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NORTON COLLEGE OF MEDICINE 2023 ANNUAL REPORT



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Lawrence Chin, MD,
Dean of the Norton College of Medicine
at Upstate Medical University

Welcome to the Norton College of Medicine

This year's report focuses on the development of the new curriculum introduced with this year's entering class. Within these covers you'll learn about the process undertaken, meet some of the faculty, students and staff involved in the revision and also learn about some of the outstanding members of the Upstate Medical University community and the notable contributions they are making to medical education and biomedical research.

We suggest you start with Dean Lawrence Chin's essay for an overview of the revised curriculum and continue on with separate perspectives from a member of the faculty and from one of the Norton College of Medicine's students.

Beyond that are articles discussing discrete aspects of the revised curriculum, including updates to Phase 1 and Phase 2 of medical education at the Norton College, and detailed discussion of Longitudinal Clinical Preceptorships, Health Science Systems, Active Learning and Community Engaged Learning.

While it is just one aspect of the new curriculum, the three-year MD program has drawn a great deal of attention among aspiring medical students. The program, and student perspective on it, is discussed on page 16.

The Norton College of Medicine's Public Health programs, including MPH, MD/MPH have evolved, adding a new track for those interested in global health.

This report includes profiles for several People You Should Know, faculty and staff whose research, commitment to medical education or expertise we are pleased to be able to share with you.

As a growing institution, we share an important update on facilities here at Upstate Medical University. As an academic medical center, these facilities are an important part of advancing both patient services and medical education.

As in the past, this annual report includes a comprehensive listing of the departments that make up the Norton College of Medicine.

We conclude with a look at some numbers that help indicate how the Norton College of Medicine is rising to meet the health challenges facing our region, the nation and the world.

Lawrence Chin, MD FAANS, FACS
Dean
Alan and Marlene Norton College of Medicine
Robert B. and Molly G. King
Endowed Professor of Neurosurgery



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A curriculum for an effective, efficient, flexible education

BY DEAN LAWRENCE CHIN, MD, FAANS, FACS

When I started as dean of the Norton College of Medicine four years ago, I knew that providing an effective, efficient and flexible education that prepared students for how medicine is practiced today and in the future was the most important task before me. We started a four-year process of planning, critical evaluation, and feedback from all levels of the medical school, including medical students, to create a dynamic curriculum that would incorporate active learning in both small and large group settings along with the latest technology such as simulation, virtual reality, and point-of-care devices such as ultrasound. The biggest change we made is a shortened 15-month pre-clinical Phase 1 followed by an earlier entry into clinical clerkships. This provides more clinical exposure and opportunities for students to try specialties such as pathology that are not part of the required clinical rotations. While it may seem that 15 months is a short period of time to learn the basic sciences, we plan on integrating more science content into the clerkship years, which will enhance our student's comprehension and retention of clinical concepts.

In addition to the structural curriculum changes, several new longitudinal courses have been integrated into the traditional organ-based units. One of the important goals of the new curriculum was to

get our students earlier clinical exposure so they can begin learning the important skills of patient communication and working in healthcare teams. The longitudinal clinical preceptorship matches each new first year student with a clinician and their ambulatory practice. For example, I have two students who work with me in my neurosurgery office every other week and they practice taking histories and doing physical exams. They also learn to use the electronic



medical record and interact with advanced practice providers and nurses. A new Brain and Body course weaves elements of the nervous system into the other organ system units, and a Health Systems Science course introduces more discussion of health equity and bioethics along with a required community service requirement.

The last major change I want to introduce to you is the option for students to finish medical school in three years provided they are pre-accepted into an

Upstate residency program that they agree to enter following graduation. This accelerated program integrates the student into their future residency from the start and allows for a seamless transition from the undergraduate medical to graduate medical curriculum. One of my most important goals as a dean is to provide more physicians for the Central New York area, which remains underserved in both primary care and subspecialty services. The three-year path provides a cost-effective path for students who can handle the rigors of an accelerated education and then are more likely to stay in the region to practice. Providing the best care to our community must always be the primary mission of the Norton College of Medicine.

I am excited for the changes we have implemented but emphasize that the best curricula are not static. We will make changes every year based on results and the feedback that we receive. Rapid shifts in society such as artificial intelligence and climate change are already resulting in changes and additions to the "new" curriculum as this is going to press. I am energized by these challenges and optimistic for the future of medicine and our medical school.





Curriculum renewal is an ongoing process

BY RACHEL HOPKINS, MD

In a continuously changing and challenging health care environment, medical schools must adapt and evolve to meet the complex needs of our students, our patients, and society. This is an iterative process that sometimes results in major curriculum revision. Over the past several years, the Norton College of Medicine has embarked on a period of more significant curriculum renewal. In my role as clinical co-director of the new pre-clerkship curriculum, I have been motivated by several guiding principles: 1) the need to incorporate clinical relevance into the pre-clerkship years, 2) the need for students to understand the role of physicians in the current and future health care system, 3) the benefits of active learning to increase engagement and provide a foundation for critical thinking and lifelong learning and 4) the value of teamwork in modern healthcare.

One of the initiatives introduced as part of the curriculum renewal is the longitudinal clinical preceptorship (LCP) in which students will work one-on-one with physicians in outpatient practice for the first two semesters before becoming part of inpatient teams at the beginning of their second year. These early clinical experiences will allow students to start connecting what they learn in the classroom to real-world practice, inspire their curiosity and desire to learn more, and learn how to work with many people involved in helping a clinical practice serve its patients. For students, the LCP provides the opportunity for students to connect with an experienced mentor, and to begin to develop their clinical skills and professionalism. Faculty participating in LCP will have the opportunity to

help transmit values and habits to the next generation of physicians and to build a relationship with a student at a particularly impressionable moment in their education.

The inclusion of health systems science as a core component of the curriculum will ensure that students understand how the health care system works, who it does and does not serve well, and how physicians can advocate for changes in the system to better serve all patients.

The increased use of active learning modalities such as team-based learning (TBL) is designed to stimulate student engagement, collaboration, higher-order thinking, and retention of knowledge. For faculty, the emphasis on active learning brings with it the opportunity to look with new eyes at how we teach and enjoy a more enlivened classroom experience that will challenge both students and faculty to work together and reason through clinical problems.

The curriculum renewal is an ongoing process that requires constant evaluation and improvement. We are committed to ensuring that the pre-clerkship curriculum is aligned with the current and future needs and expectations of the health care system, the society, and the learners, and to adapt to the changing trends and innovations in health care and education. I believe that by providing students with a relevant, active, and collaborative learning environment, we can prepare them to become competent, compassionate physicians, and lifelong learners.

Behind revisions, thoughtful and inclusive meetings

BY HANNAH CONNOLLY '24

After I finished my MD and MPH coursework, I began my PhD in Social Science at Syracuse University, committed to becoming an expert on medical education and health justice. Starting my graduate schoolwork in Fall 2020, I immediately reached out to the Norton College of Medicine leadership to participate in curricular revision efforts, aiming to learn the inner workings of medical education and to apply the knowledge I was gaining in my coursework in real time. Almost four years later, I can safely say I've gained much more than that.

As 7 am rolled around every Thursday, I would log into a Zoom meeting with the leadership team of the Norton College of Medicine — impressively already at work as I was rushing through my first cup of coffee. Over the next hour, we would push on each other's ideas of what medical school should look like, what resources were available in our community, and how a curriculum revision would shape the lives of our students, faculty, and patients. More and more, I began taking up the space that the administrators had generously carved out for me to represent the student perspective. I would offer insights gained from my research around medical education, reach out to students for feedback, and arrange a credit-bearing elective to provide a more formal pathway for student engagement. At every critical juncture, student input was sought out and integrated. Moreover, we relied on outside experts, inside expertise, new educational research, and Upstate values to make important decisions around the central components of our future curriculum. Together, we landed on committing to earlier integration of clinical experiences, increased community engagement, expanded health systems science exposure, and improved efficiency and integration in the preclinical curriculum.

Three years later, through focus groups, working groups, steering committees, and executive committees, I am proud to be a part of a medical school community that thoughtfully developed a new medical school curriculum that meets the moment. I am inspired by the incredible number of hours and passion poured into this project. And, as we roll out this new curriculum and I roll into a new phase of my career, I am hopeful that medical educators and students at Upstate

will continue to value the bidirectional relationship between students and faculty. It is in the messy middle where we can clearly define our values and continue to shape a dynamic curriculum that prepares medical students to be physician-citizens who practice with clinical excellence, attuned to their patients and their communities.

Above all, this experience has been a deep dive into medical education leadership for me. Faculty and administrators have shared their time with me, explaining decision-making, institutional history and resource constraints. Quickly, the essence of leadership was so clearly defined: relationships. It's been a privilege to build relationships with the medical education community at the Norton College of Medicine and be a part of something meaningful for my medical school. I hope more medical students are able to participate in ongoing curriculum revision. This experience has made me acutely aware that a curriculum is more than a list of courses in a particular order: it's values, it's vision, and mostly, it's people. It's people waking up at early hours and sending emails late into the night bringing together knowledge to the best of their ability to provide the finest education for our students.

I am most grateful for this role for the opportunities to really get to know the people who make our curriculum come alive at the Norton College of Medicine, many of whom taught me as a first-year medical student eight years ago. Now, as I look towards graduation, Upstate's values, vision, and people make me proud to be a student of the Norton College of Medicine and confident that this new curriculum will prepare future students to be excellent physicians.



Pre-clerkship seeing many changes under new curriculum

Norton College of Medicine's updated curriculum brings sweeping changes to what had been the first two years of medical school, including reducing the pre-clerkship period from four semesters to three.

Pre-clerkship, or Phase 1 as it is commonly known, includes much that is changed about medical education at the Norton College of Medicine. Among those aspects of the new curriculum expressed during Phase 1 are a shift to "active learning," early clinical experience for students and an emphasis on health systems science, explained Rachel Hopkins, MD, co-director of Phase 1.

Active learning was one priority from the start of the curriculum review back in 2019. Active learning, and specifically team-based learning, have been integrated across the Phase 1 curriculum. Instead of sitting for lectures, students will be assigned

reading or video or other resources before they attend class. Once in class they complete a short quiz to make sure everyone has absorbed the material, said Rebecca Greenblatt, PhD, the other co-director of Phase 1.

From there, students will work in groups on problems or case studies or other activities. They will be working together toward solutions, Greenblatt explained. "Every unit of the new curriculum has a set of learning activities that are graded just as seriously as the quizzes that were based on the lectures."

The move to active learning is motivated in part by research showing that students better retain material encountered through active learning than through lectures. "We can enable them to learn the material if not more easily, than at least in a way that will help them remember it longer," Greenblatt said, "because they're

engaging with it more deeply than if they were just listening to a lecture."

It is also driven by the recognition that lecture attendance falls off dramatically as students proceed through medical school.

That's due in part to recordings that allow students to watch or listen to lectures at times most convenient to them. "It is a national trend that the further they go into medical school, the less likely medical students are to show up for a session if it's just a lecture," Greenblatt said.

That, she added, can be disheartening to professors who put a great deal of work into a lecture only to find a fraction of the class in their seats while the rest wait for the recording. "They can speed you up like a chipmunk and they can watch the whole session in 30 minutes."



A new focus on health system science is woven throughout the Phase 1 curriculum. One of the very first courses students take looks at ethics, one component of health systems science. The emphasis springs from a recognition that health outcomes are affected by more things than an individual's actions, that the environment, including the healthcare system, can contribute for good or ill.

Greenblatt noted that the health systems science courses will make use of Upstate's Simulation Center. The \$11 million, 8,600-square-foot facility provides students with a realistic experience of hospital rooms, including an operating room, in which to practice skills and engage in immersive patient care simulation.

Health systems science courses will include lessons on advocating for changes in the system to better serve patients. Being able to clearly address and affect policy is an important part of being a doctor, Greenblatt said. "It has become more true and more necessary that doctors are advocates."

