



Yale SCHOOL OF MEDICINE

FACTS AND FIGURES 2020-21
medicine.yale.edu/facts



Overview and History

Brief Chronology

- 1701** Yale College founded
- 1810** Medical Institution of Yale College chartered
- 1833** The State Hospital, precursor to New Haven Hospital, opens
- 1839** MD student thesis requirement formalized
- 1857** First African American student graduates
- 1915** Department of Public Health established
- 1916** First women students admitted
- 1923** Yale School of Nursing established
- 1924** Yale School of Medicine relocates to Sterling Hall of Medicine
- 1941** The Yale Medical Library is dedicated
- 1945** New Haven Hospital merges with Grace Hospital, becoming Grace-New Haven Community Hospital
- 1965** Yale School of Medicine and Grace-New Haven Community Hospital revise their affiliation, creating Yale New Haven Hospital
- 1970** Physician Associate Program founded
- 1974** Yale Cancer Center established
- 1991** Boyer Center for Molecular Medicine completed
- 1993** Yale New Haven Children's Hospital opens
- 2003** The Anlyan Center for Medical Research & Education at Yale is completed
- 2007** Amistad Street Building opens
- 2007** Yale West Campus acquired
- 2009** Smilow Cancer Hospital at Yale New Haven opens
- 2010–11** Yale School of Medicine celebrates its bicentennial
- 2012** YNHAcquires the Hospital of Saint Raphael
- 2018** Physician Assistant online program launches

Yale School of Medicine is one of the world's leading centers for biomedical research, advanced clinical care, and medical education. It ranks fourth among medical schools receiving funds from the National Institutes of Health (NIH) and eleventh in NIH dollars per faculty member. More than 1,500 Yale physicians provide care to patients from across the region and around the world. The Yale system of medical education, with its emphasis on critical thinking and independent student research, has produced leaders in every field of academic medicine.

The sixth-oldest medical school in the United States, it was chartered by the Connecticut General Assembly in 1810 as the Medical Institution of Yale College, located first on Grove Street, then at 150 York Street. Since 1924, it has occupied Sterling Hall of Medicine at 333 Cedar Street and surrounding buildings. It has awarded 9,302 medical degrees since 1814. There are 5,629 living alumni with MD degrees, 5,274 with MPH degrees, and 1,319 alumni of the Physician Associate Program with the PA-C certificate or MMSc degree, and 32 alumni of the Physician Assistant Online Program.



ABOVE: The Class of 2021 celebrated Match Day virtually for the second year in a row. Students were joined by faculty, staff, family, and friends via Zoom for a gathering that was filled with excitement for the significance of the event.

COVER: Entrance to Sterling Hall of Medicine.

All data in Facts & Figures as of 6/30/20 unless otherwise noted.

Education

Students by Degree Program

MD Program ¹	
MD	373
MD/PhD	143
MD/MHS	17
MD/MBA	13
MD/MPH	2
MD/JD	2
MMSc (PA-C)	
Physician Associate Program	119
Physician Assistant Online Program	129
MPH	383
PhD	373
Total	1,554

MD Program Details

CLASS OF 2024 PROFILE

Applicants	4,709
Class size	100
Female students	49
Male students	51
Declined to specify ²	N/A
Acceptance rate	6.2%
URiM ³	27%
Median cumulative GPA	3.85
MCAT median	519
MCAT median of sections	130
Faculty-to-student ratio	4.8 to 1

Finances

2020–21 tuition	\$64,864
2020 average debt for those with debt	\$132,178

Medical Library

Volumes	368,000+
Journals	23,000+
Online books, biomedical	41,000+

The School of Medicine educates future leaders in medicine, public health, and biomedical science. The MD program follows a unique educational philosophy, the Yale System of Medical Education, established in the 1920s. No course grades or class rankings are given in the first two years, examinations are limited, and students are expected to engage in independent investigation. Since 1839, medical students have written a thesis based on original research, reflecting that the scientific process of investigation, attentive observation, interpretation of data, and critical evaluation of literature are fundamental to the practice of medicine.

Many medical students take a tuition-free fifth year to pursue additional study. Some conduct in-depth research or explore clinical electives and subinternships. A significant number are awarded fifth-year research fellowships and earn the MHS degree.

Each year, approximately 20 students enroll in the school's MD-PhD Program, one of the original Medical Scientist Training Programs established and funded by the NIH. Graduate students in the Combined Program in the Biomedical and Biological Sciences earn a PhD degree through the Faculty of Arts and Sciences. The School of Medicine also offers joint degree programs with other professional schools including Public Health, Law, Management, and Divinity.

