have any information shared.

GENERATIONS, ECONSENT, AND VIDEO VISITS

Among the most exciting new projects launched in 2019 is “Generations,” one of the largest DNA sequencing projects of its kind in the United States. The project is a joint initiative of YSM and YNHHS, and is being administered by YCCI.

The mission of Generations is to enroll more than 100,000 patients in and near Connecticut whose DNA will then be analyzed by Yale scientists to develop useful data for predicting, preventing, and treating what may eventually be hundreds of gene-related conditions.

YCCI is providing staffing and oversight for the project, as well as recruiting participants and getting their consent.

And that has led to another new development for YCCI. The Generations project is one of three studies that are currently using eConsenting, enabling participants to consent electronically through Epic. eConsents have a number of advantages for both doctors and patients: they are more secure, they are searchable in Epic, they are more environmentally friendly, and copies are made available to patients in MyChart.

The next innovation in the recruiting and consenting process is likely to come in early 2020, with technology that allows patients to schedule time with a research coordinator and meet with the coordinator by video at any time, including nights and weekends.

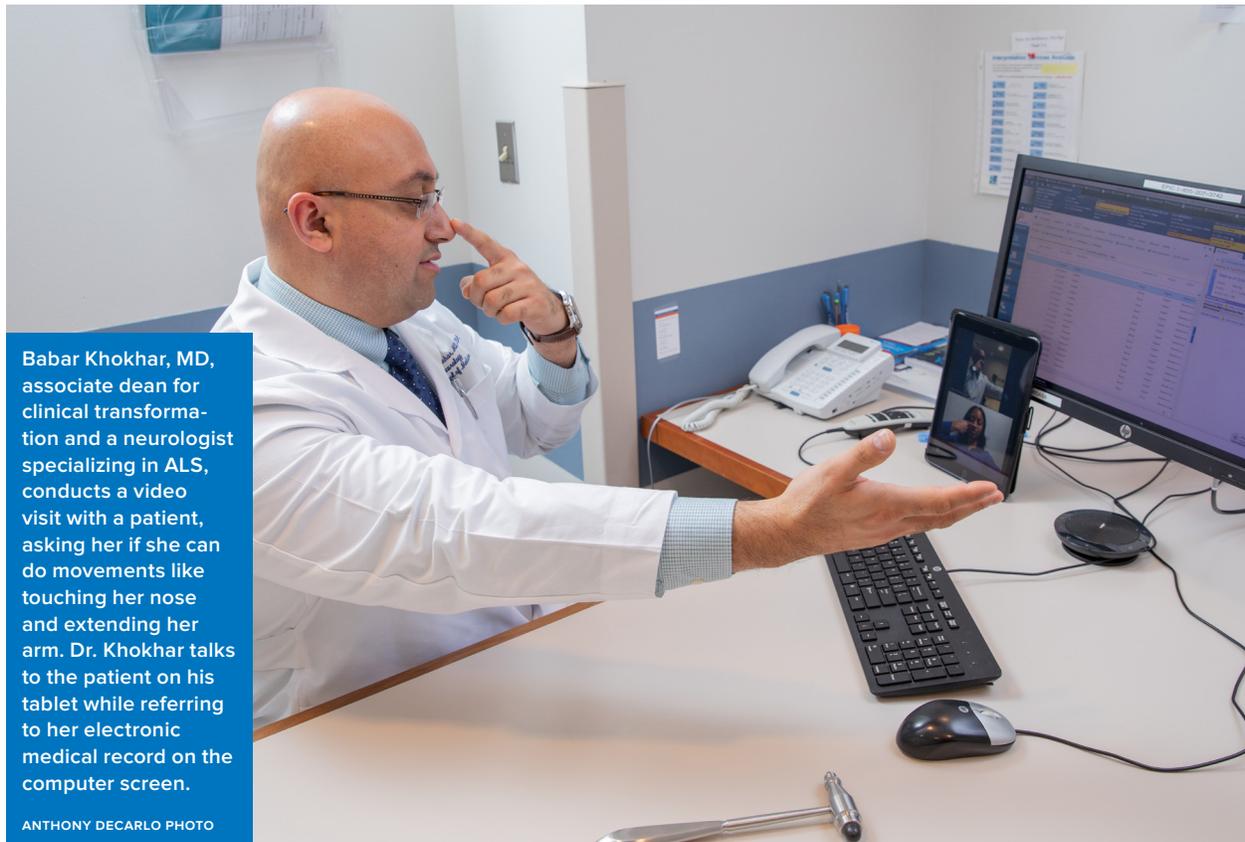
Those who are contacted through the “Direct to Patient” method, in which researchers build queries to identify patients who may be interested in specific studies, will be able to use eScheduling to set up a consultation with a research coordinator, in either English or Spanish. A research coordinator will be available 24/7 to talk with them, either by video or by phone. The coordinator will answer their questions and even guide them through a consent form, which they can sign on the spot through MyChart. If the patient does not qualify for a particular study, the research coordinator can let them know about other studies for which they may be a good match.

