

## 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 Hospital, Children's Hospital, Psychiatric Hospital, and Smilow Cancer Hospital  
 Yale Health  
 Connecticut Mental Health Center  
 VA Connecticut Healthcare System  
 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, 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. 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/](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 give to the School of Medicine**, please visit [yale.edu/givemedicine](http://yale.edu/givemedicine) or call Jancy Houck at (203) 436-8560.

Facts and Figures 2012 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](mailto:facts.med@yale.edu). On the Web: [medicine.yale.edu/facts](http://medicine.yale.edu/facts). Additional information about the methodology used to compile *Facts & Figures* is included on the website. Data are as of 9/30/11 unless otherwise noted.

Photos: John Curtis, Terry Dagradi, Robert Lisak, Michael Marsland, and Harold Shapiro

## New Haven

Population (2010) 129,779  
 Distance from:  
 NYC 80 miles  
 Boston 137 miles

## University profile<sup>8</sup>

**FACULTY**  
 Yale 3,953  
 YSM 2,432

**STAFF**  
 Yale 9,183  
 YSM 3,243

**STUDENTS**  
 Yale 11,875  
 YSM 1,122

**OPERATING INCOME**  
 Yale \$2.68 billion  
 YSM \$1.2 billion

## 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 FY11: \$4.9 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, which contains 460,000 square feet of lab space.

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 student-run HAVEN Free Clinic celebrated its fifth anniversary last year. Patients are seen by teams of senior and junior students with guidance from faculty preceptors.

<sup>8</sup> Medical school headcounts as of 3/31/12; university headcounts as of 9/30/11. Operating income as of 6/30/11.

**Yale Office of International Affairs** offers support to faculty in establishing and maintaining collaborations abroad, drawing on existing relationships on six continents.

**Yale UCL Collaborative** was established in 2009 with University College London to launch joint projects in biomedicine, with expansion into other disciplines now beginning.

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

**The Yale Global Health Initiative** supports the efforts of students and faculty engaged in health-related projects, including the Global Health Leadership Institute, in which leaders from other nations spend a week devising strategies to overcome health problems in their home country.

## By the numbers (2011-12)

International students at Yale (%)

MD	15%
MPH	25%
BBS	27%
Postdocs	70%
Visiting MD students abroad	126
Yale students/trainees abroad	
MD <sup>9</sup>	30
MPH <sup>9</sup>	43
Downs Fellows <sup>9</sup>	16
Yale/Stanford Scholars	52

## 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** facilitates the placement of Yale medical students in clinical elective clerkships at sites in Argentina, Borneo, China, Peru, South Africa, Thailand, Uganda, the UK, and Zambia. The office also administers the Visiting Student Elective Program.
- **Downs International Health Student Travel Fellowship** program supports students who undertake health-related research, primarily in low- and middle-income countries.
- **Yale/Stanford—Johnson & Johnson Scholars in Global Health** sponsors rotations abroad for Yale house staff and physicians from other institutions, who travel to five sites in Africa and Asia.



In 2011, about 30 percent of Yale medical students traveled abroad for training and 126 international students—including these from Makerere University in Uganda and Xiangya University in China's Hunan Province—came to Yale for clinical electives.

<sup>9</sup> Data refer to the 2010-11 academic year.

## Endowment (6/30/11):

Yale \$19.2 billion  
 YSM \$1.7 billion

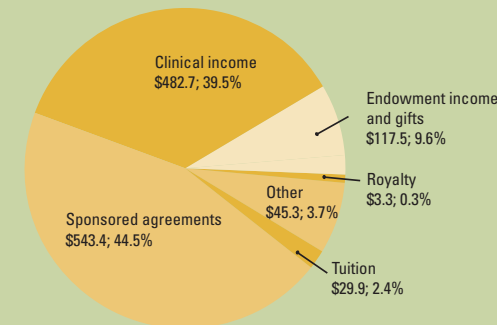
## 2011 capital projects (in millions):

**NEW CONSTRUCTION**  
 Yale \$46.6  
 YSM \$0

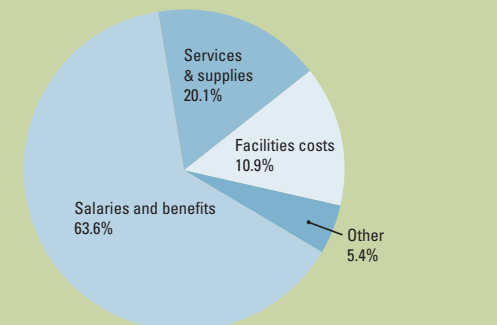
**RENOVATIONS/ALTERATIONS**  
 Yale \$230  
 YSM \$41.8

## Operating summary for the year ending June 30, 2011 (in millions)

Income:  
 Total \$1.2 billion



## Expenditures



# Yale SCHOOL OF MEDICINE

FACTS AND FIGURES 2012  
[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** West Campus acquired

**2009** Smilow Cancer Hospital at Yale-New Haven opens

**2010–11** Medical school celebrates 200th anniversary

## 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 850 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 8,408 medical degrees since 1814. There are 5,218 living alumni with MD degrees, 4,098 with MPH degrees, and 965 alumni of the Physician Associate Program with the PA-C certificate or MMSc degree.