The desire for early clinical experience has been addressed with a Longitudinal Clinical Preceptorship program that is putting each student in a physician's office for the first two-thirds of Phase 1 and will have them at the bedside with

physicians in the final third of Phase 1, said Hopkins.

Under the Longitudinal Clinical Preceptorship program, students will spend four hours in a physician's office every other week. The goal is to give students exposure to the day-to-day practice of medicine and provide a low-stress introduction to interacting and communicating with patients, said Hopkins.

Underlying the new curriculum is a switch to an organ-based one-pass system that replaces the previous organ-based two-pass system. Instead of learning about an organ system one year and the pathologies of that system the next year, the one-pass system sees students learning about the organ and potential abnormalities in the same course.

The change from two-pass to one-pass saves time, since there will be no need to review an organ on the second pass. That time savings has created the opportunity for the Norton College of Medicine to introduce a three-year MD program.

The changes to Phase 1 have required some extra work and some compromise. As originally conceived, students were to spend more time in the Longitudinal Clinical Preceptorships — perhaps as often as once or even twice a week, said Hopkins. But given the other demands on students, she said, "we realized that was not realistic."

Some teaching faculty, many of whom were used to lecturing, needed help understanding how to move to more active learning. "It's a different way of approaching education," Hopkins said, adding, "there has to be some faith that not everything students learn has to, or even should, come from the lectures we give."

Hopkins and Greenblatt are monitoring the success of the program and making changes as necessary. A discussion with student leaders led to a change in quiz schedules. "The students explained to us it would really be much easier for them to study effectively if a quiz were on Thursday rather than Monday," said Greenblatt. "We were happy to be able to make that change for them almost immediately, and it turned out to be more convenient for the instructors, too."

As other concerns arise both co-directors said they are ready and able to make adjustments. They sit in on classes, monitor grades, meet with students, and should it be necessary, Greenblatt said, "we are prepared to intervene in real time."

For Hopkins, there is a bottom line: "Our job is to help them start their journeys as physicians with a strong foundation of basic and clinical science that will allow them to be excellent problem solvers and team players in an evolving healthcare environment."





Medical students Michelle Melfi and Shawn Lansing meet with Scott F. Ulberg, MD, chief of the Adult Consult Liaison Service, chief of Psychiatry On-Call Services, and clinical assistant professor.

Clerkships, internships and a choice of electives

Change is coming to clerkships as part of the new curriculum in the Norton College of Medicine, explained Matthew Mason, MD, FAAP, director of Phase 2.

The new one-pass system, in which students will learn about organ systems as well as pathologies in those systems during the same section — instead of learning the systems at one time and the pathologies the next year — will result in clerkships starting and ending 10 weeks earlier than under the previous curriculum.

Those 10 weeks at the end of clerkships are particularly valuable to students as they prepare to take the USMLE (United States Medical Licensing Examination) Step 2 exam and fourth-year level clinical rotations to prepare for application to residency, Mason said. Those weeks can allow students to better prepare for what has become a high stakes exam. Since the USMLE Step 1 exam has switched to pass/fail, a student's Step 2 score has become the most cited quantifiable factor used by residency program directors as they make choices about who to interview for their residency programs.

"It's the only measure that can be directly compared across medical schools," said Mason.

Phase 2 also includes electives, with students choosing among more than 100. Then come acting internships to better prepare them for real-life practice.

For Mason, the changes that come before clerkship are promising. "I'm very excited about the bedside experience students will have in Phase 1." Longitudinal Clinical Preceptorships, a major part of the new curriculum, have students working alongside clinicians in offices now and will see them working alongside clinicians in a hospital setting during the latter months of Phase 1.

While many students moving to clerkships currently have very little clinical experience, students who entered the Norton College of Medicine in 2023 will have months of it. "They will have a huge advantage with it comes to starting clerkships," Mason said.

Right now, he said, the first clerkship can find a student overwhelmed by the environment. "I'm just trying to figure out how to take a history," Mason said, speaking for many students.

Something that will not change is that students will have the opportunity to have their clerkships, or "rotations," at Upstate Medical University or 75 miles south in Binghamton. Many students find the two-campus solution appealing.

Following clerkships, electives and acting internships comes the bridge course, "Transition Into Residency."

Moving from lectures to team-based learning

An important part of the new curriculum at the Norton College of Medicine is a move toward "active learning." The idea is to move from what some refer to as "passive lectures" to a model where students are more involved in their own learning, oftentimes side by side with their instructors.

As committees met to discuss revising the curriculum, active learning was seen as a way to better prepare students and move beyond the old model. That old model, "the sage on the stage," was becoming less relevant as technology allowed students to hear and even view lectures at a time and place of their choosing.

Students who had packed lecture halls in the first weeks of medical school found recorded lectures more convenient for their overloaded schedules and liked having the opportunity to go over sections of the lecture they found challenging. The result would be a great many empty seats in a lecture hall.

Active learning involves giving students briefer discussions of a subject they can watch before class, then using that material to instruct students in small groups, where instructors can better gauge how well students are comprehending material.

Active learning has been a hallmark of Upstate Medical University's Gross Anatomy program, said Robert Zajdel, PhD, director of Gross Anatomy and Anatomy thread leader. In part, he explained, that's because peer-to-peer teaching is a natural result of the way medical students share a single donated body.

At Upstate, four students are assigned a body and work together to learn. These teams of four share questions and insights, said Dana Mihaila, MD, PhD, an assistant professor of Neurology as well as Cell and Developmental Biology and Physical Therapy. "They teach each other," she said.

Zajdel noted that the courses in gross anatomy include 10- to 15- minute videos introducing topics, not hour-long lectures. Students can view the presentations — they are MP4 files — as many times as they feel they need to be prepared for class.

"The new curriculum is based on what has been happening for several years in Gross Anatomy," Zajdel said with a smile. "We have been ahead of the curve."



Active learning in gross anatomy can involve students in their four-person teams responding to questions flashed on the screen. The teams work out answers together and hold up a card indicating the team's answer.

While students learn in teams, Zajdel and Mahaila said they watch to see how individuals are doing. Perhaps a student doesn't seem as active in the group or, perhaps they look unsure of things. "You can see it in their eyes," Mihaila said.

They will encourage a student to visit the office so they can get a better feel for how the student is doing and, if the student is struggling, find ways to help. "Many times, we have a one-on-one session to explain what the student might not have understood," she said.

Revised curriculum puts students alongside clinicians sooner

The newly created Longitudinal Clinical Preceptorship is an integral part of the Norton College of Medicine's new curriculum. The program was designed to complement the existing Practice of Medicine and Foundations of Reasoning in Medicine courses which serve to teach clinical skills in small group classrooms. The LCP gives students early exposure to clinical practice in physicians' offices and the hospital.

Matthew Sarsfield, MD., FAAEM, RN, course director of Longitudinal Clinical Preceptorship, explains that longitudinal clinical preceptorships are an assignment at a clinical site, with the same preceptor, for the duration of the student's pre-clerkship period.

Students are assigned a physician in clinical practice and spend four hours approximately every other week in the office. On average, they are at the site 16 times through the course of their first academic year. They may work alongside the physician or may work with others in the doctor's office. The idea is to give students an early look at how a medical practice actually operates and give them skills they might not otherwise develop until their third year of medical school.

"It's not shadowing," Sarsfield said. "Who wants that? We want you involved."

Preparation for the program was a big part of the work Sarsfield undertook along with Amber Gray, Phase One Clinical Skills program manager. It involved recruiting physicians willing to serve as preceptors for students in their first weeks of medical school.

That required calming some concerns among practicing physicians. Sarsfield said they just needed to be reassured that their responsibility only extended to preceptorship, not to instructing the students in basic medical knowledge. "Really what they are doing is having a student in their office who is early in their studies, who really just needs to learn the basics of how clinical sites operate and how best to interact with patients."

With that established, more than 130 clinicians signed up as preceptors. Some stepped forward to serve as preceptor to more than one student. One was so enthusiastic, Sarsfield said, he offered to take on six students — one in the afternoon every Monday, Tuesday, and Wednesday.

Sarsfield and Gray also undertook the task of preparing students through a four-week, pre-medical school "boot camp." Students coming into medical school bring different experiences, Sarsfield noted. "I imagine that most of their backgrounds are pretty varied. Some of them may have been physician assistants, or nurses or respiratory therapists or social workers or EMTs. But some have gone straight from high school to college to medical school."

For that reason, boot camp included a review of CPR and sessions on vital signs, working with and treating those with disabilities, medical terminology and workplace safety, as well as an introduction to the Longitudinal Clinical Preceptorship and other longitudinal courses that focus on clinical skills pre-clerkship.

"We are just looking for them to start thinking medically, clinically, see actual patients, and speak to them," Sarsfield said. "They can find out what the office is all about, maybe work with a nurse in the office or the intake people who bring patients into rooms and take vital signs."

Some of the lessons are unexpected. For instance, students can see what happens when patients don't show up for appointments as well as what happens when someone calls in and says, "I have an issue."

To gauge the success of the program and make needed adjustments, the two have met with class officers to hear the opinions they have heard from fellow students. They've also been visited by students and received comments in emails from students as well as preceptors. Feedback for the program has been overwhelmingly positive, Gray said.



Intensive courses stress link between health and community

Upstate Medical University has long stressed that students have the opportunity to become physicians who improve the health of their patients and the health of their communities. The new Norton College of Medicine curriculum increases the emphasis on the latter by enlarging the portion of learning dedicated to Health Systems Science (HSS).

HSS was a key part of the curriculum as it was being developed, building on years of Patients to Populations courses and the Upstate Master of Public Health degree program. The MPH is available at Upstate both as a stand-alone degree and as part of an MD/MPH program.

The focus on HSS draws on the realization that, in the words of Christopher Morley, PhD, MA, professor and chair of Public Health and Preventive Medicine at Upstate, "patients don't exist in a vacuum."

Travis Hobart, MD, MPH, a pediatrician and co-director of the Health Systems Science program at the Norton College of Medicine, was involved early on in the curriculum review. He recalled being asked at a meeting, "How can we give it a little more emphasis in the new curriculum?"

In the new curriculum, HSS is integrated right from the start. Students learn about the connection between community

and health between the first and second organ-based sections. HSS is woven throughout the curriculum, Hobart explained, including in the entire 19.5-month Phase 1, or "pre-clerkship period," of the new curriculum.

"Intensive" HSS courses are held for a week between each body system course. A total of six intensive sessions expose students to different aspects of bioethics, public health, policy, advocacy, and finance. The courses are held between body system sections so that students can focus on various separate HSS disciplines with full attention. "Many now view medical education as having three pillars: basic science, clinical science and health systems science. All are important to the clinical care of patients in our existing healthcare system," said Hobart.

"There are multiple disciplines within HSS," said Hobart, "healthcare policy and finance, population health, public health." He's been teaching the course Patients to Populations at the Norton College of Medicine since 2017.

Amy Caruso Brown, MD, MSc, MSCS, interim chair of Bioethics and Humanities, a pediatric oncologist and co-director of the HSS program, teaches the first of the intensive core courses on HSS, Ethics, Equity, and Professionalism, which includes

continued next page



interactive large-group sessions, case analysis and case-based learning.

Caruso Brown explained that many Norton students arrive with some experience in the healthcare field. This means some students arrive having been exposed to implicit lessons about the healthcare system, which some call “the hidden curriculum.”

In the words of Caruso Brown, “A lot of health systems science gets transmitted there, not systematically or intentionally. You see people call and argue with insurance companies. You see the workarounds that they do to try to make our healthcare system work.”

That hidden curriculum can be good, but it can also predispose a student to a certain point of view. Caruso Brown offers as an example a student who has been exposed to complaints about decreased reimbursement to physicians following the passage of the Affordable Care Act. HSS aims to help those students get a more comprehensive view of the system, allowing them to see their experience in a more universal context.