The 24/7 availability is extremely important because about 40% of those who receive automatic messages through the “Direct to Patient” program respond to the messages after hours, Johnson says. That number goes up to about 60% for members of historically underrepresented populations.

“Technology is making it possible for us to talk with patients when it is most convenient for them,” Johnson says. “It’s exciting to see all the new possibilities for recruiting and matching patients with potentially life-saving clinical trials.”

For more information, please contact YCCI Deputy Director and Chief Operating Officer Tesheia Johnson at tesheia.johnson@yale.edu.

Telehealth



Growing Popularity of Telehealth is Changing Health Care Delivery

Telehealth continued to be a top strategic priority and an area of ongoing growth in 2019, with new and expanded programs; a growing team of telehealth employees; and coverage for telehealth services added by several major insurance companies.

Telehealth programs take a variety of forms, including video visits between patients and physicians, video consultations between providers, and remote device monitoring. The programs are a joint effort of Yale Medicine (YM) and Yale New Haven Health (YNHHS).

APPOINTMENTS FROM ANYWHERE

Video visits are among the most popular telehealth programs, as they allow patients to have remote appointments with their doctors using a smart phone or tablet. YM physicians have been using the technology to follow up with patients after surgery and other procedures, saving patients and their families a tremendous amount of time and disruption to their daily lives. For example, with video visits patients

don't have to take time off from work or school, and they don't have to drive to New Haven for routine follow-up appointments.

In fact, the number of video visits across YM and YNHHS doubled in 2019, says Associate Director of Program Development Nikki DeLucia, who oversees all YM telehealth initiatives.

"Patients absolutely love doing a video visit," says J. Grant Thomson, MD, director of Yale Medicine Hand & Microsurgery. "They still get to talk to me and see me one-on-one. They don't have to travel or pay for parking. One patient even did her visit while she was shopping at the grocery store!"

Sometimes the benefits of video visits go beyond convenience. Among the new telehealth programs

that began in 2019 are video visits for patients with Amyotrophic Lateral Sclerosis (ALS), also known as Lou Gehrig’s disease. For patients who are in the later stages of this neurodegenerative disease, getting to a doctor’s office in person can be extremely difficult.

Babar Khokhar, MD, associate dean for clinical transformation and a neurologist specializing in ALS, had visited late-stage ALS patients in their homes until about six months ago, when he began seeing those patients through video visits. Now, instead of having Dr. Khokhar come to their homes or arranging special transportation to his office, patients can have an appointment with Dr. Khokhar through their phone or tablet.

“My patients love it. They absolutely love it,” Dr. Khokhar says. Some of Dr. Khokhar’s late-stage ALS patients have moved into nursing homes where Dr. Khokhar does not have privileges—if not for video visits, he would no longer be able to see them.

Video visits can also take place between Yale Medicine doctors and patients in hospital Emergency Departments. For example, the telehealth team is currently working to expand a program in which physicians in YM’s Department of Psychiatry consult by video with ED patients at hospitals within the YNHHS network.

PROVIDER-TO-PROVIDER CONSULTATIONS

In addition to video visits that connect physicians and patients, YM and YNHHS have been expanding provider-to-provider telehealth programs. These programs enable doctors at smaller community hospitals to have video consultations with Yale Medicine specialists. The video technology makes it possible for the YM specialist to comment as the patient is being examined.