COVER: *Sterling Hall of Medicine can be seen in the foreground of this aerial photograph of the medical campus, with New Haven Harbor and Long Island Sound in the distance.*

LEFT: *The School of Medicine observed its 200th anniversary in 2011 with a symposium bringing 15 of the world's top physicians and scientists to New Haven, including National Cancer Center Director Harold Varmus, left.*



*The introduction this year of a digital curriculum delivered via iPad has eliminated the enormous stacks of paper distributed to students in the first two years.*

## Students by degree program<sup>1</sup>

MD	377
MD/PhD	99
MD/MHS	30
MD/JD	1
MD/MBA	4
MD/MPH	4
MMSc (PA-C)	72
MPH	215
PhD	320
<b>Total</b>	<b>1,122</b>

## MD program details

<b>Class of 2015 profile</b>	
Applicants	3,982
Class size	101
Acceptance rate	6.7 %
Average GPA	3.78
MCAT mean of sections	12.0
Male-to-female ratio	59 to 42
Faculty-to-student ratio <sup>2</sup>	3.2 to 1

**Tuition, 2011–2012 \$47,560**

**Average debt, 2011 graduates w/debt \$110,060**

## Medical Library

Volumes	485,672
Journals	10,194
Online books, biomedical	19,544

## 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 complete their studies. Some pursue 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>1</sup> Of the 515 students enrolled, 67 are currently on extended study pursuing a joint degree, completing research, or a combination of research and clinical rotations.

<sup>2</sup> The faculty-student ratio is lower this year because only ladder faculty are in the calculation. In past years research, lecturer/instructor, and voluntary/adjunct were also included.

## Research activity

**2,034 awards<sup>3</sup> totaling \$579.2 million**

## NIH

Awards	\$338.5 million
Rank among medical schools, total grant dollars	5
Rank, grant dollars per faculty member	2
Centers and Programs	40

## Academic departments

Basic science	11
Clinical	19
<b>Total</b>	<b>30</b>

## Active patents

U.S.	373
World (56 countries)	612

**Yale-founded biotech companies 47**

**Laboratory space (net assignable sf) Medical School 627,583**

## Faculty profile<sup>4</sup>

Teaching (ladder)	1,334
Research	670
Lecturer/Instructor	428
<i>Subtotal</i>	<i>2,432</i>
Visiting	164
Emeritus/Retired	214
Voluntary/Adjunct	1,639
<i>Subtotal</i>	<i>2,017</i>
<b>Total</b>	<b>4,449</b>

**Postdoctoral fellows & associates 918**

**Postgraduate fellows & associates<sup>4</sup> 244**

## Memberships<sup>5</sup>

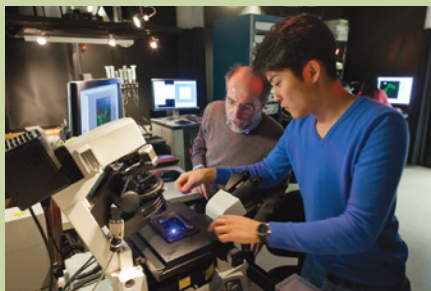
National Academy of Sciences	63
Institute of Medicine	40
NIH study section members	39
HHMI investigators	17
Faculty holding endowed professorships	124

## 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. Funding for research has increased substantially over the past decade, rising from \$366.6 million in 2002 to \$579.2 million in 2011.

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



Cell biologist Pietro De Camilli, left, works with Yale undergraduate student Ryan Park on a confocal microscope during their study of the protein dynamin and its role in endocytosis.

<sup>3</sup> Research award data are for Yale's fiscal year ending 6/30/11. NIH ranking is for the federal fiscal year ending 9/30/11; per faculty rank averaged over 2010 and 2011.

<sup>4</sup> Data as of 3/31/12.

<sup>5</sup> Data as of 12/31/11. Includes the Faculty of Arts and Sciences and the graduate and professional schools.

**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 trained since 1974	158
PhDs awarded by Investigative Medicine Program (since 2003)	24
YCCI Scholars trained since 2006	63

## 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 300 open trials in 2012 (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 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.



Fellows in the RWJF Clinical Scholars Program conduct research on topics ranging from clinical decision-making and outcomes to the prevention of youth-related gun violence. Roberta Capp, right, is concentrating her work on health care processes and quality of care.

## Patient care overview

**Income<sup>6</sup> \$485 million**

## Yale Medical Group

Office visits	338,970
Patient encounters	1,459,802
Physicians Full-time	887
Part-time	133
Midlevel practitioners (PA, APRN)	220

**Medical residents 709**

**Clinical fellows 275**

**Affiliated hospitals 8**

## Yale-New Haven Hospital

Patient discharges	57,451
Emergency visits	137,911

**Total licensed beds<sup>7</sup> 1,008**

## PATIENT CARE

More than 800 Yale physicians provide primary and specialty care for patients through Yale Medical Group. Yale Medical Group delivers advanced care in more than 160 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.



Patient care at Yale is both high tech and high touch. Above, physician Babar Khokhar takes the pulse of a patient on the neurology service at Yale-New Haven Hospital.

<sup>6</sup> Clinical revenue and office visit data are for the year ending 6/30/11.

<sup>7</sup> Yale-New Haven Hospital beds total includes the Children's Hospital, Psychiatric Hospital, and Smilow Cancer Hospital. This number includes bassinets.