Hobart is hopeful that the new Longitudinal Clinical Preceptorship program, which places students in physicians’ offices in the first months of medical school, will help students understand the link between health systems science and clinical practice. “Having seen some didactic material about population health or epidemiology may help them appreciate the determinants of health in a person’s life that one might think fall outside of medical practice. By talking to patients and seeing clinicians talk to patients, they will hear the stories of how different facets of health systems sciences affect patients’ lives. After hearing those stories, they may come back to later Health Systems Science sessions with a more complete appreciation of the issues.”

Hobart and Morley lead the second course in the series, Population Health and Preventive Medicine.

The goal of the course is to train students so they can help “bridge the gap between individual clinical care and public health.”

As Morley explained it, “We must consider a person in their context and consider what the system can provide.” As an example, he offers a patient with a metabolic disorder who lives in a neighborhood without a grocery store or that isn’t walkable.

“We need to look upstream, at what the physician can do for the whole community,” he said.

The third course in the HSS program is Epidemiology, Biostatistics, and Study Design, taught by Martha Wojtowycz, PhD, and Roger Wong, PhD, MPH, MSW. Wojtowycz, whose doctorate is in economics, has spent decades working on disparities in birth outcomes. Meanwhile, Wong’s work has included analyzing large data sets that show dementia has uneven impacts on different ethnic and racial groups.

Health Policy, Finance, and Delivery is the fourth course in the program. Led by Wojtowycz and Morley, the course discusses how American healthcare is delivered and paid for, and how healthcare is handled in other countries. Beyond delivery and finance, the course also looks at the quality of healthcare systems.

Rachel Fabi, PhD, a public health ethicist, leads Health Policy, Law, and Advocacy, the fifth course in the HSS program. Students in this course will learn how to share information and advocate for health policy. Storytelling, working with professional groups, meeting with policymakers, and even writing opinion pieces are part of the course.

The sixth course, which will be delivered 14 months after students first arrive, is Health Humanities. It will introduce students to the humanities — literature, narrative and the arts — as a means of analyzing social and structural impacts on health. It will demonstrate how community-based literature and arts can be a resource for healthcare and public health.

Sharing with students what it takes to improve a community

Community Engaged Learning (CEL) is a new program with a long past at Upstate Medical University. Students, especially students in the Norton College of Medicine, have for years been involved in finding ways to improve the community in which they learn through volunteer efforts. They’ve also been outspoken about shortcomings in the healthcare system, organizing an annual Healthcare Justice conference each January on the birthday of Dr. Martin Luther King, Jr.

Students have volunteered in community gardens, tutored public school students and, among other things, lead coat drives for elementary pupils.

The new CEL program is not a volunteer effort but a formal part of medical education. It puts students in direct contact with individuals and organizations working to improve the health of their communities.

Simone Seward, DrPH, MPH, assistant professor of Public Health and Preventive Medicine, is director of the CEL program. There are multiple goals for the required CEL program, Seward explained, including deepening students’ understanding about what the social determinants of health are. “It’s one thing to learn it in a textbook or in a case-based study but it adds another layer of understanding — and transforming people’s feelings and attitudes toward working with diverse communities — when they have a better understanding of what these determinants of health look like and how they impact their patients’ health outcomes, and their community’s health outcomes as a whole.”

Seward and Christine Podolak, MS, the program manager for Health Systems Science & Community Engaged Learning, are working to connect students with programs where they can learn specific skills, such as how to organize a clinic, how to plan for and implement a program and how to work collaboratively to maximize the benefit to the community.

Students will also have opportunities to learn advocacy skills from community leaders, health promotion from those in the field and how to provide healthcare for the refugee population from a physician who does that work.

“These are specific experiences that really combine that hands-on learning and community-based experience,” Seward said.

While some students may go on to embrace the type of engagement they study as part of the CEL program, Seward said the real value will come from having physicians who understand what is involved in such

programs and the impact they can have on their patients and their practice.

Today’s student will be a doctor in a few years and may see a patient whose health is impacted because they are experiencing homelessness, she said. “You don’t have to help that person find a house, but you can help that person get connected with resources that are able to help them. In order to treat a patient holistically, the doctor needs to understand the resources of that community.”

Recognizing the patient’s situation, “the circumstances the patient finds themselves in,” can help doctors see alternatives. “Maybe there are better treatment modalities that can be explored that can better serve this patient that fits their circumstances,” Seward said.

Ultimately, the goal is to see to it that graduates are able to provide the most effective and appropriate care for their patients and their community, she said.



Students, residencies and region see clear benefits

The Norton College of Medicine's new three-year MD program has distinct advantages for students and for Upstate Medical University.

For students, there's the saving of a year of time and a year of medical school tuition. The latter is no small thing, even at a State University of New York school. In addition, students in the three-year program get early exposure to the specialty they plan to practice and have a "directed pathway" toward an Upstate residency program.

Seetha Ramanathan, MD, director of the Three-Year Program, explained that the program is for students who know what specialty they want to practice. Once they are accepted to the Norton College of Medicine, they make a separate application to one of the Upstate residency programs that have agreed to establish relationships with medical students at the start of their education.

The expectation is that when the medical student graduates, they will continue directly to the residency program. It's not a guarantee, but a directed pathway. Ramanathan said that many Upstate residency programs were open to the idea. Seven residencies are currently involved in the directed pathway. What advantage do residency leaders see in the program? Ramanathan recounted a conversation with the director of one of the residency programs. "When I spoke with him, he gave me a great example: He said, 'now when I pick a resident, I don't know anything about their practical clinical skills. But here, I would be observing them, and I'm involved in training them

as medical students in gaining skills that I look for in my residents.'" He went on to say that he could find "a resident who fits with the philosophy of the department."

In addition, Ramanathan said research from existing programs shows that students and those who train as residents in an area are more likely to practice in that area. Combining medical school and residency periods could help Upstate better serve its 17-county service area for years to come. Students can enter the three-year program at the start of their time at the Norton College of Medicine. There is another opportunity after the holiday break. "The bar is a little higher for the three-year students," Ramanathan pointed out. They need to do well in classes and must pass Step 1 and Step 2 exams on the first try. In addition, they will spend the summer following their first semesters on campus with their residencies.

Ramanathan has been meeting with the three-year students and finds them to be "committed and organized." More than that, they aren't afraid to recognize when they need help, and ask for it or offer it. "They know what team effort is and teamwork is," she said. "They help each other out."

Ramanathan credited faculty and staff for assisting in getting the three-year program started and offering help and encouragement. She also said Consortium of Accelerated Medical Pathway Programs (CAMPP), an organization of medical schools that offer three-year programs, has been and continues to be a big help.

I've always imagined myself working with children, especially after working as a teacher and tutor in elementary schools and volunteering in local YMCAs. Volunteering in Golisano Children's Hospital at Upstate was my first experience working with children in a clinical setting, which set the stage for my interest in pediatrics. Afterwards, I conducted pediatric nephrology research at the Strong Children's Research Center and continued my teaching endeavors as a Fulbright English Teaching Assistant in a primary school in Spain.

Having grown up in Bridgeport, NY, I've always hoped to return to the region to practice medicine as a pediatrician, and I knew Upstate's three-year program would provide me the experiences and education necessary to be the pediatrician that I aspire to be in an accelerated pathway.

I'm grateful to be completing a longitudinal preceptorship with Dr. Hobson in the Center for International Health where we provide primary care to a variety of pediatric refugee patients. My many conversations and shadowing experiences with pediatric physicians, residents, and nurses have only made me more excited to pursue this field. My invaluable experience thus far in the program would not be possible without the mentorship of Dr. Ramanathan, Dr. Sura, and Dr. Kennedy-Yoon, all of whom have been instrumental in ensuring I was welcomed in open arms by Upstate and the Pediatrics Department.

—Coralee Evert



WHAT THREE-YEAR STUDENTS SAY

It was not until after I submitted my general application that I learned about the three-year program. The three-year program offers an incredible opportunity to attend medical school and complete residency training all in one place. I grew up in the Syracuse area and knew I wanted to stay here. It offers stability and the opportunity to work with your specialty of interest from the very beginning.

Choosing a specialty even before you start medical school seemed daunting. However, my previous experience in oncology research made me confident I wanted to pursue a career in one of the oncology specialties. I shadowed the radiation oncology team at the cancer center and knew that it was for me. I like the team-based approach to cancer treatment, the technical application of therapy and the opportunity to help patients when they are going through a very difficult time in their lives.

—Daniel Lundy

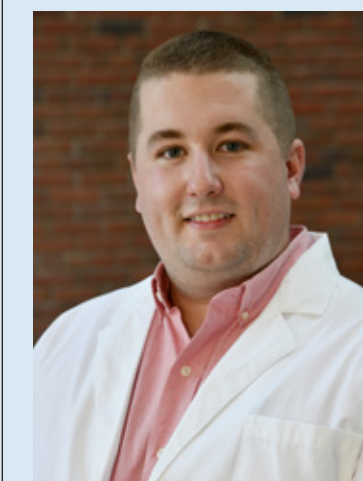


I chose internal medicine because I knew I wanted to be an oncologist, a branch of the field. I studied cancer all throughout high school and college and knew it was the field I wanted to go into because of its mix of research and hands-on patient care.

In terms of why I wanted the three-year program, I was more motivated by the residency aspect because I knew I wanted to stay in Upstate New York after attending undergrad here, and graduating early was a nice bonus.

As soon as we received the email in early January about the three-year opportunity, I was drafting my application. I submitted by the end of the month and waited eagerly for an interview invitation.

—Miriam Franks



Three concentrations provide choice for public health leaders

“This is an exciting time to pursue a professional degree in Public Health,” said Martha Wojtowycz, PhD, director, Upstate Public Health Program. The complexity of today’s public health concerns requires professionals to have a broad base of knowledge, skills and experiences.

Upstate Medical University’s Master’s in Public Health program is an intellectually challenging course of study to prepare students for leadership in public health. The MPH can be tailored to an individual student’s interests and career aspirations. In addition to the foundational and concentration-specific courses, students may choose from a menu of elective courses.

“After they earn their Public Health degree, our students can apply their knowledge and skills to solve wide-ranging public health problems by translating sound research into beneficial programs and policies,” Wojtowycz said.

The MPH degree is offered in three concentrations: Public Health Methods, Global Health and Translational Science, and Population Health for Clinicians. The latter is for those with clinical backgrounds, such as nurses and physicians.

The Public Health Methods concentration equips students to manage public health problems by acquiring skills to reduce illness and disability at the community level. The concentration is appropriate for those who are entering the field, currently employed in public health, allied health or administration fields as well as for clinicians. Students will graduate with an extensive knowledge of quantitative and qualitative research and evaluation methods, and analytical software to support and guide public health programs and healthcare. This program can be completed full or part-time.

The Global Health and Translational Science concentration focuses on understanding and developing solutions to global health problems. The concentration is intended for students and clinicians interested in a career focused on research, global health field work and clinical product development. Students graduate with core public health skills and a keen understanding of how interventions are advanced from the laboratory to global communities. Students work closely with faculty and staff within the Upstate Institute for Global Health and Translational

Science who have designed, administered, and evaluated clinical and translational global health solutions. This program can be completed part-time but full-time is preferred.

The Institute of Global Health and Translational Science (IGHTS) has two major international platforms, in Kenya and in Ecuador, supported by Upstate faculty and staff. IGHTS has a wealth of experience sending public health and medical students to these sites for research, service, and field practicum experiences. Students come to appreciate the indicators and drivers of global health problems and better understand the requirements and processes to develop solutions.

The Population Health for Clinicians concentration focuses on the impact that public health issues and social determinants have on patient and community health and healthcare. The concentration is intended for learners with clinical experience. Students graduate with a broader understanding of public health principles, social determinants and how to apply evidence and public health principles to a clinical setting. Entry into the Population Health for Clinicians concentration typically requires concurrent admission into either Upstate’s MD or Public Health Scholars program and is intended as a degree to be awarded alongside Upstate’s MD degree, resulting in dual degree conferral (MD/MPH).

In their final semester of the MPH study, students in all concentrations take a comprehensive exam that incorporates all of the coursework and subject matter they have learned in the program.



