



Yale SCHOOL OF MEDICINE

FACTS AND FIGURES 2014-15
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

1839 MD student thesis requirement formalized

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

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 second in NIH dollars per faculty member. More than 1,200 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 8,697 medical degrees since 1814. There are 5,664 living alumni with MD degrees, 4,419 with MPH degrees, and 1,110 alumni of the Physician Associate Program with the PA-C certificate or MMSc degree.



ABOVE: Surgeon general nominee and YSM alumnus Vivek Murthy was the Commencement speaker in 2014.

COVER: Members of the Class of 2018 are welcomed in the White Coat Ceremony, held this year at Woolsey Hall.



Introductory radiology and anatomy are closely integrated in the first year. Here students collaborate on an online radiology activity.

Students by degree program

MD program ¹	527
MD	374
MD/PhD	117
MD/MHS	26
MD/MBA	8
MD/MPH	2
MMSc (PA-C)	73
MPH	264
PhD	359
Total	1,223

MD program details

CLASS OF 2018 PROFILE	
Applicants	4,374
Class size	104
Acceptance rate	6.5 %
Average cumulative GPA	3.81
MCAT mean of sections	12.2
Male-to-female ratio	51 to 53
Faculty-to-student ratio	3.4 to 1

Finances

Tuition, 2014–2015	\$53,540
Average debt, 2014 graduates w/debt	\$114,180

Medical Library

Volumes	466,911
Journals	14,795
Online books, biomedical	33,047

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.

¹ Of the 527 students enrolled in the MD program, 59 are currently on extended study pursuing a joint degree, completing a fully funded year of research, or a combination of research and clinical rotations.

Academic departments

Basic science	10
Clinical	18
Public Health	5
Total	33

Programs and centers 6

Active patents

U.S.	422
World (56 countries)	757

Yale-founded biotech companies 61

Faculty²

Teaching (ladder)	1,474
Clinician	182
Research	685
Lecturer/Instructor	438
<i>Subtotal</i>	<i>2,779</i>
Visiting	254
Emeritus/Retired	262
Voluntary/Adjunct	1,681
<i>Subtotal</i>	<i>2,197</i>
Total	4,976

Postgraduate fellows and associates 1,589

Memberships³

National Academy of Sciences	62
Institute of Medicine	41
HHMI investigators	17

Faculty with endowed professorships 123

Research activity

2,509 awards totaling⁴ \$524.7 million

NIH

Awards	\$332.8 million
Rank among medical schools (total grant dollars) ⁵	6th
Rank, grants per faculty member ⁶	2nd
Centers and program grants	32

Laboratory space (net assignable sf)

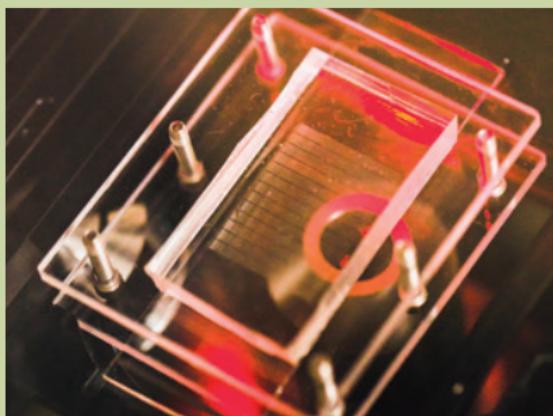
Medical School 648,902

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. Research income totaled \$522 million in 2014.

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



Recent research advances include a technology for identifying proteins secreted by cells that play a role in signaling.

² Faculty, associates, and fellows data as of 6/30/14.

³ Includes faculty across Yale University.

⁴ Award amounts do not equal research income, because research dollars are not always spent in the same period in which they are awarded.

⁵ NIH ranking is for the federal fiscal year ending 9/30/14.

⁶ Per faculty rank averaged over 2013 and 2014.

The Robert Wood Johnson Foundation Clinical Scholars Program at Yale was established in 1974 to prepare future physician leaders who will improve health and health care. Graduates of the two-year fellowship earn a master of health sciences research (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	179
PhDs awarded by Investigative Medicine Program since 2003	30
YCCI Scholars trained since 2006	100

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 500 open trials in 2014 with more than 3,800 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 Robert Wood Johnson Clinical Scholars Program at Yale, 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 23 YCCI Scholars yearly and supports investigators in the areas of biostatistics, bioinformatics, study design, core technologies, regulatory review, patient recruitment, and community-based research.



Researchers conducting clinical trials benefit from numerous central resources, including patient recruitment ads on Yale shuttles and Metro North trains.