YSM's Physician Associate (PA) Program, one of the oldest PA programs in the country, and its Physician Assistant Online Program train students to become compassionate, high-quality, patient-centered PAs. The online program enables students to become PAs without relocating from their home communities.



Medical students wore masks and socially distanced during the 2020 White Coat Ceremony, which was live-streamed for guests who were unable to attend due to the pandemic.

¹ Of 550 enrolled students in the MD Program, 56 students are currently on extended study pursuing a joint degree, completing a fully funded year of research, or a combination of research and clinical rotations.

² All members of the Class of 2024 self-identified as female or male.

³ Students who identify as underrepresented in medicine

Basic and Translational Research

Academic Departments

Basic science	10
Clinical	18
Public Health	6
Total	34

Programs & Centers 6

Active Patents

U.S.	524
World (56 countries)	800
Total	1,324

Yale-Founded Biotech Companies 121

Faculty⁴

Teaching (ladder)	2,076
Research	719
Lecturer/Instructor	433
Visiting	148
Emeritus/Retired	155
Voluntary/Adjunct	1,576
Total	5,107

Postgraduate Fellows & Associates 1,732

Memberships & Awards⁵

Association of American Physicians	41
Blavatnik Fund for Innovation at Yale	21
Breakthrough Prize	1
Fields Medal	1
HHMI investigators	8
Kavli Prize	2
Lasker Awards	4
MacArthur Genius Grant	6
National Academy of Engineering	2
National Academy of Medicine	53
National Academy of Sciences	62
Nobel Prize	3
Wolf Prize	1

Faculty with Endowed Professorships 141

Research Activity

Number of awards	2,630
Dollar total	\$766.4 million

NIH

Awards	\$512.1 million
Rank, total grant dollars among medical schools ⁶	4th
Rank, grants per faculty member ⁷	11th
Centers and program grants	24

Laboratory Space (net assignable sq. ft.)

Medical School	687,333
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Research at the medical school covers a broad spectrum, from fundamental studies in the life sciences, including cell biology, genetics, immunobiology, microbial pathogenesis, neuroscience, pharmacology, physiology, biophysics and biochemistry, to translational and clinical studies aimed at improving the diagnosis and treatment of human diseases. Important research collaborations bring together scientists on the medical campus, Science Hill, and the West Campus. The Center for Biomedical Data Science brings together computational expertise from across Yale. Funding for research at YSM has increased from \$539.6 million in 2012 to \$766.4 million in 2020.

The school's core research resources are built around the newest technologies:

- State-of-the-art tools for genomics and proteomics, including whole-genome sequencing and mass spectrometry
- High-resolution imaging and image analysis at every scale, including cryoelectron microscopy, cryoelectron tomography, and the only focused ion beam-scanning electron microscope in the region
- High-throughput screening, including RNAi and chemical screens
- Construction and analysis of animal models of disease

In 2020, YSM established the Office for Health Equity Research to address health disparities and inequities in underserved populations by coordinating and facilitating health equity research and partnerships at the school, across Yale University, and beyond.



Scientists from across Yale helped unlock the mysteries of COVID-19: how and why it causes widespread disease in the body, why it affects people differently, how to predict the severity of symptoms in patients, how to predict outbreaks, and more.

⁴ Faculty, associates, and fellows data as of 6/30/20.

⁵ Includes faculty across Yale University.

⁶ NIH ranking is for the federal fiscal year ending 9/30/20.

⁷ Per faculty rank averaged over 2019 and 2020.

Clinical Investigation

The National Clinician Scholars Program at Yale

was established in 2016 to prepare future clinician leaders to improve health and health care. Graduates of the two-year interprofessional fellowship earn a master of health sciences (MHS) degree.

Yale School of Public Health

offers training and conducts research in biostatistics, chronic disease epidemiology, environmental health sciences, epidemiology of microbial diseases, and health policy and administration.

The Investigative Medicine Program

awards a PhD degree to holders of MD degrees who pursue training in either laboratory-based or clinically based human investigation.

By the Numbers

RWJ Scholars since 1974	187
NCSP Scholars since 2016	35
PhDs awarded by Investigative Medicine Program since 2003	48
YCCI Scholars trained since 2006	152

Clinical investigation at Yale bridges the gap between the basic and translational sciences and the practice of medicine. Research is focused on the factors that affect health and illness in populations, the evaluation of therapeutic interventions, and the assessment of health outcomes based on analysis of large data sets. The School of Medicine sponsors a wide range of clinical trials, with more than 1,868 active trials in 2020 and over 11,000 “Help Us Discover” unique volunteers enrolled (see yalestudies.org) and 27,884 active subjects. The school offers superb training for clinical investigators in a number of settings, including the Yale Center for Clinical Investigation, the National Clinician Scholars Program at Yale (the evolution of the Robert Wood Johnson Foundation Clinical Scholars Program), the Yale School of Public Health, and the Investigative Medicine Program, along with discipline-specific training initiatives in selected departments.

