

# THEN & NOW

## A 250-YEAR LEGACY OF TRAINING DOCTORS FOR LIFELONG EDUCATION

By Sharon Tregaskis

The opening of the Roy and Diana Vagelos Education Center at the beginning of the Fall 2016 semester marked the launch of a new era. The 100,000-square-foot, 14-story glass tower at 171st Street and Haven Avenue incorporates technologically advanced classrooms, myriad naturally lit collaboration spaces, and a modern simulation center. “Our new education building will ensure that Columbia continues to train superior doctors and researchers, educated in the latest techniques, as medicine continues to evolve rapidly throughout the 21st century,” said Dean Lee Goldman, MD, when it opened. “The building also will allow us to centralize key activities in a state-of-the-art facility that reflects our commitment to providing world-class instruction and a superb learning environment for students.”

The structure and the activities students now pursue within the Vagelos Education Center are a far cry from the earliest days of what is now the College of Physicians & Surgeons. But the facility exemplifies the vision that has been a cornerstone of medical education at P&S throughout its 250-year history—a commitment to improving teaching methods and creating rigorous curricular standards intended to cultivate a commitment to lifelong discovery necessary in a profession where change is the only constant. “Do not therefore imagine that from this time your studies are to cease,” said the founder of the school, Samuel Bard, when he addressed graduates at the first commencement. “Far from it. You are to be considered as but just entering upon them; and unless your whole lives are one continued series of application and improvement, you will fall short of your duty.”

The medical profession in the 1700s was in serious need of constant improvement. Before Columbia began a medical faculty, New York’s lieutenant governor, himself a physician-scientist, had signed the first significant law of the British province. “No person shall practice as a Physician or surgeon,” the law read, “before he shall first be approved in Physick or surgery and approved or admitted.” At the time, medical practice in New York City was something of a free-for-all with traveling quacks peddling dubious remedies, a scant four dozen self-proclaimed physicians, no licensing body, and no common standard by which to judge the preparation of those who aspired to work in the field. The new law was unenforceable—there being no mechanism to pursue complaints—but it laid the philosophical groundwork for the founding, in August 1767, of a program in medical education at King’s College, later known as Columbia University.

At the school’s inception, students could choose among multiple degrees, from a relatively rudimentary bachelor’s in medicine to the MD. Modeled on the medical courses of study offered at Edinburgh and Oxford, all of



Opposite Page: P&S Class of 1894. Above: P&S Class of 2021.

the degrees required that students attend a full course of lectures—approximately nine months each—on anatomy, surgery, the theory and practice of medicine, chemistry, materia medica (pharmacy), and midwifery, taught by six of the city’s most eminent physicians. To earn an MD, students were also required to demonstrate competence in Latin, attend a second year of lectures, pass two rounds of oral examinations, complete a year of apprenticeship, and author an original research report on “some medical subject.”

Course fees for the program—paid directly to the faculty in the form of tickets for entry to their lectures—exceeded the median annual income at the time and represented only a fraction of the total cost for training, which also included diploma fees, papers and books, and, for students whose families did not reside in the city, room and board. Not surprisingly, few registered to pursue degrees. During the American Revolution, the fledgling school’s facilities at King’s College were commandeered for military activities, so educational programs were suspended.

The institution struggled for several decades to regain its footing after the war, and when the College of Physicians & Surgeons was officially incorporated as a separate, proprietary medical school in 1807, educational standards for the MD were noticeably weakened. While two years of coursework remained a requirement, the time allotted to lectures was cut in half to just four months. Students were permitted to arrange with faculty to participate in anatomical dissection, though there was neither a laboratory nor a clinic dedicated to the activity and body procurement was notoriously conducted under cover of night. They were also permitted to observe clinical work at

the New York Hospital, the Almshouse, or the Lying-In Hospital, but such pursuits were optional and not required as part of a student's education.

The subsequent decades were roiled with faculty infighting, but the college—whose faculty and students had been merged into P&S in 1814—grew in step with the burgeoning city, acquiring new facilities and hopping ever northward up the island of Manhattan. In 1848, Bellevue Hospital was reorganized and became an additional site for student clinical experience. In 1851, the New York state legislature expanded access to cadavers for anatomy instruction by lifting restrictions that had previously allowed dissection only of unclaimed bodies of criminals. In 1880, P&S President Alonzo Clark, an 1835 graduate of the school, oversaw significant improvements to the curriculum and admis-

sions standards. Lectures were expanded to seven months, prerequisites were established, grades introduced, and written exams instituted.

