

## Medical center institutions

Yale School of Medicine

Yale Cancer Center

Yale Child Study Center

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 2013–14 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 e-mail at facts.med@yale.edu. On the Web: medicine.yale.edu/facts.

Photos: Richard Carson, John Curtis, Robert Lisak, ©Nobel Media AB/Alexander Mahmoud, Michael Marsland, Harold Shapiro, Jordan Slosower.

## 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 September 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](http://medicine.yale.edu/maps).

## HOW TO REACH US

- **To find a Yale doctor**, visit Yale Medical Group online at [yalemedicalgroup.org](http://yalemedicalgroup.org), or call (877) YALEMDS or (203) 785-4851.
- **For information on medical school admissions**, visit [medicine.yale.edu/admissions](http://medicine.yale.edu/admissions), or call (203) 785-2643.
- **For news about the school**, visit [medicine.yale.edu](http://medicine.yale.edu). Media inquiries should be directed to the Office of Public Affairs and Communications at [opac.yale.edu](http://opac.yale.edu) or (203) 432-1345.
- **To find a person at Yale University**, consult the online directory at [directory.yale.edu/phonebook](http://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](http://yale.edu/givemedicine) or call Zsuzsanna Somogyi at (203) 436-8559.

## New Haven

Population (2012) 130,741

Distance from:  
 NYC 80 miles  
 Boston 137 miles

## University profile

Yale totals include YSM

FACULTY	
Yale	4,290
YSM	2,504
STAFF	
Yale	9,469
YSM	3,521
STUDENTS	
Yale	12,109
YSM	1,127

## 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)

Free care provided to New Haven residents in FY13: \$1.87 million

## YALE UNIVERSITY AND NEW HAVEN

The School of Medicine is located immediately adjacent to 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.



Peter Salovey, Yale's 23rd president, walks from his inauguration ceremony to festivities on Hillhouse Avenue, accompanied by his wife, Marta Elisa Moret, and by Margaret H. Marshall, senior fellow of the Yale Corporation.

**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 (2011-12)

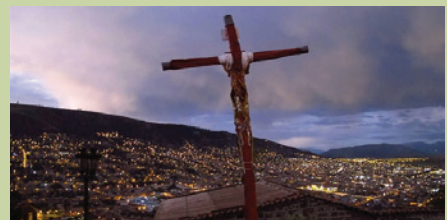
International students at Yale (%)	
MD	14%
MPH	22%
BBS	29%
Postdocs	70%
Yale students/trainees abroad*	
MD	29
MPH	31
Downs Fellows	12
Yale/Stanford J&J Scholars	55
Visiting MD students (at Yale) from other nations	108

## 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, 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 program 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.



A night view of the city of Ayacucho, high in the Peruvian Andes. Yale medical students can pursue clinical electives in Peru and 10 other foreign countries.

\* Data refer to the 2012–13 academic year.

## Endowment

Yale	\$20.7 billion
YSM	\$1.9 billion

## 2013 operating income

Yale	\$2.9 billion
YSM	\$1.4 billion

## 2013 capital projects

### NEW CONSTRUCTION

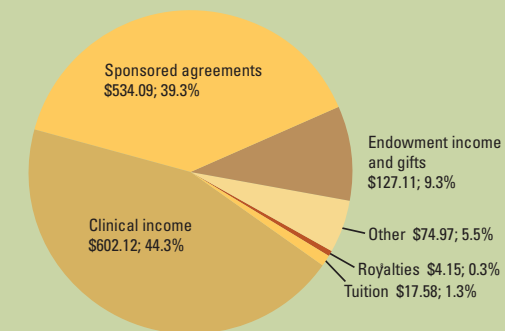
Yale	\$56.3 million
YSM	\$61,998

### RENOVATIONS/ALTERATIONS

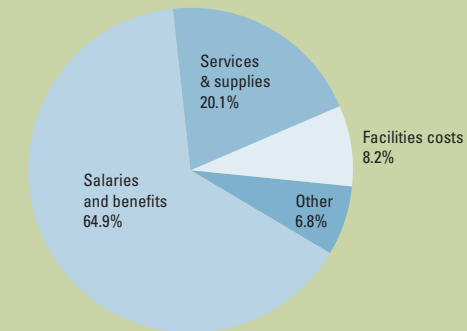
Yale	\$188.8 million
YSM	\$22.6 million

## Operating summary for the year ending June 30, 2013 (in millions)

Income:  
Total \$1,360



## Expenditures



# Yale SCHOOL OF MEDICINE

FACTS AND FIGURES 2013-14  
[medicine.yale.edu/facts](http://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 fifth among medical schools receiving funds from the National Institutes of Health (NIH) and second in NIH dollars per faculty member. More than 1,000 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 8,597 medical degrees since 1814. There are 5,715<sup>1</sup> living alumni with MD degrees, 4,426 with MPH degrees, and 1,110 alumni of the Physician Associate Program with the PA-C certificate or MMSc degree.