The Yale Center for Clinical Investigation facilitates the training of clinical and translational scientists and provides infrastructure for innovative and collaborative research directed at improving patient care. It funds up to 20 YCCI Scholars yearly and supports investigators in the areas of biostatistics, bioinformatics, study design, core technologies, regulatory review, patient recruitment, and community-based research.



Yale School of Medicine investigators led trials of the COVID-19 Pfizer-BioNTech vaccine in adults and children, and Remdesivir, a therapeutic drug used to treat the disease.

Patient Care

Patient Care Overview

Income \$1.06 billion

Yale Medicine

Patient encounters 2.4 million

Physicians

Full-time 1,254

Part-time 270

Allied Providers 844

Clinical fellows 392

Medical residents 913

Yale New Haven Hospital[®]

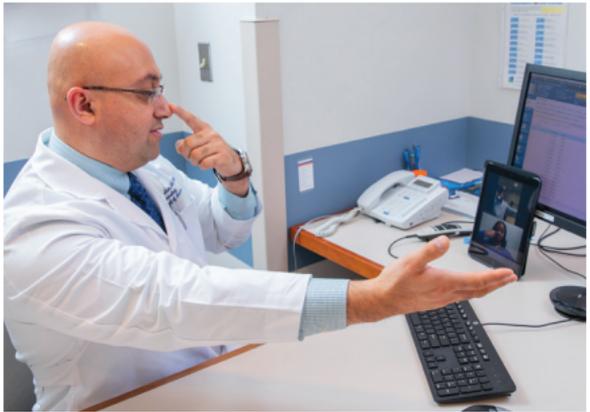
Patient discharges 68,894

Emergency visits[°] 128,382

Outpatient encounters (including ED) 1.3 million

Total licensed beds 1,541

More than 1,500 Yale physicians provide primary and specialty care for patients through Yale Medicine. The practice delivers advanced care in more than 100 specialties and subspecialties, and has centers of excellence in such fields as cancer, cardiac care, minimally invasive surgery, and organ transplantation. Yale physicians have made many historical contributions, including the first use of cancer chemotherapy, the first artificial heart pump, and the first insulin infusion pump for diabetes. Today they use such groundbreaking advances as DNA sequencing technology to diagnose suspected genetic diseases. Yale Medicine is a major referral center for Connecticut and New England, and treats patients from throughout the world.



TOP: Medical appointments were quickly converted to telehealth for many patients during the pandemic to avoid interruptions to care.

BOTTOM: When in-person medical appointments resumed, Yale Medicine established protocols that minimized contact in order to reduce transmission of COVID-19.

[®] Yale New Haven Hospital data as of 9/30/20; includes the Children's Hospital, Psychiatric Hospital, Smilow Cancer Hospital, and the former Hospital of Saint Raphael, which was acquired by YNH on 9/12/12. Licensed beds include bassinets.

[°] Number of patients treated and released from the ED. This does not include those ED visitors who were admitted.

Medical Center

Medical Center Institutions

Yale School of Medicine
Yale Medicine

Yale School of Public Health

Yale School of Nursing

Yale New Haven Health, which consists of:

- Bridgeport Hospital
- Greenwich Hospital
- Lawrence + Memorial Hospital
- Northeast Medical Group
- Westerly Hospital
- Yale New Haven Hospital, including the Saint Raphael Campus
- Yale New Haven Children's Hospital
- Yale New Haven Psychiatric Hospital
- Smilow Cancer Hospital at Yale New Haven

Yale Health

Connecticut Mental Health Center

John B. Pierce Laboratory

Contact

FIND A YALE DOCTOR

Visit yalemedicine.org, or call (877) YALEMDS or (877) 925-3637.

YSM ADMISSIONS

Visit medicine.yale.edu/admissions, or call (203) 785-2696.

YSM NEWS

Visit medicine.yale.edu.

MEDIA INQUIRIES

Visit communications.yale.edu/about-opac, or call (203) 432-1345.

YALE DIRECTORY

Visit directory.yale.edu, or call (203) 432-4771.

YNHH DIRECTORY

Call (203) 688-4242.

MAKE A GIFT

Visit yale.edu/givemedicine, or contact Roopashree Narasimhaiah at ysmgifts@yale.edu.