Throughout the late 1800s and early 1900s, P&S continued to expand. The course of study increased to three years in 1888 and four years in 1894. A series of gifts from William H. Vanderbilt and his family spurred construction of a new facility for the college on 10th Avenue and 59th Street, as well as multiple clinics and hospitals in the neighborhood where students were welcomed for demonstrations and hands-on training. Dedicated laboratory space increased and the basic sciences grew in prominence. Mandates for clinical training were instituted, with every student required to serve daily at either the Sloane Hospital or the Vanderbilt Clinic. In 1911, the college embarked on its

## A Campaign to Eliminate Student Loans

As part of its 250th anniversary celebration, P&S hopes to raise money to create a permanent endowment for scholarship support, allowing all students with financial need to have that need met by scholarships rather than by loans. Known as the P&S 250th Anniversary Scholarship Challenge for Endowed Financial Aid, the fund was seeded with a \$25 million gift from P. Roy Vagelos's<sup>54</sup> and his wife, Diana.

The commitment to making a medical education affordable stretches back to the 1807 founding of the College of Physicians & Surgeons, before it became part of Columbia. Founder Nicholas Romaine, MD, envisioned a plan to accept one student from each New York state county who would receive free entry to all lectures. The presidents of the state's myriad medical societies were invited to designate recipients who were "of good moral character, of promising talents, and of diligent habits." An 1808 report about the program noted that "a respectable number of young gentlemen, from the interior of the state, are now attending the lectures. These, when they return to their respective homes, we trust, will diffuse a taste for science in medicine, and excite a laudable emulation in their brethren of the profession; and thus contribute to rescue the practice of medicine generally from the hands of ignorance and imposture."

The program lasted just two years before scholarships were eliminated and student fees increased to boost faculty salaries. To make up for the loss, the college frequently offered free supplementary courses open to all students, and alumni were allowed free admission to all courses.

The award of monetary prizes to medical students for best thesis, best exam score, and best clinical report began in the late 1850s. Chief among them was the Harsen Prize, a bequest of Jacob Harsen Jr., an 1829 P&S graduate. Three decades later, P&S began awarding annual grants and fellowships. The first—bestowed in 1887—was the result of a bequest from Alonzo Clark, an 1835 P&S graduate, longtime professor, and former president of P&S who directed his gift to "promoting the discovery of new facts in Medical Science." In 1891, the Alumni Association created three research fellowships; recipients were required to produce a thesis at the end of their terms.

In the early 1900s, P&S tuition spiked by 25 percent. Students petitioned Columbia's trustees to protest the hike, and financial relief followed in the form of several new scholarships. To choose recipients, the faculty formed a scholarship committee to draft regulations, review applications, and recommend awards.

From the first announcement of scholarship applications published in the 1904-1905 catalogue of the medical school, the financial aid program grew with new gifts and support from Columbia University. The Committee on Scholarships received 51 applications for 1907-1908 and awarded aid to 37 medical students. In the mid-1920s, the university also created a loan fund that helped medical students bridge tuition increases.

The preferred protocol for financial aid was to award scholarships for first- and second-year students and to save loans for third- and fourth-year students who would be in a better position to pay back the loans sooner, allowing the funds

to be used to help other students pursue their medical education.

Federally sponsored student loans became widely available after Congress passed the Higher Education Act in 1965, and by 1984, more than 86 percent of students graduated in debt. As medical education costs rose, financial aid expanded in the form of both scholarships and loans. Systems have developed to support students receiving aid. P&S, for example, has a financial planning office that has created an 18-page financial aid handbook to help medical students navigate the process for seeking loans, scholarships, grants, and work study. The office also has a robust program for debt management and financial literacy to assist graduates with navigating the maze of rules around the various loan programs and to assist with integrating student loan repayment in the context of their overall financial planning during postgraduate training.

Today, up to half of all P&S students need financial support—loans and scholarships—to complete their medical education. The 2017 scholarship challenge hopes to enable students with financial need to receive P&S scholarships only rather than a combination of loans and scholarships. This debt reduction program would make P&S more affordable and make it easier for graduates to pursue career options in fields such as primary care, research, and community service. That would ensure P&S's leadership position in medical education for the next 250 years, while changing not only our institution but the landscape of medicine in perpetuity.