SIPHO MBUQE, PhD

Diversity, Equity and Inclusion director sees opportunity to cultivate diverse talent

Sipho Mbuqe, PhD, is the chief Diversity, Equity, and Inclusion officer for all Upstate Medical University, an operation with some 11,000 employees and four colleges. It provides health care to a region stretching from Canada to Pennsylvania.

Mbuqe, who took on the role in the spring of the year, sees the need to promote diversity, equity and inclusion across the entire enterprise, including the Norton College of Medicine. In recruiting for faculty, staff and students, he sees it as vital. “We really want the best. We don’t want people who are all the same, with all the same blind spots.”

A practicing psychologist, Mbuqe thinks, “based on our heritage,” there is an opportunity to change the culture at Upstate and he is optimistic, calling the institution, “a place that has the potential to be a leader again on seeking and cultivating diverse talent.”

Upstate’s heritage prompts some of Mbuqe’s optimism. Upstate, back when it was known as Geneva College of Medicine, graduated the first woman MD in the United States. In 2024, Upstate will mark the graduation of Elizabeth Blackwell as the 175th anniversary of coeducation in America. Upstate is the first co-ed medical school in America to graduate a black women doctor. Sarah Loguen Fraser’s words, “I will never see a human being in need of aid again and not be able to help,” are emblazoned on the wall facing the entrance to the Upstate Science and Health Library.

Mbuqe also sees his training and experience as a psychologist, helpful to achieving Upstate’s DEI goals. “I come from psychiatry and now I get to see the vastness and depth of some of these issues,” he said. “Psychology is not separate from DEI matters and DEI is not separate from psychology.” He has also been engaged in DEI issues for years, serving on various committees as well as counseling students. In 2019 his contributions to the University were recognized at the Fall Faculty Convocation with the President’s Award for Advancement of Diversity, Equity and Inclusion.

He sees his role to facilitate changes necessary to make Upstate welcoming to people of all backgrounds: To look for more ways of recruiting and retaining diverse talent and communicating Upstate’s commitment to DEI.



He said there is a demand among Upstate employees and students for more DEI training, to better understand each other. “I think there is a consensus in the university that we need that.”

He aims to expand the diversity advocate’s model. Each department has designated a representative to be the diversity advocate. They gather for monthly meetings to discuss initiatives, issues or needs that arise across all departments that impact faculty, staff, and trainees (students, residents and fellows). Mbuqe seeks people who feel strongly about the issue. “They can advocate but also help us implement the policies and visions of the State University of New York.” That vision includes creating a more inclusive culture and increasing the diversity of faculty and staff.

To achieve that, Mbuqe believes President Mantosh Dewan’s goal that Upstate needs to be “a good and responsive neighbor” to the City of Syracuse. Ensuring access where, “historically the door has not always been open.”

Improving access, he said, “will improve things for everybody, it’s not taking opportunity away from anybody.” Like, “allowing all people to drink from same fountain does not mean you’re taking water away from those who were using the fountain before. The fountain remains running, but it just is not exclusive.”

MARY LOU VALLANO, PhD

Witness to and participant in evolving medical education

In her more than 38 years teaching at Upstate Medical University, Mary Lou Vallano, PhD, professor of Neuroscience and Physiology, has seen certain patterns among learners and received many comments.

The new Norton College of Medicine curriculum addresses some of what she has seen.

“Over the years, I’ve received feedback from medical students by serving as a student advisor, thread leader, course co-director, and also by reviewing student comments in the annual graduation questionnaire, etc. In my view, the most common request is that we incorporate more clinical content, including Step 1 relevant materials, into the foundational curriculum.”

Students are concerned about passing the STEP exams, she said, and that drives them toward being as efficient with their time as possible. While it may at first seem ironic, to maximize their efficiency, students stop attending lectures in person. Instead, they listen to or watch the recordings made of the lectures, sometimes rewatching sections they find particularly challenging.

Under the previous curriculum, Vallano said she would see student attendance start high then decline to as

little as 30 percent by the end of the first year. “By the second year, students rely more and more on outside sources,” she said. “Five percent of the class attend.”

“They are all about learning high-yield material in an efficient way,” Vallano said. “Consequently, I’ve chosen to focus on taking full advantage of the new USMLE resources Dean Chin has recently provided to course co-directors and students to incorporate into the physiology/pathophysiology content that I oversee as a Thread leader/course-co-director.”

The resources are study aids that, in the past, students sometimes paid hundreds of dollars for themselves. That was seen as creating an advantage for students who could afford the study aids, compounding other advantages they may have brought to medical school. Now, the Norton College of Medicine is supplying the study aids for all students as a way to “level the playing field.” These materials also benefit our faculty, especially basic scientists, by making them more aware of how clinical contexts relate to their foundational content.

As Vallano put it, “the goal is to empower our students from the beginning of their journey to think critically and make key connections to enhance their academic progress and better serve their patients.”

Introducing STEP exam materials to students through small-group active learning will help students “get used to it and comfortable with it,” she said. Asked about those concerned about “teaching to the test,” Vallano said the test is a good indication of where students need to be academically. “If all of our students were masters of that material, I’d be very proud — and confident they will go out and serve the community quite well.”



DAVID AUERBACH, PhD

Combining successful research with student mentoring

Medical students can spend hours or an entire summer in the lab of David Auerbach, PhD, taking part in gaining a better understanding of cardiac health. Whether students continue in research or move on to work as clinicians, Auerbach said students gain an extra skill: “They learn not only the science but how to communicate the science.”

To better understand cardiac health, Auerbach, assistant professor of Pharmacology at Upstate Medical University, and his team look beyond the heart, finding a connection to a brain disorder. “I study electrical function in both the brain and the heart, emphasizing that we need to look outside the classically studied organ,” he explained.

The promise presented by his work has brought supporting grants, including a recently awarded \$1.2 million, three-year grant from the National Institute of Neurological Disorders and Stroke.

“This is big-team science,” Auerbach said of the work. His lab includes experts in chemistry and mathematics and Auerbach collaborates with university colleagues as well as others in the field.

At the center of the Auerbach lab’s current work is Long QT Syndrome, a disorder of the heart that can lead to mild symptoms or, in some cases, death. Auerbach’s research suggests a link that might shed light on Sudden Unexpected Death in Epilepsy (SUDEP), the leading cause of death among those with epilepsy.

According to the Centers for Disease Control and Prevention, approximately 3 million adults and 470,000 children in the United States have epilepsy. SUDEP, the CDC says, ends the life of roughly one out of every 1,000 people with epilepsy. Because of that, finding a treatment or cure could save thousands of lives each year.

Working with animal models, genetically modified to express Long QT, Auerbach and his team are working to establish a correlation and the mechanism for both neural and cardiac electrical disturbances, he said.

Auerbach invites medical students to join in his research. Active learning is a key component of the



new curriculum in the Norton College of Medicine. “We are doing the ultimate in active learning,” he said. “Because when they come to the lab I don’t lecture. We have lab meetings every week and I rarely present.”

Laura Williams is deeply involved in the research as she works on an MD/MS degree, a new program at the Norton College of Medicine. Veronica Singh is a PhD student in the lab.

Auerbach believes having future physicians in the lab not only helps with the work of research, but also helps keep the translational goal of the lab to the forefront. “We make sure what we are teaching can be translated to improve human health,” Auerbach added. One possibility is that lab work can lead to a means to predict, and perhaps prevent SUDEP.

Because Auerbach’s team is looking at different systems, its work could apply elsewhere as well.

“Our research is very translational. We are studying disease ‘X’ but the approach we are using can also apply to disease ‘Y,’” Auerbach said. “We ask, where else might this genetic variant be expressed in the body?”

Having earned his PhD at Upstate, Auerbach credits his success to teachers here and at other institutions he studied or worked. “I had great mentors and trained with world leaders throughout.”

REBECCA BELLINI, APACS

Making life better for third-year students



Rebecca Bellini, APACS, the Undergraduate Medical Education administrative director for the Department of Surgery at Upstate Medical University, finds it challenging to explain to outsiders just what it is she does.

There are all the acronyms involved in UME, the confusion between

medical students and residents (something she found confounding when she started at Upstate a decade ago) and the different titles that can apply to the same person. "Things like house office vs. resident vs. chief for one example," she said.

To simplify things, she explained, "I consider the most important part of my job to be making sure that everything runs smoothly for the third-year medical students (I don't use the word 'clerkship' as that is one of those titles people may find confusing) who must all complete a required course in general surgery."

That part of her job has seen her take on roles outside her job description. Recognizing that third-year students were uncertain about how they were evaluated, Bellini created a video on the subject, doing everything from getting a suitable camera to writing the script.

That video has led to nine more videos, taking on other topics such as surgical scrubbing, donning and doffing gowns and gloves, and medical imaging for pre-med students.

"The videos were a huge undertaking," Bellini said. "I wrote the script to all but two. I had to find the people who would do the acting." She also served as director.

In reviewing evaluation forms third-year students filled out at the end of their rotations, Bellini recognized that shadowing by first- and second-year students was creating problems for third-years.

Bellini explained that when she arrived, first- and second-year students would ask a faculty member if they could shadow on a given day. That system created difficulty for third-years who did not want the distraction of a shadowing student.

Bellini created a new system with a calendar showing available times to shadow. Faculty offer times that are available. Students sign up for a time in advance. The calendar each month closes at the end of previous month so there is no last-minute shadowing.

The system also works for those outside of the Norton College of Medicine who would like the opportunity to shadow at the region's only academic medical center. Bellini said students from area colleges including Syracuse University and LeMoyne College seek out opportunities to shadow. "Also," she said, "when students at more distant colleges are home for winter break or summer vacation they ask to shadow."

Part of the system includes alerting Surgery Club interest groups, so their members know when others will be shadowing during their rotations. "I helped facilitate 256 shadowing experiences for Upstate and external students, that did not conflict with and third-year student schedules," Bellini notes.

Bellini has praise for the Norton College of Medicine's revised curriculum. She is particularly pleased with the Longitudinal Clinical Preceptorships, that give students the opportunity to experience the clinical environment. "I believe that the Longitudinal Clinical Preceptorship program will make it easier on clerkship teams as students will come into their third year with a better understanding of how the clinical world functions. Rather than the old way where they completed all aspects of their first and second year in the classroom environment, then moved up to their third year, where despite everyone's best attempts to prepare the students, many felt unready to take on the demands of the clinical environment."

"Medical Education is a complicated undertaking. Patients must always be the top priority, but so is the training of all learners," she said. It's often a juggling act for time and resources, but everyone here at Upstate Medical University — the Norton College of Medicine deans and administration, the faculty, the residents, the PAs and NPs, the operating room staff, and others — all have the best interest of the students at top of mind, and we always find a way to provide the best education possible."

LAUREN GERMAIN, PhD, MED

Monitoring and analyzing input from student and faculty to inform changes

"Our learners are incredibly interested and incredibly bright," said Lauren Germain, PhD, MEd, assistant professor of Public Health and Preventive Medicine, and she has the research to back that up that statement.

Germain is director of Evaluation, Assessment and Research for Upstate Medical University's four colleges, including the Norton College of Medicine. Her work puts her in contact with students and faculty as she supports measurement of the effectiveness of current practices and advises on what changes might be most promising.

The author of several papers on evaluating students and curriculum, and former associate editor of the Journal of Research and Practice in Assessment, Germain also directs two student electives in medical education. Germain advised several of the subcommittees involved in the creation of the new medical school curriculum.

"Our team (which also includes Josie Suser and Jeremy French-Lawyer) supports evaluative efforts," Germain explained. "We are somewhat neutral. Ultimately, we present the data and interpret data." That includes analyses of assessment and outcome data as well as student surveys and focus groups.

Medical students are so busy, they don't get many chances to reflect on their education while they are

learning, she said. But, come the end of medical school, those who take part in focus groups get a chance to contemplate their experiences. The groups are stratified random samples of the student population who are asked about their whole experience in medical school. "They have such wonderful things to say, when they look back on what really mattered during their time at Upstate."