In 2018, for example, YM launched a program that

enables doctors at Westerly Hospital in Rhode Island (part of the Yale New Haven Health system) to have video consultations with neurologists at Yale Medicine. In 2019, YM expanded the tele-neurology program to include Johnson Memorial Hospital in Stafford Springs, Conn., and is in negotiations to extend the program to other hospitals as well.

Also in 2019, Yale Medicine began providing video consultations in pediatric neurology to physicians in the Bridgeport Hospital Emergency Department.

INSURANCE COVERAGE AND TELEHEALTH TEAM

Another significant step forward in 2019 was the decision by several large insurance companies, including Anthem and United Healthcare, to provide reimbursement for telehealth services, DeLucia says. Until now, one of the obstacles to expanding telehealth programs was the fact that payors had not been covering those services.

In another sign of the growing importance of telehealth, YM and YNHHS are in the process of expanding their telehealth team. Most recently, a telehealth trainer was hired, and YM/YNHHS will also be filling the positions of telehealth director, program manager, and project coordinator.

“For the first time, we will have people whose jobs are entirely devoted to telehealth,” DeLucia says.

And that’s a good thing, because YM and YNHHS are planning to expand provider-to-patient video visits to additional specialties in 2020, in order to satisfy growing patient demand.

For more information, please contact Chief Strategy Officer Kimbirly Moriarty at kimbirly.moriarty@yale.edu.

A Year of Expansion for eConsults

Another form of telehealth, eConsults, expanded significantly in 2019, as more specialties came on board, the number of participating primary care providers grew, and more insurers began covering eConsults.

eConsults enable primary care providers (PCPs) to ask patient-specific questions of YM specialists through the electronic medical record (Epic). This process can save patients from the inconvenience and expense of unnecessary specialist referrals, while providing primary care doctors with the information needed to successfully manage their patients’ conditions.

The program launched in 2018 with two departments—Cardiology and Neurology—participating. Today, YM specialists in 14 departments and sections are available to answer questions from PCPs through Epic, with more expected to come on board soon.

In a recent survey of participating PCPs, 94% said they were highly satisfied with the response they received from Yale Medicine specialists.

“The program has been very popular and well-received among primary care providers and specialists alike,” says YM Director of Population Health Brita Roy, MD, MPH.

For more information, contact Director of Population Health Brita Roy at brita.roy@yale.edu.

Digital Marketing

Teen Vaping Linked to More Health Risks

By KATHLEEN RAVEN DECEMBER 18, 2019

Insights into vaping and the EVALI outbreak



A popular type of vaping device, called pod mods, look like USB drives and can even be charged via a laptop or USB port. Yale researchers in addiction medicine are concerned that teens may not know that they could be vaping with nicotine, a highly addictive drug.

This article on the dangers of vaping and another on the use of ketamine to treat depression generated the highest amount of traffic on the Yale Medicine website in 2019.

Published: September 13, 2018. Updated: December 18, 2019.]

ago, the Centers for Disease Control and Prevention (CDC) advised e-cigarettes while federal and state officials investigate an ongoing break of severe lung injuries associated with the use of e-cigarette, or

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A Breakthrough Year for YM's Online Visibility

Among the biggest national health stories of 2019 were the outbreak of severe lung injuries associated with the use of vaping products, and the FDA's approval of a drug derived from ketamine to treat depression.

Yale Medicine published a series of informative and compelling articles on those topics on yalemedicine.org, and they generated the highest amount of traffic to date on the website.

The success of those articles is an example of the power of "content marketing," in which Yale Medicine

promotes itself indirectly through absorbing, often personal stories about patients, physicians, and medical news. The stories feature quotes and information from Yale Medicine physicians as well as YM angles on national stories. For example, the article about ketamine highlighted the work of Yale Medicine physicians, led by

John Krystal, MD, who pioneered research on the use of ketamine to treat depression. (Click to see the YM article on [ketamine](#), and see one of a series of articles on [vaping](#).)

