Yale School of Medicine

Facts and Figures 2017-18

medicine.yale.edu/facts
Brief chronology

1701 Yale College founded
1810 Medical Institution of Yale College chartered
1833 The State Hospital, precursor to the New Haven Hospital, opens
1857 First African American student graduates
1915 Department of Public Health established and later accredited as a school of public health
1916 First female students admitted
1924 School moves from 150 York Street to Sterling Hall of Medicine at 333 Cedar Street
1941 Yale Medical Library is dedicated
1965 Medical school and hospital revise their affiliation, creating Yale New Haven Hospital
1970 Physician Associate Program founded
1974 Yale Cancer Center established
2003 Anlyan Center completed
2007 Amistad Street building opens
2007 West Campus acquired
2009 Smilow Cancer Hospital at Yale New Haven opens
2010–11 Medical school celebrates 200th anniversary
2012 YNHH acquires the Hospital of Saint Raphael
2018 Physician Assistant online program launches

OVERVIEW AND HISTORY

The Yale School of Medicine is one of the world’s leading centers for biomedical research, advanced clinical care, and medical education. It ranks sixth among medical schools receiving funds from the National Institutes of Health (NIH) and seventh in NIH dollars per faculty member. More than 1,400 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 8,979 medical degrees since 1814. There are 5,549 living alumni with MD degrees, 4,481 with MPH degrees, and 1,180 alumni of the Physician Associate Program with the PA-C certificate or MMSc degree.

Members of each year’s incoming class are welcomed to the School of Medicine at the annual White Coat Ceremony.

1 Living alumni figures reflect a new tracking system. All data in Facts & Figures as of 6/30/17 unless otherwise noted.
EDUCATION

In its MD and other degree programs, 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, which was established in the 1920s by Dean Milton C. Winternitz, MD. 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 Yale medical students have written a thesis based on original research. The thesis requirement grew out of the recognition that the scientific process of investigation, attentive observation, interpretation of data, and critical evaluation of literature are fundamental to the practice of medicine.

Many Yale medical students opt to take a tuition-free fifth year to pursue additional study. Some conduct in-depth research or explore clinical electives and subinternships. A significant number each year 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 (BBS) 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.

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The medical library is now using the library management system to gather this data.

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2 Of the 560 students enrolled in the MD program, 63 are currently on extended study pursuing a joint degree, completing a fully funded year of research, or a combination of research and clinical rotations.

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3 The medical library is now using the library management system to gather this data.
BASIC AND TRANSLATIONAL RESEARCH

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. Funding for research at YSM has increased over the past decade, rising from $511.6 million in 2008 to $638.4 million in 2017.

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, from electron and light microscopy to fMRI and PET
- 7-Tesla MR spectroscopy
- High-throughput screening, including RNAi and chemical screens
- Construction and analysis of animal models of disease

Scientists perform research in every area of the biomedical sciences, including immunology, neuroscience, and genetics.  

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4 Faculty, associates, and fellows data as of 6/30/17.
5 Includes faculty across Yale University.
6 NIH ranking is for the federal fiscal year ending 9/30/17.
7 Per faculty rank averaged over 2016 and 2017.
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.

The 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 13
PhDs awarded by Investigative Medicine Program since 2003 39
YCCI Scholars trained since 2006 123

Clinical Investigation
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 1,600 active trials in 2017 with more than 7,465 volunteers enrolled (see yalestudies.org). 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 22 YCCI Scholars yearly and supports investigators in the areas of biostatistics, bioinformatics, study design, core technologies, regulatory review, patient recruitment, and community-based research.

Children participated in a clinical trial to test an “artificial pancreas”—a closed-loop system that combines blood sugar monitoring and insulin delivery—in real-world settings.
**Patient care overview**

| Income       | $883.3 million |

**Yale Medicine**

- Patient encounters: 2,717,775
- Physicians: Full-time 1,160, Part-time 256, Allied Providers 754
- Medical residents: 841
- Clinical fellows: 373

**Yale New Haven Hospital**

- Patient discharges: 76,258
- Emergency visits: 151,524
- Outpatient encounters (including ED): 1,400,000
- Total licensed beds: 1,541

**Patient Care**

More than 1,400 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 provide such groundbreaking procedures as an “invisible incision” surgery to remove a woman’s appendix, and the use of genome-scale DNA sequencing technology to diagnose suspected genetic diseases and birth defects. Yale Medicine is a major referral center for Connecticut and New England, and a national referral site for inherited liver diseases such as Gaucher’s disease and Wilson’s disease. Our physicians treat patients from around the world.

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8 Yale New Haven Hospital data as of 9/30/17; includes the Children’s Hospital, Psychiatric Hospital, Smilow Cancer Hospital, and the former Hospital of Saint Raphael, which was acquired by YNHH on 9/12/12. Licensed beds include bassinets.

9 Number of patients treated and released from the ED. This does not include those ED visitors who were admitted.
**Medical Center Institutions**

Yale School of Medicine
Yale Medicine
Yale School of Public Health
Yale School of Nursing
Yale New Haven Health System, which consists of:
- 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
- Bridgeport Hospital
- Greenwich Hospital
- Lawrence + Memorial Hospital
- Westerly Hospital
Yale Health
Connecticut Mental Health Center
John B. Pierce Laboratory

**MEDICAL CENTER**

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 or abut 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.