Students share their experiences in the focus groups of 8 to 14 participants. They talk about what they liked, Germain said, revealing much about their education. That includes, "those on faculty who really supported them."

Once gathered, that information is used to inform changes. "We can forecast, analyze, connect and synthesize," Germain said. Ultimately, the question is, "what from undergraduate medical education makes a difference in the care physicians give?"

From her perspective, having students learn more about working with other medical professionals is vital. "Reinforcing teamwork — I think that is going to be increasingly necessary in the U.S., as we face a shortage of physicians."

"There is," she says, "always room for improvement."

Lauren Germain, PhD, MED, meets with medical student Jacquelyn Knapp to discuss measures of effectiveness of an educational intervention designed by Knapp and Michael Mix, MD.



ROBERT RUIZ, MS

Admissions' focus is on fulfilling Upstate's mission



"Admissions' task is to enroll students who help Upstate fulfill its mission," said Robert Ruiz, Upstate Medical University's associate dean for Admissions and director of Enrollment Management.

Ruiz, a Michigan native who has held senior enrollment roles at Tulane University, Oklahoma State University Center for the Health Sciences and the University of Michigan Medical School, joined Upstate this year after a decade in the private sector serving as principal consultant for a global enrollment management firm advising colleges and universities on building sustainable, efficient marketing, recruiting and admission practices. He is a graduate of Adrian College and the University of Michigan with degrees in Spanish, Sociology and Higher Education Administration. One of the things that attracted him to joining Upstate is the mission for the Norton College of Medicine. "It's clear the college is on an upward trajectory, has tremendous human and capital assets and is poised to grow its service and footprint in Central New York."

The mission, he added, has been made clear by university leadership from the president's office on down. "We are here to improve the health of the people of Central New York, a 17-county region of over a million people in an area that stretches from Canada to Pennsylvania."

That means recruiting qualified students who are from the region or who have an interest in living and working in the region, he said. It also means making sure students from elsewhere understand some of the pluses of learning and living in Central New York.

For instance, Upstate's RMED program, which places Norton College of Medicine students in preceptorships in rural areas, give students months of experience in one of the many small towns and villages throughout the regions. Working alongside preceptors in rural practices gives them an unparalleled experience of the professional satisfaction found in such a practice.

Ruiz said the three-year MD program, begun this fall, is another opportunity to give students a deeper relation with the region. Along with offering students the ability to save a year of time and tuition, the program includes a "soft commitment" by the student and one of Upstate's residency programs. That spares the student the anxiety of matching in their preferred specialty.

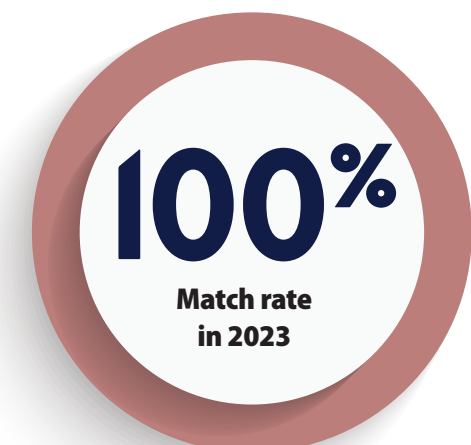
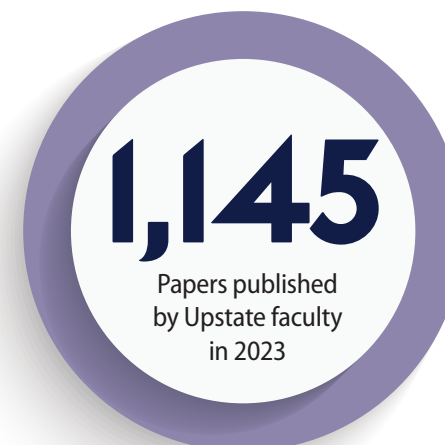
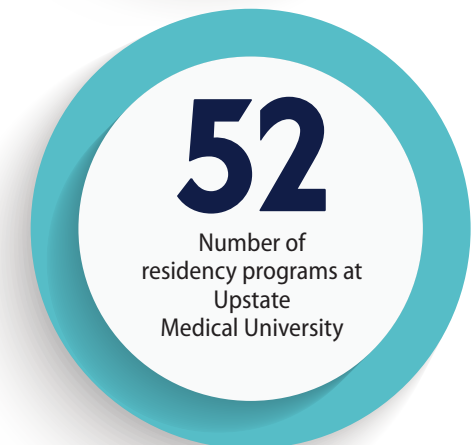
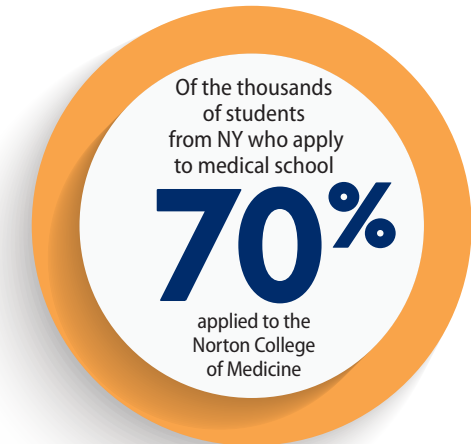
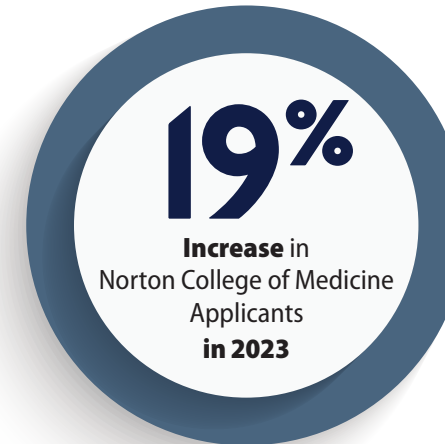
The Norton College of Medicine's two clinical campuses create another attraction for some students, he said. The Binghamton Clinical Campus offers students an opportunity to have their clerkship rotations in a city that is smaller than Syracuse and closer to Metro New York.

For students who already know they want to be in the region, Upstate offers programs to help ensure they are properly prepared for the rigors of medical school. Upstate is involved with programs for area students at elementary, middle and high-school levels as well as college students. They vary from classroom visits to summer programs with lab work to a master's program called MedPrep, designed to give college graduates an extra year of exposure to medical science to help them tackle the MCAT.

Ruiz notes that Upstate's evolving curriculum — with more active learning, more electives and early experience with patients — has helped differentiate the medical school from some others, and that the school's history as the first coeducation medical school in America is proving attractive. He points to recent trends in applications as evidence. In 2023, the Norton College of Medicine saw a 19 percent increase in applications, breaking the all-time record for applications. As importantly, he notes that of the thousands of students from across New York State who applied to medical school in 2023, approximately 70 percent applied to Upstate.

Admissions' efforts, Ruiz said, are based on the clear vision of developing the healthcare workforce for Central New York. "Our students have a real chance to make a difference for millions of people in our region."

BY THE NUMBERS



Improvements includes new “hospital without beds”

Expanding to better serve ambulatory patients, Upstate Medical University has completed construction and opened the Nappi Wellness Institute. The five-story, 200,000 square foot outpatient facility brings together primary and specialty health care.

Designed and built to encourage collaboration, the Nappi Wellness Institute brings medical students and clinicians closer together physically facilitating the Norton College of Medicine’s new Longitudinal Clinical Preceptorship program. Linked to the rest of the campus by a pedestrian bridge, the Nappi Wellness Institute houses geriatrics, radiology and other services, as well as Alzheimer’s disease research and treatment and the Joslin Center for Diabetes. The variety of services offered

in the space has led administrators to refer to five-story building as “a hospital without beds.”

Silverman Hall, which once served as the City Hospital and has been classroom space for decades, is being thoroughly renovated to provide space for instruction in various healthcare professions, part of the intraprofessional education students have come to expect at Upstate.

Continuing updates to campus facilities keep laboratories current, microscopy on the leading edge and instruction space state of the art.

1. Nappi Building
2. Upstate Cancer Center
3. Upstate Golisano Children’s Hospital
4. New Academic Building
5. Upstate Health Care Center
6. Biotech Accelerator
7. Geneva Tower (student housing)
8. Binghamton Campus
9. Campus Activities Building
10. Upstate Cord Blood Bank
11. Neuroscience Research Building
12. Upstate Community Campus
13. Upstate University Hospital
14. Weiskotten Hall



BASIC SCIENCE

Biochemistry and Molecular Biology



Chair: Patricia Kane, PhD

Postdoctoral Fellow, Institute of Molecular Biology, University of Oregon
PhD: Cornell University, 1987

The Biochemistry and Molecular Biology Department is active in research and in graduate and medical student education. Our researchers are particularly interested in mitochondrial function, membrane proteins and transport, gene expression and genome stability, cellular stress responses, and cytoskeletal structure. We address these topics using state-of-the-art techniques in structural biology, genomics, and quantitative microscopy, and often use model systems in our investigations. This work continues to provide fundamental insights into human diseases ranging from

age-related neurodegeneration to cancer, as well as suggesting new avenues for therapies. Department faculty collaborate extensively with other researchers, both within and outside Upstate. The department continues to have a very strong record of extramural research funding, primarily from NIH.

The Department hosts a vibrant interdepartment graduate program with 45 graduate students working toward their PhD or MD/PhD degrees. These students do their research in multiple departments, including Urology, Medicine, Ophthalmology and Visual Science, as well as Biochemistry. In the past year, four of our graduate students received highly competitive extramural fellowships from NIH and American Heart Association. We are also active in medical student education, particularly in teaching first-year medical students.

Cell and Developmental Biology



Interim Chair: Margaret Maimone, PhD

PhD: Washington University, 1990

Our department has two core missions: research and education. Our research advances the understanding of fundamental molecular and biochemical mechanisms of cellular function and development, while our teaching is focused on the anatomical sciences as well as cell and developmental biology. The aim of our training and educational programs is to apply biological knowledge to critical medical problems and empower the next generation of scientists, clinicians and educators.

Research in the Department of Cell and Developmental Biology explores the molecular and biochemical mechanisms of cellular function and development in several exciting areas including cancer biology, cardiovascular development and disease, skeletal muscle development, kidney disease, immune response, and leukocyte inflammatory phenotype. Other areas include understanding the mechanisms regulating actin cytoskeletal dynamics during endocytosis and cell migration, studying cell adhesion regulation, and analyzing the biology of oligodendroglia and myelin formation during development, remyelination and repair in spinal cord injury and multiple sclerosis.

One of the core areas of our education mission is to provide cadaver-based gross anatomy education to medical students (years 1, 3 and 4), residents and fellows in the Norton College of Medicine, as well as to students in the colleges of Health Professions and Graduate Studies. Gross Anatomy is taught in small groups allowing for active learning strategies and more personalized education.

Microbiology and Immunology



CHAIR: Stephen Thomas, MD

MD: Albany Medical College, 1996

The Department of Microbiology and Immunology focuses on exploring the etiologies and mechanisms of high-impact human health issues caused by infection, autoimmune disorders, malignancies and neurologic diseases. Lupus, multiple sclerosis, immune mediated hypersensitivity reactions, cancer, dementia, and vector borne diseases such as dengue, Chikungunya, Zika, and Powassan are all of interest. Our scientists are virologists, immunologists, and vector biologists working on a broad range of DNA and RNA viruses to include flaviviruses, alphaviruses, bunyaviruses, CMV, HIV, VZV, and SARS-CoV-2, among others. We explore virologic and innate

and adaptive immune responses to infection, and we study how viral infections affect cellular metabolism. We research how viruses evade the immune system, remain dormant, and then reactivate to cause disease. Infectivity, gene regulation, DNA replication, virus/host interactions, and animal and human models of disease are also of interest.