ABOVE: Cell biologist James Rothman is applauded after receiving the Nobel Prize in Physiology or Medicine in December 2013 in Stockholm.

COVER: The School of Medicine's Boyer Center is juxtaposed against the laser light sculpture that commemorated New Haven's 375th anniversary in 2013.

All data in Facts & Figures as of 6/30/13 unless otherwise noted.

<sup>1</sup> Living alumni figures reflect a new tracking system.



First-year students learn about the structure and function of the human body during dissection in the anatomy course.

Students by degree program		
MD program <sup>2</sup>		521
MD	367	
MD/PhD	105	
MD/MHS	41	
MD/MBA	6	
MD/MPH	2	
MMSc (PA-C)	67	
MPH	224	
PhD	315	
<b>Total</b>	<b>1,127</b>	

## MD program details

CLASS OF 2017 PROFILE	
Applicants	4,432
Class size	100
Acceptance rate	6.5%
Average cumulative GPA	3.8
MCAT mean of sections	12.0
Male-to-female ratio	50 to 50
Faculty-to-student ratio	3.3 to 1

## Finances

Tuition, 2013–2014	\$51,480
Average debt, 2013 graduates w/debt	\$123,910

## Medical Library

Volumes	482,992
Journals	13,051
Online books, biomedical	31,125

## 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 12 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.

<sup>2</sup> Of the 521 students enrolled in the MD program, 64 are currently on extended study pursuing a joint degree, completing research, or a combination of research and clinical rotations.

## Academic departments

Basic science	10
Clinical	18
Public Health	5
<b>Total</b>	<b>33</b>

## Programs and centers

<b>Active patents</b>	
U.S.	416
World (55 countries)	704

## Yale-founded biotech companies

<b>Faculty<sup>3</sup></b>	
Teaching (ladder)	1,408
Clinician	138
Research	679
Lecturer/Instructor	417
<i>Subtotal</i>	<i>2,642</i>
Visiting	194
Emeritus/Retired	240
Voluntary/Adjunct	1,626
<i>Subtotal</i>	<i>2,060</i>
<b>Total</b>	<b>4,702</b>

## Postgraduate fellows and associates

<b>Memberships<sup>4</sup></b>	
National Academy of Sciences	62
Institute of Medicine	41
HHMI investigators	19

## Faculty with endowed professorships

<b>Research activity</b>	
1,815 awards totaling \$510.4 million	

## NIH

Awards	\$341.2 million
Rank among medical schools (total grant dollars) <sup>5</sup>	5th
Rank, grants per faculty member <sup>6</sup>	2nd
Centers and program grants	32

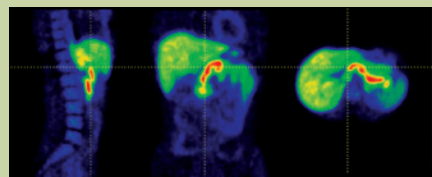
## Laboratory space (net assignable sf)

Medical School	649,536
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**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 \$414.5 million in 2004 to \$510.4 million in 2013.

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



The PET Center has expanded its research portfolio beyond neuroscience and psychiatry to include endocrinology; these images were made using a tracer for insulin-producing pancreatic  $\beta$ -cells (red).

<sup>3</sup> Faculty, associates, and fellows data as of 6/30/13.

<sup>4</sup> Includes faculty across Yale University.

<sup>5</sup> NIH ranking is for the federal fiscal year ending 9/30/13.

<sup>6</sup> Per faculty rank averaged over 2012 and 2013.

**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	175
PhDs awarded by Investigative Medicine Program since 2003	26
YCCI Scholars trained since 2006	85

## 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 400 open trials in 2013 with more than 3,500 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 21 YCCI Scholars yearly and supports investigators in the areas of biostatistics, bioinformatics, study design, core technologies, regulatory review, patient recruitment, and community-based research.



Research by clinical scholars at Yale revealed the extent to which the community near the medical school lacked adequate sources of fresh food and prompted the establishment of a farm stand in the West River neighborhood.

## Patient care overview

<b>Income</b>	<b>\$593.5 million</b>
<b>Yale Medical Group</b>	
Patient encounters	1,698,602
Physicians	
Full-time	1,043
Part-time	149
Midlevel practitioners (PA, APRN)	341
<b>Medical residents</b>	<b>870</b>
<b>Clinical fellows</b>	<b>327</b>
<b>Yale-New Haven Hospital<sup>7</sup></b>	
Patient discharges	80,459
Emergency visits	181,757
Total licensed beds	1,541

## PATIENT CARE

More than 1,000 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 perform such groundbreaking procedures as NOTES, a surgery without incisions, and recently became the first in the country to treat a patient with a life-threatening heart defect using an engineered blood vessel made from the patient's own cells. Yale Medical Group is a major referral center for Connecticut and New England, and treats patients from throughout the world.



Yale Medical Group's new orthopaedics and rehabilitation office in Milford is one of more than 50 YMG locations in 27 towns and cities throughout Connecticut.

<sup>7</sup> Yale-New Haven Hospital data as of 9/30/13; 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.