Patient care overview

Income \$691.1 million

Yale Medical Group

Patient encounters 2,190,109

Physicians

Full-time 968

Part-time 268

Midlevel practitioners

(PA, APRN) 431

Medical residents 880

Clinical fellows 325

Yale-New Haven Hospital⁷

Patient discharges 78,529

Emergency visits 171,018

Total licensed beds 1,541

PATIENT CARE

More than 1,200 Yale physicians provide primary and specialty care for patients through Yale Medical Group. Yale Medical Group 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. Yale Medical Group is a major referral center for Connecticut and New England, and treats patients from throughout the world.



Patients in the pediatric concussion clinic receive comprehensive care from specialists in multiple disciplines.

⁷ Yale-New Haven Hospital data as of 9/30/14; 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.

Medical center institutions

Yale School of Medicine

Yale Medical Group

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

Yale Health

Connecticut Mental Health Center

John B. Pierce Laboratory

Facts and Figures 2014–15 was produced by the Office of Institutional Planning and 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, Terry Dagradi, Michael Fitzsosa, Robert Lisak, Yale-China Association/Magdaline Lawhorn

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 Medical Group online at yalemedicalgroup.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/media or (203) 432-1345.
- **To find a person at Yale University**, consult the online directory at directory.yale.edu/phonebook, 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.

New Haven

Population (2013) 129,898

Distance from:

NYC 80 miles
Boston 137 miles

University profile

Yale totals include YSM

FACULTY

Yale 4,410
YSM 2,779

STAFF

Yale 9,357
YSM 3,404

STUDENTS

Yale 12,336
YSM 1,223

Community service

The majority of students volunteer for at least one of the school's many community service projects, including:

- Hill Regional Career High School partnership
- Anatomy Teaching Program
- Hunger and Homelessness Auction
- HAVEN (student-run free clinic)

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.



The Downtown Crossing project is removing portions of the Route 34 highway connector that divided central New Haven. A new global headquarters for Alexion Pharmaceuticals is part of the plan.

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.

Yale UCL Collaborative was established in 2009 to launch joint projects in basic biomedical research, medical education, and clinical care and has subsequently expanded into other disciplines.

Fudan-Yale Biomedical Research Center provides a locus for cutting-edge research in the fields of genetics and molecular medicine in collaboration with Fudan University in Shanghai.

The Yale Global Health Initiative is part of the university's Jackson Institute for Global Affairs, which supports and coordinates the efforts of students and faculty. Projects include the Global Health Leadership Institute, in which health leaders from other nations spend a week at Yale devising strategies to overcome health problems in their home country.

By the numbers (2012-13)

International students at Yale (%)

MD	17%
MPH	35%
BBS	30%
Postdocs	67%

Yale students/trainees abroad⁸

MD	35
MPH	39
Downs Fellows	23
Yale/Stanford J&J Scholars	47

Visiting MD students (at Yale) from other nations 104

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 clinical electives at sites in Argentina, Barbados, Chile, China, Colombia, Dominican Republic, Indonesia, Jamaica, Mexico, Peru, South Africa, Thailand, and Uganda. 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.



David Freeman, whose grandfather, Dr. Edward Hume, helped found the Yale-affiliated Xiangya School of Medicine in China in 1914, speaks at the school's centennial celebration in Changsha.

⁸ Data refer to the 2013–14 academic year.

Endowment

Yale	\$23.9 billion
YSM	\$2.4 billion

2014 operating income

Yale	\$3.1 billion
YSM	\$1.5 billion

2014 capital projects

NEW CONSTRUCTION

Yale	\$50.6 million
YSM	\$243,632

RENOVATIONS/ALTERATIONS

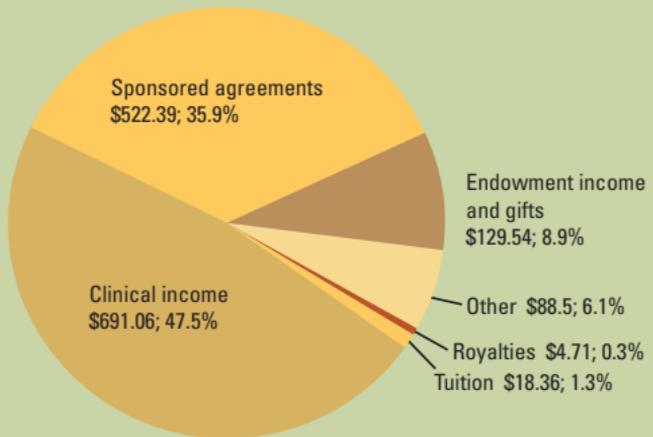
Yale	\$216.2 million
YSM	\$12.8 million

FINANCE

The School of Medicine had operating income of \$1.45 billion in FY14. A total of \$522 million in sponsored research funding was received and spent during the fiscal year. Clinical income totaled \$691.1 million. The school ranked sixth among medical schools receiving research funding from the NIH in FY14 and second in NIH grants per faculty member. Salaries and benefits totaled 65.5 percent of expenditures.

Operating summary for the year ending June 30, 2014 (in millions)

Income:
Total \$1,454



Expenditures