Explorations are conducted at the molecular, biochemical, and genetic levels, with goals of developing gene therapies, vaccines, and improved treatment options. Research tools include cell culture, animal models, samples from human infection models, molecular genetics and gene therapy, single cell RNA sequencing, state-of-the-art microscopy, and a full complement of traditional humoral and cellular immunologic assays. The Department is a home to four cores: Flow Cytometry, Electron Microscopy, the Vector Biocontainment Laboratory, and Metabolic Analysis. We are privileged to educate the next generation of PhD and MD/PhD scientists and our faculty participate in the teaching of medical students. Finally, we have a faculty member completely dedicated to working with the College of Medicine to design, plan, and implement the evolving medical school curriculum.

Neuroscience and Physiology



Chair: Francesca Pignoni, PhD

PhD: University of California at Los Angeles

Postdoctoral Fellow: University of California at Los Angeles

The basic Department of Neuroscience and Physiology carries out research on the mechanisms of nervous system development, neuronal stem cells maintenance, neural circuit function, brain cancer initiation and growth, fetal and post-natal drug addictions, retinal degeneration, brain degeneration in muscle-brain and dementia disorders, and neurodevelopment in individuals with neurological or psychiatric disorders. Diseases that receive particular attention include retinitis pigmentosa and Usher syndrome, Alzheimer's disease, schizophrenia, autism, fetal alcohol syndrome, drug addiction, glioblastoma, and neuromuscular dystrophies.

The Department has experienced considerable growth in research, graduate education, and medical education over the past two years. We have added three more scientists to our research faculty and two more educators to our teaching faculty. The department has grown to 12 active labs and three full-time educators. In medical teaching, we have prepared our dedicated and part-time educators for a complex academic year (2023-2024) that requires the delivery of both old and new medical curricula to MS2 and MS1 students, respectively. In addition, we have embarked on the first year of the master's degree in Physiology for MDs, a program whereby research and clinical faculty offer medical students an intense, medically relevant research experience during a gap year between MS2 and MS3. Finally, the department has continued to pursue the modernization of the Neuroscience PhD Program in collaboration with participating faculty from the Neurosurgery, Ophthalmology and Visual Science, and Psychiatry & Behavioral Sciences departments. In research, we have added one young faculty in 2022 (neural circuits in nutrition and behavior) and two in 2023 (drug addiction) with the long-term goal of establishing a new Addiction Research Center at Upstate in collaboration with the department of Psychiatry & Behavioral Sciences. We also continue to collaborate with the departments of Neurosurgery and Neurology in the areas of neuro-oncology and dementia.

Pharmacology



Chair: Richard J.H. Wojcikiewicz, PhD

PhD: University of Sheffield, UK, 1985

The Pharmacology Department faculty and staff serve the dual Institutional missions of research and education. Our research programs emphasize mammalian systems and translation to the clinic. Specific focus areas are molecular pharmacology, drug development and delivery, nanomedicine, cancer biology and therapeutics, cardiovascular science, epilepsy, metabolic disease, wound healing, sepsis, immunotherapy and cell signaling. These programs are strongly supported by extramural funding, primarily from NIH and DoD. Collaborations with other Departments are encouraged and promoted. Notably, Dr. Juntao Luo has recently

helped establish SIRC — the Sepsis Interdisciplinary Research Center — with a group of researchers, particularly from the Department of Surgery. In recent years, a priority has been the recruitment of talented assistant professors conducting high-quality research to advance and perpetuate the Department's legacy of excellence: In 2019 Dr. David Auerbach (cardiovascular, epilepsy) and Dr. Nori Urao (wound healing, metabolic diseases) were recruited, and Dr. Yamin Li (lipid nanoparticles, drug delivery) joined the Department in early 2022.

The delivery of high-quality education in Pharmacology to both Medical and Graduate students is also a priority. A thread leader manages the teaching of Pharmacology to medical students, including the recruitment of teaching faculty from the Pharmacology Department as well as clinical departments. Graduate students receive high-quality classroom and laboratory instruction in preparation for successful careers in academic research and/or industry.

CLINICAL

Anesthesiology



Chair: Xiuli Zhang, MD

MD: Qingdao Medical College

The Department of Anesthesiology at the Alan and Marlene Norton College of Medicine, SUNY Upstate Medical University, delivers high quality care and uncompromising safety to all perioperative patients requiring anesthesia services at the Upstate University Hospital, trains the next generation of anesthesiology clinicians and educators, and engages academic activity to further knowledge in the field of anesthesiology. Our faculty includes 30 physicians representing every subspecialty area in anesthesiology—cardiothoracic anesthesia, pediatric anesthesia, critical care, neuro-anesthesia, regional anesthesia, and pain medicine. Together with our residents, fellows and CRNAs, these teams handle the

most complex cases, including cardiovascular surgery, invasive cardiology, ENT, neurosurgery, orthopedic surgery, transplant, trauma, urology, gastroenterology, oncology and so on.

There is a diverse educational experience for our residents and fellows in the Department. At Upstate University Hospital, a level I trauma center and the only children's surgery center in the region, residents see a broad-based patient population as they learn the practice of anesthesiology and its subspecialties. Hands-on patient care combined with traditional didactic education forms the basis of our trainees' educational experiences. We have acute and chronic pain management services, so that pain fellows encounter an equally diverse patient population as they build a knowledge base in both acute and chronic pain. With the anesthesia simulation curriculum at the state of art Upstate Simulation Center, our trainees are experiencing better learning than ever before. Our faculty's dedication of classroom lecture, bedside teaching and M&M conference continues enhancing trainees' learning experiences. This year, all of our CA-2 class completed their CA-1 year with passing ABA Basic Exam at performance considerable above the national average. Three scored above the 90th percentile with "Outstanding Performance" letters from ABA.

While the nationwide shortage of anesthesia providers has forced us to focus more on clinical service, many of our faculty and residents continue to engage in academic activities. Numbers of abstracts and presentations have been accepted for this year's ASA and PGA annual meeting. We continue research efforts in the areas of neuro-anesthesia, neuro-monitoring, subarachnoid hemorrhage, intraoperative neuro-monitoring, neuroprotection, brain ischemic injury, intra-operative fluid management, pediatric anesthesia, optimizing the perioperative epidural infusion, and new approaches in understanding pain.

Emergency Medicine



Chair: William Paolo, MD

MD: Albert Einstein College of Medicine, 2005

The Department of Emergency Medicine at SUNY Upstate Medical University exists to promote the specialty of Emergency Medicine and related specialties through excellence in patient care, education and research. Our Department continues to serve the community through primary and tertiary emergency care, medical education at many levels, and robust academic work. We strongly support all four years of the medical school as well as EM residency training, prehospital provider programs and eight different fellowship training programs. The emergency departments we staff serve over 110,000 patient visits per year and function as the gateway for inpatient

care at University Hospital and specialty care for our region. This year, our Pediatric ER received Upstate's Patient Experience Award. In August 2020, Upstate Women in Emergency Medicine committee was founded to provide a network of professional and personal support, mentorship, education and information for women in the department. We continue our academic work and have, this past year, contributed more than 30 publications and presentations to the peer-reviewed science. Our ED staff has persevered throughout the COVID pandemic with grace, resolve and served the Central New York region with caring and compassion.

Family Medicine



Chair: Clyde Satterly, MD

MD: Medical College of Pennsylvania, 1994

Upstate's Department of Family Medicine focuses on a patient-centered approach to care. Primary care and preventive services are provided to patients through the practice of evidence-based medicine. The department has adopted the Quintuple Aim as its mission: to provide better health, improved outcomes at lower costs while focusing on health equity and provider well-being. The mission of our Family Medicine Residency Program is to prepare exceptional family medicine trained physicians who will provide exemplary care to urban, suburban and rural communities. The program focuses on policies that support community health and a holistic approach to healthcare and prevention.

The Rural Medical Scholars Program offers four years of rural health electives, culminating in a Micro-Credential in Rural Medicine. The program hosts innovative pre-clinical sessions developed by rural medical students. Clinical rotations with mentorship opportunities across specialties in rural communities throughout New York State highlight the program. Currently, most of the host communities have at least one Rural Medicine graduate serving as a voluntary faculty member to precept the next generation of small-town physicians.

The Occupational Medicine Program focuses on the widespread effect the workplace has on chronic disease, mental health and substance abuse. This effect is under-recognized and unexplored leaving approaches to disease treatment and prevention lacking in efficacy. The program functions largely through grant support but also offers consultation services to industry.

Geriatrics



Chair: Sharon Brangman, MD

MD: Upstate Medical University, 1981

The SUNY Upstate Medical University Department of Geriatrics offers outpatient services through our University Geriatricians for a geriatric assessment and our Center of Excellence for Alzheimer's Disease (CEAD). It has established itself as an innovative leader in the management of Alzheimer's disease. The Center is supported in part by a grant from the New York State Department of Health.

Our staff includes geriatricians who work in conjunction with geriatric nurse practitioners, social workers and nurses with expertise in geriatrics. Case management services are provided by our social workers with a particular emphasis on elders at risk, especially those who live alone or with frail caregivers. An individualized care and management plan is developed for each patient, and depends on the disease stage, patient's level of function, and amount of support that is available. Referrals are made to appropriate community resources, such as adult day care, home care, respite or long-term care, and the social worker follows each care plan so that it can be adjusted or revised, as needed. The goal of all treatments and care plans is to reduce the stress and burden Alzheimer's disease has on the patient and family.

The Department of Geriatrics offers a wide variety of medical learning opportunities including the ability to shadow during undergraduate years, Clerkships and electives during Med School, required Inpatient and Outpatient rotations during Residency and a one-year Fellowship in Geriatrics for those interested in furthering their knowledge on the specifics of Geriatric Medicine.

Our Department also has a clinical trials program with a dedicated team and a growing number of clinical trials for new treatments for Alzheimer's Disease.

Our inpatient consult service, located both Downtown and on the Community Campus, is called the Acute Care of the Elderly (ACE) Team. In June 2022 we lead the establishment of the Ortho CoCare program which provides preoperative team management of older adults with hip fractures.

Medicine



Chair: Cynthia Taub, MD, MBA

MD: Beijing Medical University, 1987
MBA: Yale School of Management, 2020

The Department of Medicine values one another and the community it cares for; in collaboration with our colleagues from other departments, we are tasked with delivering excellent and responsible care for the adult population in our region. We are a family of providers, staff, and students that serves as the pivot point for roughly a third of all clinical, educational, and research activities at Upstate. We are organized into 11 divisions (alphabetically listed: cardiology; dermatology, endocrinology, diabetes, and metabolism; gastroenterology; general internal medicine; hospitalist medicine; hematology and oncology; infectious disease; nephrology; pulmonary and critical care; and rheumatology) allowing for comprehensive and collaborative care of nearly any medical condition. We are actively involved in the education of our nearly 300 students and trainees (both in the classroom and at the bedside) and engaged in numerous research projects (with a concentration in infectious disease, immune-mediated diseases, diabetes, cancer, lung disease, and patient safety and quality improvement).

Over the last year, we have continued to manage the bulk of adult medical illness in the region and have overseen both a growing heart disease program (most notably in the interventional and structural arenas) and an expanded primary care enterprise (with the purchase of a large, successful private practice downtown). Nearly every division has increased its accessibility, by both expanding its provider pool and offering more access options. We have continued to support and expand offerings at both University and Community Hospitals and have recently moved a large portion of our primary care practice and all of our endocrinology/diabetes care to the newly-opened Nappi Wellness Institute, a state-of-the-art facility that will serve our community for years to come. In addition, we have maintained a presence throughout Central New York delivering much-needed expertise to our surrounding communities. Notable accomplishments include the ongoing growth of the Connect Care Clinic (recently awarded the President's Award for Outstanding Clinical Contribution Team of the Year) which has successfully bridged the transition between inpatient and outpatient care in our community, the introduction of a Procedure Team to promote high quality expeditious care of our patients in the inpatient and outpatient arenas, the partnership with Dr. Paul Cohen's practice to expand our primary care footprint in the area, the enhanced performance metrics in quality and patient safety, and the ongoing investment in both research (we have offered numerous seed grants and will have our second annual Research Retreat in Fall '23) and education (where the graduating medical school class honored the department with the annual Teaching Award). Finally, the Department of Medicine has a new leader, Cynthia Taub MD, MBA, assumed the role of chair in late August '23 and, in doing so, became the first woman to lead our department in its many decades of existence.