— Sharon Tregaskis and Carol Perloff

partnership with Presbyterian Hospital to create what became the Columbia-Presbyterian Medical Center, the first in the nation to embody the concept of a teaching hospital within a multifaceted health services center.

Today, aspiring physicians at P&S complete a four-year curriculum that toggles constantly between theory and hands-on practice in preparation for residency training. With its “study cascade,” a mix of ramps, elevators, stairwells, and open gathering spaces that link lecture halls and classrooms throughout the facility, the Vagelos Education Center is designed to promote that dynamic interplay. The facility also boasts 13,000 square feet of dedicated training rooms in which students practice everything from taking a patient’s medical history to performing a physical exam, all under the tutelage of faculty preceptors. And unlike students in earlier centuries who gained their clinical education in amphitheaters where an impoverished patient exchanged privacy for the price of medical care in front of a large group, today’s students begin their clinical training with computerized, whole-body mannequins and specially trained actors who play the part of “standardized patients.” The specially equipped rooms in which students work with these practice patients feature high-fidelity sound and video recording equipment to enable faculty and students to review a practice encounter in search of opportunities for improvement.

Such features are all part of the latest curricular advance at P&S, an emphasis on coaching, a persistent cycle of practice and feedback intent on cultivating students’ capacity not only to develop specific skills, but also to accept and reflect on input about their performance and seek out additional opportunities for enrichment. As one of 10 schools participating in a five-year pilot study funded by the Association of American Medical Colleges, P&S has the opportunity to test its coaching methods as the path to helping students master 13 core entrustable professional activities, tasks all trainees are expected to perform independently on the first day of residency. “You can’t learn how to do basic procedures overnight or in the last week of medical school; you have to learn what are the basic principles and then practice them over time with some kind of supervision, some kind of assessment, and opportunities for remediation if you need them,” says Jonathan Amiel, MD, associate dean for curricular affairs at P&S and site principal investigator for the pilot study.

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The program pairs first-year students with a coach responsible for teaching their first-year Foundations of Clinical Medicine seminar. Students continue meeting with their coach throughout the remainder of their time at P&S. Says Dr. Amiel, “Our aim is to establish a trusting relationship between the coach and the student so that the student can come to the coach over the course of his or her medical school education with the feedback that they’ve gotten and try to interpret it so that they can create their own short-term and long-term learning plan.”

Such collaborative and supportive approaches to medical education promise a further benefit, according to research published this year in JAMA.



## HELP FROM OUR FRIENDS

### A SCHOLARSHIP CHALLENGE FOR THE 250TH ANNIVERSARY

P. Roy Vagelos '54 and Diana Vagelos pledged \$25 million in matching funds to kick off the P&S 250th Anniversary Scholarship Challenge. Donors who make gifts designated for endowed scholarships can double their impact by receiving a 1:1 match for gifts of \$50,000 to \$1 million and planned gifts of \$100,000 to \$1 million. With the goal of raising an additional \$25 million for endowed scholarships, this challenge launches an ambitious effort by P&S to eliminate student loans by providing needed financial support through scholarships only, rather than a combination of scholarships plus loans. More than \$10 million toward the goal has been raised to date through the generosity of alumni, faculty, and friends of P&S.

According to a review of existing research, conducted by Lauren Wasson, MD, assistant professor of medicine at P&S, the high rates of burnout and depressive symptoms among medical students compared with their peers in other graduate training programs and the general population can be buffered by features of the medical school learning environment. “Medical school is a formative period for both the educational and the emotional aspects of becoming a physician, and we aspire to immerse students in optimal learning environments,” says Dr. Wasson. “We seek evidence-based ways to cultivate well-being among students during this time and in preparation for the rigorous careers ahead of them.” Among the supportive features Dr. Wasson and her collaborators identified are pass/fail grading, accessible mental health programs, wellness programs that teach stress-reduction skills, group-based faculty advising and mentoring programs, and a curriculum with increased clinical time.

With the move to the Vagelos Education Center, increased emphasis on coaching and clinical skills preparation, and consolidation of student services in the same facility where students spend the most time, P&S continues to seek ways to improve medical education while acknowledging that work remains. Adds the JAMA review’s senior author, Karina W. Davidson, PhD, vice dean for organizational effectiveness, “With so few published studies on the medical school learning environment, there is clearly a need for more rigorous research on an issue that could greatly impact future physicians.” ❖