Content marketing is just one of many strategies that made 2019 a breakthrough year for Yale Medicine's online visibility and digital marketing efforts.

Overall, the number of unique visits to the YM website grew by an impressive 185% over the past year, increasing from 1,020,381 unique visits in 2018 to 2,905,756 in 2019.

Notably, the vast majority of that traffic was organic (non-paid), meaning that most visitors were directed to the site through Google and other search engines.

Yale Medicine's content and marketing teams have been especially focused on building brand awareness in Lower Fairfield County. In 2019, web traffic from Lower Fairfield County grew by about 54% over the previous year. In fact, Stamford now ranks 8th among the markets that generate the most visits to the YM site.

KEYWORDS AND READER ENGAGEMENT

In another indication of significant growth in Yale Medicine's online presence, the number of YM keywords ranked by Google has more than quadrupled over the past year, from 50,000 to about 228,000. When a keyword is "ranked," it means that Google has deemed YM's website as a worthy destination for people who use that word in a search.

Yale Medicine has more than 3,100 keywords that are ranked by Google in one of the top three positions. Therefore, if you use one of those words in a Google search, a Yale Medicine page will typically show up as one of the top three search results. (For instance, try searching "EVALI.")

One of the most encouraging signs of engagement with the YM brand is the fact that online visitors spend a relatively long time reading our content. In Fiscal Year 2019, the mean time that readers spent on one of Yale Medicine's top 10 feature stories was eight minutes and 42 seconds. That is a significant increase over FY18, when the mean time was three minutes and 32 seconds. Overall in the field of health care, a web page is considered successful if readers spend two minutes on it.

MEDIA OUTREACH AND YOUTUBE

So how has Yale Medicine achieved these results? YM has employed a variety of digital marketing strategies, including a wide range of engaging and informative content on the website and on social media, such as feature stories, videos, health tips, and physician

profiles. Other strategies include paid advertising on search engines and pay-per-click ads that promote physicians and services.

Most recently, Yale Medicine launched a media outreach initiative to place more YM physician experts in print, broadcast, and online outlets. Since March 2019, media outreach initiatives have generated an ad value equivalency of about \$15 million. In other words, the earned media placements during that time are equivalent in value to \$15 million worth of paid advertising.

Among the top media outlets in which Yale Medicine doctors were featured in 2019 are *USA Today*, *Chicago Tribune*, *Business Insider*, Yahoo, and Healthline, the No. 1 online consumer health platform.

Yale Medicine also has been working to build its presence on YouTube. For example, YM recently published a new video on YouTube called "Why Yale" that focuses on clinical and translational research. YM also has been building its presence on YouTube with physician video profiles, documentaries, and feature stories.