Facts and Figures

For copies, call (203) 785-5824, email facts.med@yale.edu, or contact us at 1 Church Street, Suite 300, New Haven, CT 06510.

medicine.yale.edu/facts

Produced by the YSM Office of Communications.
Photos: Anthony DeCarlo, Robert A. Lisak, Harold Shapiro, JoAnne Wilcox

An affiliation agreement between the medical school and Grace-New Haven Hospital in 1965 created Yale New Haven Hospital (YNHH), which expanded in 1993 with the opening of the Children's Hospital, and again in 2000 with the acquisition of the Psychiatric Hospital. The 14-story Smilow Cancer Hospital opened in 2009, and in 2012 YNHH acquired the Hospital of Saint Raphael, adding 533 beds and making it one of the largest hospitals in the United States. The medical campus has grown over the years to include the institutions listed at left.

Four miles away in West Haven, the affiliated VA Connecticut Healthcare System maintains active clinical, research, and education programs in conjunction with many medical school departments.

Extensive maps and directions to medical center destinations are available online at medicine.yale.edu/maps.



TOP: By the time Yale New Haven Hospital admitted its first COVID-19 patient on March 13, 2020, changes to clinical workflow and physical space were already underway to prepare for the influx of patients.

BOTTOM: Safety measures were quickly implemented across Yale New Haven Health to protect patients, clinicians, and staff during the pandemic.

Yale University and New Haven

New Haven Profile

2019 Population 130,250

DISTANCE FROM:

NYC 80 miles

Boston 137 miles

University Profile

Yale totals include YSM

FACULTY

Yale 4,962

YSM 3,228

STAFF

Yale 10,442

YSM 3,792

STUDENTS

Yale 12,060

YSM¹⁰ 1,554

Community Service

A majority of students volunteer, and the COVID-19 pandemic did not diminish that undertaking. Students increased their efforts—significantly bolstering endeavors to source PPE, help reduce social isolation of older adults, support outreach to non-COVID-19 patients, and serve as patient navigators for refugees.

Many ongoing community service projects for which students customarily volunteer include:

- Columbus House
- Downtown Evening Soup Kitchen
- HAVEN (student-run free clinic)
- Health Professionals Recruitment and Exposure Program
- Hill Regional Career High School Anatomy Teaching Program
- Hunger and Homelessness Auction
- Neighborhood Health Project
- Refugee Patient Navigator Program
- Youth Science Enrichment Program

The School of Medicine is located on the main campus of Yale University, one of the world's great institutions of higher learning. With a residential college system modeled after those of Cambridge and Oxford, the undergraduate school is complemented by the Graduate School of Arts and Sciences and 12 professional schools, including Architecture, Art, Divinity, Drama, Engineering and Applied Science, Forestry and Environmental Studies, Law, Management, Music, Nursing, and Medicine, which includes the School of Public Health. In 2007, Yale acquired the 136-acre West Campus in West Haven.

Established in 1638, New Haven was the first planned municipality in America, organized geographically in nine squares, including a picturesque town green. Today, New Haven is a vibrant coastal city located on Long Island Sound between New York and Boston. Cultural opportunities abound, from dance, theater, and music to the treasures of Yale's art and natural history museums.



TOP: Working with the Yale Center for Clinical Investigation, Cultural Ambassadors met with Yale clinicians and investigators and community members to ensure that accurate information and PPE were disseminated to underserved communities.

BOTTOM: Cultural Ambassadors played a key role in ensuring the participation of Black and Latinx communities in clinical trials of the COVID-19 vaccine and in overcoming vaccine hesitancy. Senator Blumenthal called this effort a model for the nation.

¹⁰ Further breakdown can be found on the Education page.

International Activities

Yale Institute for Global Health is a university-wide effort led by the Schools of Medicine, Nursing, and Public Health that serves as the focal point for research, education, and engagement with global partners to improve the health of individuals and populations worldwide.

Yale Office of International Affairs offers support to faculty in establishing and maintaining collaborations abroad, drawing on existing relationships on six continents. It maintains an online faculty research database.

Norwegian University of Science and Technology is a partnership that provides support for the exchange of students, fellows, and faculty in such areas as cancer, immunology, neuroscience, and public health.