**How to Reach Us**

- **To find a Yale doctor**, visit Yale Medicine online at yalemedicine.org, or call (877) YALEMDS or (203) 785-4851.
- **For information on medical school admissions**, visit medicine.yale.edu/admissions, or call (203) 785-2643.
- **For news about the school**, visit medicine.yale.edu. Media inquiries should be directed to the Office of Public Affairs and Communications at communications.yale.edu/about-opac or (203) 432-1345.
- **To find a person at Yale University**, consult the online directory at directory.yale.edu, or call directory assistance at (203) 432-4771. To find a person at Yale New Haven Hospital, call (203) 688-4242.
- **To make a gift in support of the School of Medicine**, please visit yale.edu/givemedicine or contact Charles Turner at charles.turner@yale.edu.

**Facts and Figures 2017–18** was produced by the Office of Communications.

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

On the Web: medicine.yale.edu/facts.

Photos: John Curtis, Robert Lisak, Harold Shapiro
**New Haven**

Population (2016) 129,934

Distance from:
- NYC 80 miles
- Boston 137 miles

**University profile**

Yale totals include YSM

**FACULTY**

Yale 4,483

YSM 3,007

**STAFF**

Yale 9,676

YSM 3,369

**STUDENTS**

Yale 12,458

YSM 1,314

**Community service**

The majority of students volunteer for at least one of the school’s many community service projects, including:
- 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
- Youth Science Enrichment Program

**YALE UNIVERSITY AND NEW HAVEN**

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 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.

![Pilgrims in a row](image)

**HAVEN, the student-run clinic that provides free medical care to uninsured patients in New Haven, relocated to renovated space in the Yale Physicians Building.**
INTERNATIONAL ACTIVITIES

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.

Among the programs spanning the institution are:

- **Office of International Medical Student Education**, which facilitates the placement of Yale medical students in global clinical electives at sites in Argentina, Chile, China, Colombia, Dominican Republic, Ghana, Indonesia, Jamaica, Peru, South Africa, Thailand, and Uganda, and the U.S. (rural sites in Appalachia and on the Navajo reservation 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**, which supports students who undertake health-related research, primarily in low- and middle-income countries.

- **Yale/Stanford—Johnson & Johnson Global Health Scholars**, which sponsors rotations abroad for Yale house staff and physicians from other institutions, who travel to six sites in Africa and Asia.

By the numbers (2015-16)

International students at Yale (%)

<table>
<thead>
<tr>
<th>Program</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>MD</td>
<td>15%</td>
</tr>
<tr>
<td>MPH</td>
<td>24%</td>
</tr>
<tr>
<td>PhD (Sciences)</td>
<td>27%</td>
</tr>
</tbody>
</table>

Yale students/trainees abroad

<table>
<thead>
<tr>
<th>Program</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>MD</td>
<td>26</td>
</tr>
<tr>
<td>MPH</td>
<td>34</td>
</tr>
<tr>
<td>Downs Fellows</td>
<td>7</td>
</tr>
<tr>
<td>Yale/Stanford</td>
<td></td>
</tr>
<tr>
<td>J&amp;J Scholars</td>
<td>52</td>
</tr>
</tbody>
</table>

Visiting MD students (at Yale) from other nations 49

**11 Data refer to the 2013–14 academic year.**

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After the devastation of Hurricane Maria, Yale physicians organized shipments of medical supplies to Puerto Rico.
FINANCE

The School of Medicine had operating income of $1.68 billion in FY17. A total of $604 million in sponsored research funding was received and spent during the fiscal year.\(^\text{12}\) Clinical income totaled $855.6 million. The school ranked sixth among medical schools receiving research funding from the NIH in FY17 and seventh in NIH grants per faculty member. Salaries and benefits totaled 63.8 percent of expenditures.

Operating summary for the year ending June 30, 2017 (in millions)

<table>
<thead>
<tr>
<th>Category</th>
<th>Income:</th>
<th>Expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total $1,684</td>
<td>Salaries and benefits 63.8%</td>
</tr>
<tr>
<td>Endowment</td>
<td>$27.2 billion</td>
<td>Other 9.5%</td>
</tr>
<tr>
<td>YSM</td>
<td>$2.5 billion</td>
<td>Interest and amortization 3.6%</td>
</tr>
<tr>
<td>2017 operating income</td>
<td>$3.6 billion</td>
<td>Fellowships 1.9%</td>
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<tr>
<td>Yale</td>
<td>$1.7 billion</td>
<td>Non-salary expenses, net of internal revenue 21.1%</td>
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<tr>
<td>YSM</td>
<td>$0</td>
<td></td>
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<tr>
<td>2017 capital projects</td>
<td>$196 million</td>
<td></td>
</tr>
<tr>
<td>NEW CONSTRUCTION</td>
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<td></td>
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<tr>
<td>Yale</td>
<td>$198.5 million</td>
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<tr>
<td>YSM</td>
<td>$26.2 million</td>
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<tr>
<td>RENOVATIONS/ALTERATIONS</td>
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<td></td>
</tr>
<tr>
<td>Yale</td>
<td>$196 million</td>
<td></td>
</tr>
<tr>
<td>YSM</td>
<td>$26.2 million</td>
<td></td>
</tr>
</tbody>
</table>

\(^\text{12}\) Research income does not equal award amounts because research dollars are not always spent in the same period in which they are awarded.