Neurology



Chair: Luis Mejico, MD

MD: Catholic University de Cordoba, Argentina, 1993

The Neurology team at SUNY Upstate Medical University provides state of the art neurological care to the community and the region. The Neurology Department faculty serve the educational needs of graduate students, medical students and residents in neurology and other fields plus fellows in various aspects of basic and clinical neuroscience. Physicians and staff routinely work with patients to educate and inform them about treatment options and matters related to their health and well-being. In addition, the Department is engaged in basic, clinical, and translational research in neuroscience with the goals of furthering understanding of neurological diseases and developing new treatments that will improve the lives of our patients.

The Neuro-ICU service has grown to a combined 27-bed unit powered by two teams of board-certified and fellowship-trained neuro-intensivists. The creation of the Neurodegenerative Disorders Center was designed

to foster cutting-edge patient care, translational research, and innovation to improve the lives of individuals with neurological disorders that impair behavior and cognition. The recently opened Headache Center and Neurology Infusion Clinic have continued to grow. The Neurology Clinical Research Section (NCRS) participated in over 30 clinical trials including several from the two prestigious NIH neurological clinical research networks, StrokeNet and NeuroNext. The NCRS at Upstate was one of the first centers in the country to join the HEALEY ALS platform trial of the Northeast ALS consortium. Neurology continues partnering with the Department of Neurosurgery in the development of the Upstate Neurological Institute. Remodeling and expansion of our clinic areas at the Upstate Health Care Center has begun.



Neurosurgery

Chair: Jonathan Miller, MD

MD: Case Western Reserve University, 2002

Founded in 1957, the Department of Neurosurgery at Upstate Medical University is the only comprehensive academic neurosurgery program in Central New York and is internationally renowned for clinical care, resident education and scientific research.

Our faculty provide multidisciplinary expertise for treatment of disorders of the brain, spine, and peripheral nerves in adults and children. Upstate University Hospital includes a pediatric and adult level 1 trauma center, comprehensive stroke center,

level 4 comprehensive epilepsy program, and a 27-bed neuroscience ICU. Our team also covers Upstate Community Hospital, the Syracuse VA Medical Center, and neonatal care at Crouse Hospital.

The neurosurgery residency program at Upstate involves robust training in all areas of neurosurgery and has trained more than 100 residents over the past 60 years. The experience is tailored to each resident's individual goals and includes opportunities for intensive research as well as advanced training in multiple neurosurgical subspecialty areas.

Neurosurgery research at Upstate is integrated into the clinical program to allow rapid translation of new discoveries. Our basic and clinical research programs are supported by federal funding (including NIH), foundation grants and philanthropy.

We are committed to delivering the highest quality compassionate care to ensure the best outcomes for our patients while advancing neurosurgical care through groundbreaking discoveries and training of the next generation of neurosurgeons.

Obstetrics and Gynecology



Chair: John Nosovitch, MD

MD: University of Texas Medical Branch at Galveston, Texas, 1986

Clinical research is actively pursued both in the department and with the collaboration of other departments within the medical university. Each resident is expected to become involved with one of the ongoing projects or initiate a new line of investigation with a faculty advisor.

Third- and fourth-year residents present papers on their case studies and research investigations at the annual Senior and Chief Residents' Departmental Scientific Forum, now in its eleventh year. The research rotation with academic, faculty and fellowship tracks, prepare our residents for these pursuits and a career of lifelong learning.

Clinical research trials are available to our patients through our participation in the National Cancer Institutes' cooperative group, Gynecologic Oncology Group (GOG), or through a pharmaceutical-sponsored study. The research trials are currently open for ovarian cancer, uterine cancer and endometrial cancer.

The research team is composed of Mary Cunningham, MD, as principal investigator; W. Douglas Bunn, MD; Margaret Mahan, RN NP, and Elizabeth Anderson, clinical research associate.

Ophthalmology and Vision Sciences



Chair: Robert D. Fechtner, MD

MD: University of Michigan Medical School

The Department of Ophthalmology and Visual Science has continued its growth and progress in research, education, and clinical care. In celebration of our 25 years of vision research, the Center for Vision Research hosted an all-day symposium featuring leading experts in vision research. Speakers included the Director of the National Eye Institute; guest vision scientists from Harvard University, Washington University, UC Berkley as well as a panel of leaders in research funding and many alumni/ae of the CVR. Our keynote address was presented by the Honorable David A. Paterson, 55th Governor of New York, and author of "Black, Blind and In Charge."

We continue to enjoy substantial extramural funding for our work and have just completed recruitment of two Empire Innovation Program scientists. Our scientists are seeking fundamental understanding of vision, from molecules to cell, from tissue to visual perception. We will apply this knowledge to finding cures for blindness.

The Center for Vision Care is the home of our residency training program and clinical practice. We have eight core faculty members and more than 40 community faculty volunteers covering all ophthalmology subspecialties. The residents work with the faculty learning clinical, diagnostic and surgical skills. Our residency program was recognized this year as ranking sixth out of 18 in the state of New York in the most recent Doximity survey. This year, with the support of University Hospital and the faculty, we have acquired a surgical simulator for training our residents. This system allows surgeons to practice and master essential microsurgical skills in a virtual environment before moving to the operating room environment. We also hope to use this simulator as a resource to expose medical students to the field of ophthalmology and ophthalmic surgery.

The Department values community involvement. We are the eye care resource for a diverse immigrant and refugee community and for our financially disadvantaged community members. Our full-time faculty, volunteer faculty, residents, students and staff are committed to this mission to serve Central New York and care for patients with an extraordinary variety of interesting, unusual and challenging ophthalmic problems.

Orthopedic Surgery



Chair: Stephen Albanese, MD

MD: SUNY at Buffalo, 1980

The Department of Orthopedic Surgery offers easy access to multiple clinical programs that provide the latest in basic and advanced musculoskeletal care. Recent additions to the program include hip arthroscopy, innovative spine deformity treatment techniques including vertebral tethering, robotic surgery for total joint replacement and the expansion of the pediatric orthopedic division. Upstate orthopedic surgeons continue to provide level 1 trauma care for children and adults from throughout the region. The Department is a community resource for the management of complex musculoskeletal issues in hand, foot and ankle, pediatrics,

oncology, spine and sports medicine.

The Department provides well balanced clinical and research experiences for medical students and residents. Medical students rotate on several of the clinical services and frequently participate in research projects under the guidance of orthopedic surgery faculty members. The 5-year residency program has expanded to a total of 25 residents with five graduates per year. Residents rotate through a variety of clinical settings that provide experience in all the major subspecialties of orthopedic surgery. Many of the program graduates currently practice in the Upstate New York region.

There is strong collaboration between research scientists and clinicians, leading to many research projects that result directly from the practice of orthopedic surgery at Upstate. Research is currently focused in the areas of orthopedic oncology, joint replacement, spine surgery, sports medicine, osteoporosis and bone biology, upper and lower extremity biomechanics and fracture fixation.

Otolaryngology



Interim Chair: Amar Suryadevara, MD

MD: SUNY Upstate Medical, 2003

The physicians and staff of the Department of Otolaryngology are committed to excellence in patient care, teaching and research. The department has dedicated specialists in each area of Otolaryngology who provide expert care for patients. The Department's academic program has a rich history, with the first professorship of Otology dating back to 1872. The first full-time chair, Dr. George Reed, took his position in 1964. Since then, many faculty and residents have come through the program.

The residency program provides strong clinical training in all subspecialties of otolaryngology. The Department takes three residents a year. Approximately half of our residents go on to fellowship training and usually match in their top choices. There is also a one-year fellowship in craniomaxillofacial surgery.

The clinical and surgical experience is enhanced through weekly basic science and subspecialty lectures, grand rounds lectures, multi-specialty conferences, Morbidity and Mortality Conference, and Journal Club. Throughout the year, a series of surgical anatomy laboratories are held in the College of Medicine gross anatomy lab and a temporal bone dissection course is performed within the department's temporal bone laboratory. PGY-5 residents also partake in a microvascular anastomosis laboratory. Residents also have a total of four months dedicated to research during the PGY-3 year.

Research by faculty covers an array of interests, including intracranial hypertension, Menieres disease, outcomes in cleft and craniofacial surgery, cosmetic and reconstructive facial surgery, head and neck oncologic surgery, health disparities in cochlear implantation, voice disorders, head and neck and sinonasal/skull base malignancies.

Pathology



Chair: Michel R. Nasr, MD, FRCPC

MD: Kursk State Medical University, 1999

The Pathology Department has a long history of scholarship, discovery, education and innovation. A fully integrated academic department with Divisions that cover most pathology speciality areas, Pathology is innovating in digital imaging, telepathology, bioinformatics and molecular diagnostics. In response to the COVID-19 pandemic, we established an efficient collaboration between Microbiology and Molecular labs to support the increased demand for COVID-19 testing, providing over 400,000 diagnostic tests in the community. We established a new UpState Pathology REsearch Core (SPORE) lab with the goal to coordinate activities of clinical and research components in the department lab with

the goal to coordinate activities of clinical and research components in the department, ensuring fully integrated services. The Pathology Department is a key component of the Upstate Cancer Center. This is a program focused on preparing pathology residents and fellows to be partners in delivering care that is predictive, preventative, personalized and participatory.

The Department of Pathology has 31 faculty and laboratory scientists representing the most comprehensive roster of speciality pathologists in the region. The depth of the expertise is offered as a resource to other laboratories and physicians in the region. As the science progresses in identifying specific disease targets making personalized medicine a reality, the Pathology Department is prepared to be a resource in providing guidance to clinicians and patients to make informed treatment decisions based on evidence.

Faculty and staff are committed to providing the highest education to our residents and medical students. Our trainees find a balanced and comprehensive program sufficient to prepare them for a career in academia, private practice, research or industry. Research in the Department is currently focused on developing and validating prognostic and predictive biomarkers and models for improving disease prognostication and management of cancer patients using molecular tests and machine learning approaches. Other areas of research focus on utility of technology for rapid on-site evaluation of fine needle aspirates, and use of various analytical techniques to identify and quantify evidence of exposures to potentially toxic materials in tissues.

Pediatrics



Chair: Gregory Conners, MD, MPH, MBA

MD: SUNY Stony Brook, 1989

Committed to serving children and families across the region, the Pediatric Department's mission includes delivery of the highest quality pediatric care, provision of excellent teaching and development of life-long learning skills for all levels of learners, discovery through influential, cutting-edge research, and support of our community through outreach and advocacy. We prioritize diversity, inclusion, and equity.

The Department of Pediatrics has grown substantially in recent years, and now includes 89 employed faculty members, including multiple psychologists at the Golisano Center for Special Needs or embedded in medical areas and clinics. Through the Upstate Golisano Children's Hospital, we also collaborate closely with colleagues in neonatology (Crouse NICU, St. Joseph's NICU), pediatric cardiology (Pediatric Cardiology Associates of CNY), and pediatric specialists in numerous other departments. Several clinics have moved into new, larger spaces.

The Upstate Golisano Children's Hospital, the only children's hospital in the region, is integral to health care for children across an 18-county region. Faculty and staff build a better community by providing comprehensive primary care and specialty pediatric services and educating the next generation of pediatricians. Our expert staff provide great care in great spaces. Young patients can play video games, enjoy their favorite cartoons, stay in sync with friends and classmates, and act like the kids and adolescents they are. They can connect with their families, day or night. Facilities include pediatric intensive care rooms, pediatric operating rooms, 12 single-patient rooms customized for patients with cancer and blood disorders, epilepsy / seizure monitoring capability, school and playrooms, and specialized procedure rooms and equipment, all for children. Many patients are admitted through the Pediatric Emergency Departments; some come to our Pediatric Intensive Care Unit via our specialized Pediatric Transport Team.