By the Numbers 2019–20

INTERNATIONAL STUDENTS AT YALE

MD	9.3%
MPH	33%
PhD (Sciences)	30%

YALE STUDENTS/ TRAINEES ABROAD¹¹

MD (international sites)	25
MD (domestic sites)	7
MPH ¹²	N/A
Downs Fellows	4
Yale/Stanford J&J Scholars	35

VISITING MD STUDENTS AT YALE

From other nations	51
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The School of Medicine is an active partner in fulfilling Yale's international goals, which include preparing students for international leadership and service, attracting the most talented students and scholars to Yale from around the world, and positioning Yale as a global university of consequence. Faculty members conduct research abroad, teach, and design courses in global health. Their work runs the gamut from molecular studies at the nanoscale to the analysis of social networks in disease transmission and prevention, to the improvement of health care systems.

PROGRAMS AT YALE INCLUDE:

- **Office of Global Health** facilitates the placement of Yale medical students in global clinical electives at sites in Argentina, Chile, China, Colombia, Dominican Republic, Ghana, Jamaica, South Africa, Thailand, and Uganda, and the U.S. (rural sites in Appalachia and on the Navajo Nation in Arizona as well as in free clinics in New Haven and San Francisco). The office also administers the Visiting International Student Electives Program.
- **Downs International Health Student Travel Fellowship** supports students who undertake health-related research, primarily in low- and middle-income countries.
- **Yale/Stanford–Johnson & Johnson Global Health Scholars** sponsors rotations abroad for Yale house staff and physicians from other institutions, who travel to six sites in Africa and Asia.



Dean Nancy J. Brown welcomed first-year medical student Brian Fleischer to the profession in a special White Coat Ceremony in January 2021. Fleischer, who completed his first semester in Ghana, couldn't join his class for the August ceremony due to COVID-19 restrictions.

¹¹ Data refer to the 2015–16 academic year.

¹² Due to COVID travel restrictions, some students worked remotely with agencies abroad, some did U.S.-based internships, while others worked abroad in their home countries (unable to return due to COVID travel restrictions).

Finance

Endowment

Yale	\$31.1 billion
YSM	\$2.85 billion

2020 Operating Income

Yale	\$4.25 billion
YSM	\$2.0 billion

2020 Capital Projects

NEW CONSTRUCTION/ ACQUISITIONS

Yale	\$69.9 million
YSM	\$0

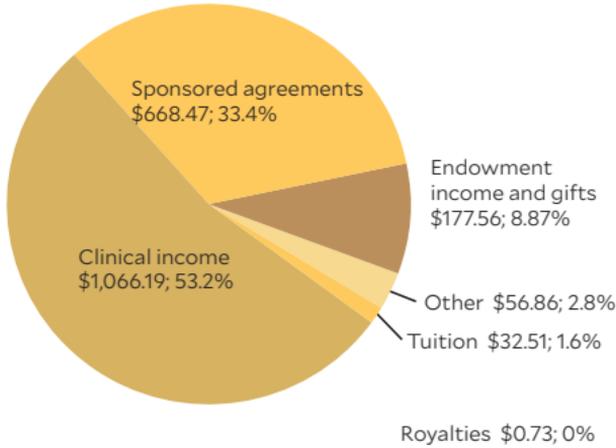
RENOVATIONS/ ALTERATIONS

Yale	\$366.7 million
YSM	\$59.87 million

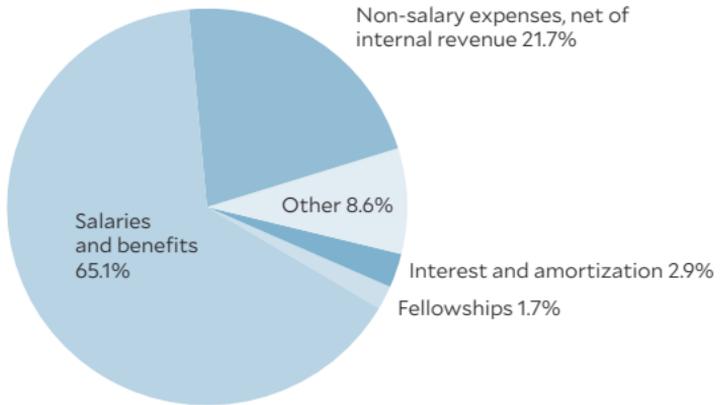
The School of Medicine had operating income of \$2.0 billion in FY20. A total of \$668.47 million in sponsored research funding was received and spent during the fiscal year.¹³ Clinical income totaled \$1.06 billion. The school ranked fourth among medical schools receiving research funding from the NIH in FY20 and eleventh in NIH grants per faculty member. Salaries and benefits totaled 65.1 percent of expenditures.

Operating summary for the year ending June 30, 2020 (in millions)

Income
Total: \$2,002.31



Expenditures



¹³ Research income does not equal award amounts because research dollars are not always spent in the same period in which they are awarded.