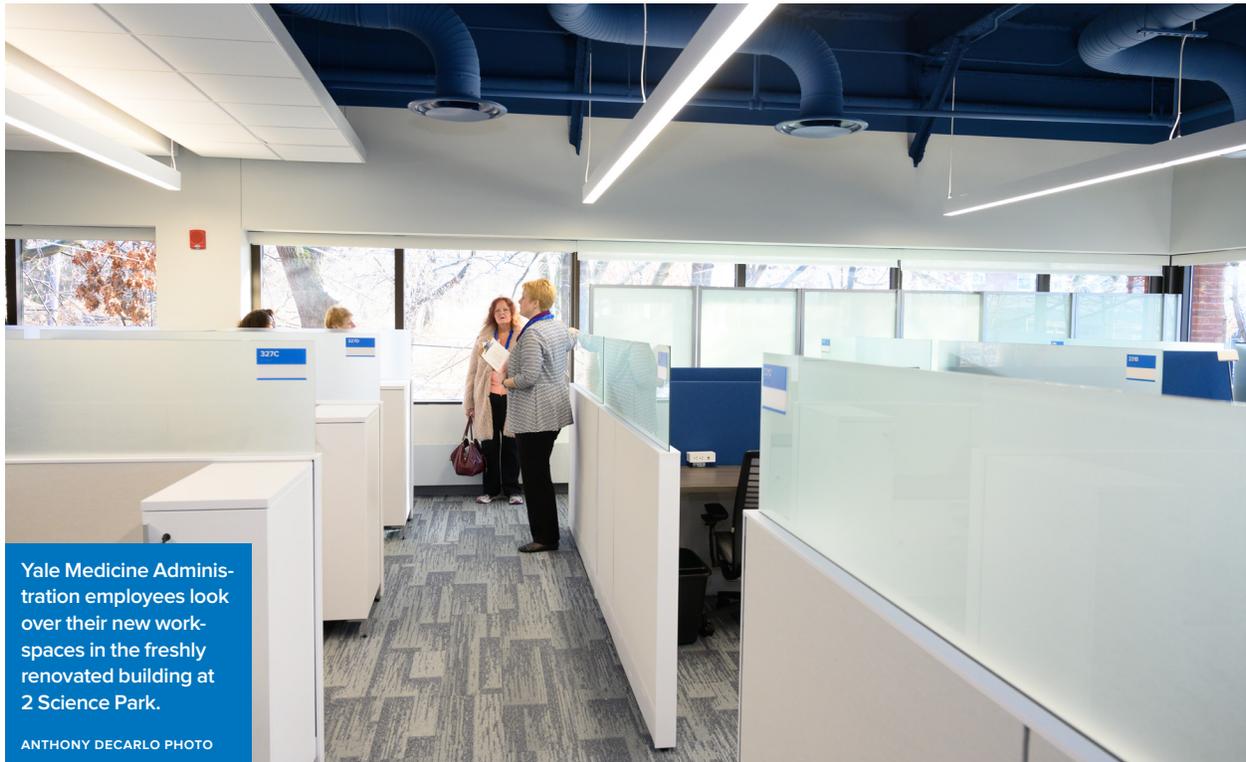
The total number of views of YM videos on YouTube, Facebook, and Vimeo has risen by about 64% over the past year, from 955,642 in 2018 to 1,564,049 in 2019.

Based on the steady growth of Yale Medicine's digital footprint over the past few years, there is every reason to believe that YM's online presence will continue to expand in 2020 and beyond.

"The growth of YM's online visibility is exciting, and our content and marketing teams appreciate the clinical faculty's openness to working together to make it happen," says Nicole Wise, executive editor and director of content strategy and marketing for YM. "2020 promises yet more growth, with the launch of a redesigned, revamped website and our tie-in with YM CARE Center operations."

For more information, please contact Executive Editor and Director of Content Strategy and Marketing Nicole Wise at nicole.wise@yale.edu.

Science Park Expansion



YM Develops a Significant Presence in Science Park

The new YM CARE Center is not the only Science Park location where Yale Medicine will have a strong presence.

In late 2019, about 400 Yale Medicine Administration (YMA) staff members moved to a renovated, three-story building at 2 Science Park. Once the YM CARE Center at 25 Science Park is fully staffed, Yale Medicine will have a total of about 700 employees at the two Science Park locations, bringing the total number of Yale University employees at Science Park to about 1,500.

Science Park is strategically important to Yale University as a hub for innovation and growth and an increasingly vibrant community. With hundreds of employees spread out over two Science Park buildings, Yale Medicine will play an important role in the development of this dynamic hub.

FREEING UP RESEARCH AND CLINICAL SPACE

Most of the YMA employees who moved to 2 Science Park had previously worked on the sixth floor of 300 George Street, which was vacated to free up much-needed space for research and clinical care. YMA staff also moved to 2 Science Park from West Campus, once again freeing up space that could be used for clinical programs.

In addition to creating more research and clinical space, the move to 2 Science Park brings YMA staff together as a department, thereby creating a greater sense of teamwork. The modern layout and furnishings in the building are designed to encourage collaboration and communication, with spaces that are more contemporary, more flexible, and that create a more professional environment.

About 80 staff members who need to be in close proximity to the School of Medicine moved from 300 George Street to a suite on the first floor of 100 Church Street South, which was redesigned with the same kind of layout and furnishings as 2 Science Park.

For more information, please contact Chief Administrative Officer Fred Borrelli at frederick.borrelli@yale.edu.

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