Our growing Golisano Center for Special Needs provides ambulatory care for children with developmental disorders, and plans to add an in-patient unit in 2024. We also continue to address the growing needs for mental health care in children and adolescents.

Physical Medicine and Rehabilitation



Chair: Robert Weber, MD

MD: Ohio State University, 1971

The Department of Physical Medicine and Rehabilitation supports clinically and educationally based scholarship. Faculty and residents focus on function, disability, neurophysiology, technology, quality, and health and wellness. Resident physicians complete at least one project during their 3-year training program that results in an accepted scholarly submission with a PM&R national professional society, publication, educational module, or quality improvement activity.

This year, we partnered with the VA to sponsor a one-year joint Spinal Cord Injury Medicine (SCIM) fellowship. Upstate's Level I Trauma Center designation for adults and children brings the vast majority of patients with spinal cord injuries to University Hospital, and the VA Medical Center's state-of-the-art Spinal Cord Injury and Disorders (SCI/D) Center is among the largest facilities of its kind in the nation.

Recently, the focus of PMR's clinical research turned to the concern for health and well-being of people with disabilities. Initially using the TriNetX Research Network, a global federated network of electronic medical record (EMR) data, Department researchers were among the first to recognize the high risks for people with intellectual and developmental disabilities (IDD) and disparities in outcomes related to the pandemic. Collaborations with Syracuse University Aging Studies Institute researchers resulted in publications further defining the risk for mortality among adults with IDD, and influencing equitable vaccination policy at a national level. Additionally, the Department remained active with research and publications in the areas of neurophysiology, neuro-robotics in spinal cord injury, and health care disparities and differences for people with a variety of disability conditions.

Additionally, the department remained active with research and publications in the areas of neuro- physiology, neuro-robotics in spinal cord injury, and health care disparities and differences for people with a variety of disability conditions.

Psychiatry and Behavioral Sciences



Chair: Thomas Schwartz, MD

MD: Upstate Medical University, 1995

The Psychiatry and Behavioral Sciences Department is a multidisciplinary group of faculty members where psychiatrists, psychologists, social workers, nurse practitioners and others work together to provide care to our patients, train students, interns, fellows, residents, and conduct new and innovative research projects. Our trainees are able to learn research methods, to provide psychotherapy, pharmacotherapy and engage in interventional approaches. In regard to clinical practice and access to care, we have been able to triple the number of patients seen over the last 2-3 years. Despite COVID limitations, our researchers have had a record number of publications and continue to obtain federal funding consistently.

Over the last year we conducted a strategic mission retreat and have started to develop new plans and programs based upon our findings. We have created the roles of Quality, Diversity, and Wellness Officers and have added them to our organization chart with cross-cutting reporting across our 10+ divisions. These officers sit on key committees within the department to better address our faculty needs in all of these key areas. We are committed not only to improving patient care, teaching and research, but also more widely to improving the academic faculty experience over time.

The Department prides itself on protecting its academic nature and continuing to provide high-quality research and teaching while providing for an ever-expanding clinical population and facing increased administrative demands placed on our faculty. We have seen expansions in the number of trainees on site and have attempted to match that with new faculty hires. The Department has accepted these challenges with grace and have been able to expand in all areas of administration, research, teaching and clinical care.

Radiation Oncology



Chair: Jeffrey Bogart, MD

MD: Upstate Medical University, 1989

The Department of Radiation Oncology at SUNY Upstate Medical University continues to be at the forefront of the latest treatment technology and clinical research, providing residents with a rich and comprehensive training environment. In the 2021-22 academic year, departmental faculty had major presentations at national meetings presenting results of national clinical trials in both pediatric and adult malignancies. We also oversee the radiation oncology section of that annual RSNA meeting, one of the largest meetings in the world. Our continued focus on quality and implementation of advanced technology throughout our system to further reduce the risk of

treatment-related side effects. Our basic science initiatives with Dr. Pawar and Dr. Simone continue to advance with the goal of improving the therapeutic ratio for patients undergoing radiotherapy for cancer treatment. In order to expand our geographical reach and provide quality care to surrounding areas, we have developed a strong partnership in both Cortland to the south and Auburn to the west to provide radiation oncology services, and we are a core part of the recently completed cancer center in Verona.

Radiology



Interim Chair: Michele Lisi, MD

MD: Upstate Medical University, 1997

The Department of Radiology provides imaging and interpretation services to all clinical and research departments at University Hospital, as well as to three outpatient facilities.

The department provides a full complement of tertiary care radiologic services, including Neuroradiology and Interventional-Neuroradiology, Interventional Radiology, specialized Musculoskeletal, Thoracic and Abdominal Radiology, Women's Imaging, and Molecular Imaging.

The Department includes our Diagnostic Radiology Residency program. Within the program, we offer Early Specialization in Interventional Radiology and a 16-month pathway for specialization in Molecular Imaging. We also have post-graduate fellowship programs in Neuroradiology and Interventional Radiology. Faculty and staff are deeply committed to providing the highest quality patient care and resident education possible. For the Department, these goals are not only compatible, but complementary. The success of the program is manifested by residents' performance on the Core and Certifying Board Examinations and by the ease with which they are able to obtain desirable fellowships, academic or private practice positions.

The department is involved in several studies. For example, a post-radioiodine treatment dosimetry and staging by I-131 SPECT/CT and the ARROW study, which is looking at using the PSMA targeting small molecule 1095 with I-131 as a targeting radioligand therapy (RLT) to treat metastatic prostate cancer. Additionally, we have partnered with the Urology Department on a new molecular diagnostic imaging protocol using Tc99m sestamibi to differentiate Oncocytoma from Renal Cell Carcinoma. There is also a collaborative study with MD Anderson and Northwestern called Doorway-90. This is a liver-directed therapy trial for individualized dosimetry for treatment of liver tumors.

Surgery



Chair: Robert Cooney, MD

MD: University of Vermont College of Medicine, 1985

The Department of Surgery at Upstate is a diverse group of general surgeons, subspecialists, and researchers. With over 40 surgeons, University Surgical Associates is one of the largest surgical practices in Central New York. The Department specializes in treating complicated illnesses and conditions serving as a regional referral center for the CNY population of over a million. Our surgical expertise is extensive with fellowship trained surgeons offering specialized surgical care for breast disease, burns, cardiac conditions, colorectal and emergency surgery, endocrine surgery, general and hernia surgery, hepatobiliary and pancreas surgery, pediatric surgery, minimally

invasive and bariatric surgery, surgical oncology and thoracic surgery, transplant and trauma surgery, as well as comprehensive vascular surgery.

Our faculty are committed to education and training the next generation of physicians and surgeons. The surgery clerkship is highly rated and our general surgery residency training program attracts outstanding students from medical schools around the country, graduating six chief residents per year. The operative experience for trainees is extensive and diverse including rotations at Upstate University and Community Hospital, Crouse Hospital and the VA Medical Center. Many residents pursue research opportunities as part of their surgical training at Upstate and are recognized nationally for their research.

The Department of Surgery has research facilities that house both surgical and basic research scientists who are full-time members of the Department. Funding from the NIH and DoD supports research in multiple areas including: gastrointestinal, cardiovascular, pulmonary, sepsis, organ injury, trauma and burns, immunology, metabolism and cancer.

Urology



Chair: Gennady Bratslavsky, MD

MD: Albany Medical College, 2000

The Department of Urology at Upstate Medical University is a diverse academic group representing numerous urologic subspecialties across various backgrounds and subspecialized trainings. Our mission focuses on education, research, health care, and improving the lives of our community.

Over the past 10 years, the Department of Urology has increased nearly ten-fold in faculty and is now the home of nearly 30 outstanding clinicians and translational scientists covering nearly 20,000 square miles of Central New York. We provide support and outstanding care to every county in CNY and we staff numerous nearby collaborating hospitals and healthcare systems. The clinical expertise is unparalleled with every urologic subspecialty covered by its fellowship trained faculty including urologic oncology, female & pelvic floor medicine, endourology, reconstructive and transgender medicine, pediatric urology, all aspects of men's and women's health, robotic and minimally invasive surgery, as well as general urologic health.

We remain committed to research with several active wet and dry labs headed by world class scientists in biochemistry and molecular biology, genetics, bioinformatics and artificial intelligence. They are a source of numerous PhD graduates trained internally. Currently, the translational scientists are supported by numerous extramural grants, including R01, R21, DOD, NIH MIRA grant, NY Empire scholarship as well as several intramural and foundation awards. The Department of Urology is home to numerous educational projects for local high school students, medical students as well as resident physicians in training, and is a continuous source of high impact, high quality publication in the field of biomedical research.

Our faculty are committed educators with many serving on committees or participating in projects aimed at improving the quality of education within the College of Medicine.

OTHER ACADEMIC

Bioethics and Humanities



Interim Chair: Amy Caruso Brown, MD, MS

MD: Emory University, 2008

The Center for Bioethics and Humanities, a department of the College of Medicine, advances the scholarly and professional understanding of bioethics, law and health humanities. Our goal is to promote health care and health policy that is patient- and family-centered, compassionate, and just. The Center offers education to learners of all levels at Upstate's four colleges and affiliated hospitals, including co-designing and co-directing the Health Systems Science curriculum (in partnership with the Department of Public Health and Preventive Medicine) and leading the Physicians and Social Responsibility sequence and

micro-credential for medical students.

The Center is also the academic home for the Upstate Bias Checklist Collaborative, a national collaborative of health professions educators seeking to reduce bias in medical education content. The Center's Ethics Consultation Service serves Upstate's downtown and community campuses, and Golisano Children's Hospital, as well as Crouse Hospital. The service provides ethical input upon request to all faculty, staff, students, patients and families seven days a week and 365 days a year. Bioethics and Humanities faculty also chair Upstate's Hospital Ethics Committee.

Bioethics and Humanities faculty conduct a wide range of empirical and theoretical scholarship in ethics, law and policy, and many are established as national experts in specific bioethical issues.

The Department publishes a literary journal, *The Healing Muse*, which celebrates the mission and the work of health care professionals while providing them and the patients they serve a place to reflect on all the aspects of healing, health, and wellness. "*The Healing Muse*," received more than 1300 submissions last year, and accepted 76 for publication in the Fall 2022 issue. It continues to attract more and more writers and artists, with the quality of the work growing stronger with each issue.

Public Health and Preventive Medicine



Chair: Christopher Morley, PhD

PhD: Syracuse University, Social Science, 2009

The Department of Public Health and Preventive Medicine (PHPM) is committed to educating students and conducting research in public health, preventive medicine, health promotion, and health services. PHPM members recognize the social determinants of health, and the pursuit of health equity, at the core of their training and departmental mission. PHPM operates through four divisions, the largest of which is the Division of Education (Martha Wojtowycz, PhD – Vice Chair for Education), which encompasses our Master of Public Health Program (MPH, CAS, MD/MPH, and Public Health Scholars), Preventive Medicine instruction in the MD program, including co-

leading the Health Systems Science Course with the Center for Bioethics & Humanities. PHPM is also an active participant in efforts to support diversity, equity and inclusion.

The Research Division is centered on the Center for Research & Evaluation (CRE – Dongliang Wang PhD, Director), a core facility offering consultation on research design and analysis. The Division of Practice and Outreach (Telisa Stewart DrPh, Director) focuses upon engagement with external partners to improve use of public health sciences in real-world settings, and is an outgrowth of departmental efforts to support community partners to navigate the realities of the COVID-19 pandemic. Finally, the Division of Administration (Alyssa Indelicato BS, Executive Coordinator) provides coordination and support across divisions.

Cutting across divisions, faculty research includes studies on community violence, healthy aging and dementia, health workforce and primary care development, maternal/child care, medical education, cancer screening and prevention, behavioral health, disabilities, and COVID-19 epidemiology. Activities include the development of surveillance systems and reports, the design of behavioral messaging campaigns, and program planning and evaluation. All faculty and professional staff contribute to the intellectual life of the department.

