

Patient care overview

Income⁵ \$450.5 million

Clinical departments 18

Yale Medical Group

Office visits

344,050

Patient encounters

1,443,478

Physicians

Full-time 852

Part-time 127

Midlevel practitioners (PA, APRN)

213

Medical residents 697

Clinical fellows 261

Affiliated hospitals 8

Yale-New Haven Hospital

Patient discharges

56,620

Emergency visits

137,627

Total licensed beds⁵⁵

966

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 bronchial thermoplasty to treat severe asthma, and are one of the few centers providing such treatments as a new “gold shunt” drainage device for patients with glaucoma. Yale Medical Group is a major referral center for Connecticut and New England, and treats patients from throughout the world.



Jonathan Puchalski and colleagues at the Yale Center for Asthma and Airway Disease perform bronchial thermoplasty, a recently approved, minimally invasive procedure for patients whose asthma symptoms cannot be successfully controlled with medications.

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

Facts and Figures 2011 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. Additional information about the methodology used to compile *Facts & Figures* is included on the website. Data are as of 9/30/10 unless otherwise noted.

Photos: Robert A. Lisak, Wanda Jacques-Gill/Connecticut Medicine, the Journal of the Connecticut State Medical Society, and Michael Marsland

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.

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 opac.yale.edu or (203) 432-1345.
- **To find a person at Yale University**, consult the online directory at medicine.yale.edu/phonebook.aspx, 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 giftguide.yale.edu/medicine or call Jancy Houck at (203) 436-8560.

New Haven

Population (2010) 127,124

Distance from:

NYC 80 miles

Boston 137 miles

University profile

FACULTY

Yale 3,810

YSM 2,155

STAFF

Yale 9,085

YSM 3,284

STUDENTS

Yale 11,701

YSM 1,131

OPERATING INCOME

Yale \$2.57 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 2010: \$6.3 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.



Jacob Gonzalez, a graduate student in the Department of Cell Biology, talks to seventh-graders at Edgewood School in New Haven as part of Yale's Science Educational Outreach Program.

Endowment

(6/30/10)

Yale \$16.5 billion

YSM \$1.5 billion

2010 capital projects

(in millions)

NEW CONSTRUCTION

Yale \$126.2

YSM \$2.1

RENOVATIONS & ALTERATIONS

Yale \$285.1

YSM \$37.2

Yale \$285.1

YSM \$37.2

Yale \$285.1

YSM \$37.2

Yale \$285.1

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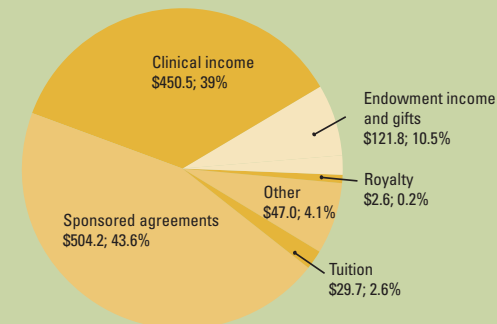
Yale \$285.1

YSM \$37.2

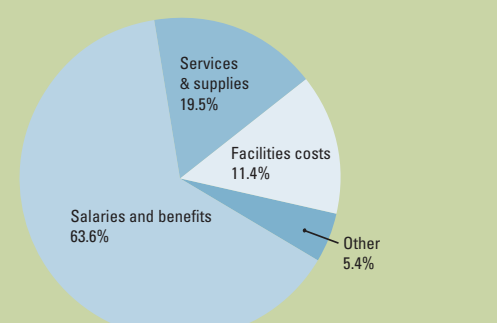
Operating summary for the year ending June 30, 2010 (in millions)

Income

Total \$1.2 billion



Expenditures



Yale SCHOOL OF MEDICINE

FACTS AND FIGURES 2011
medicine.yale.edu/facts



⁵ Clinical revenue and office visit data are for the year ending 6/30/10.

⁵⁵ Yale-New Haven Hospital beds total includes the Children's Hospital, Psychiatric Hospital, and Smilow Cancer Hospital. This number includes bassinets.

Brief chronology

1701 Yale College founded

1723 Yale College awards first medical degree (honorary) in North America

1810 Medical Institution of Yale College chartered

1811 Nathan Smith, Benjamin Silliman, Eneas Munson, and Jonathan Knight are recruited as founding faculty

1813 Classes begin with 37 students enrolled in the six-month program; tuition for full course of lectures is \$50

1833 The State Hospital, precursor to the New Haven Hospital, opens

1839 MD student thesis requirement formalized

1857 First African American student graduates

1910 Flexner Report recommends Yale as one of two New England medical schools worthy of continued existence, spurring expansion of facilities, fundraising, and full-time faculty system

1915 Department of Public Health established and later accredited as a school of public health

1916 First female students admitted

1920 Milton C. Winternitz named dean, beginning period of major expansion and creation of Yale system of medical education

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 800 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 8,327 medical degrees since 1814. There are 5,226 living alumni with MD degrees, 4,094 with MPH degrees and 965 alumni of the Physician Associate Program with the PA-C certificate or MMSc degree.

COVER: Banners celebrating the medical school's Bicentennial greet visitors to Sterling Hall of Medicine.

BELOW: The medical school's first home on Grove Street in New Haven is depicted in an oil painting by Deane Keller that hangs in the offices of the Connecticut State Medical Society.



BICENTENNIAL YEAR

The School of Medicine celebrated its Bicentennial in 2010–2011 with a series of lectures and special publications, a community fair, and a symposium exploring the biomedical sciences. An illustrated book about the school, "Medicine at Yale: The First 200 Years," is available from Yale University Press. A documentary film, "Ancient Art, Modern Science: 200 Years of Medicine at Yale" may be viewed on the Yale University YouTube channel, www.youtube.com/yaleuniversity.

The Bicentennial has provided an opportunity to reflect on the achievements of the past two centuries and the ways in which medicine has changed since 1810. Then, life expectancy in New Haven was less than 40 years, and medical knowledge was derived from concepts that have long since been discounted. During the school's evolution, a largely unscientific occupation handed down through apprenticeship has become one of the most education-intensive, rigorously scientific, and highly regulated professions.

As American medicine looks ahead to improving health care, unraveling the mysteries underlying disease, and optimally preparing the doctors of the coming decades, Yale will continue to meet the challenges of a changing medical landscape.



1924 School moves from 150 York Street to Sterling Hall of Medicine at 333 Cedar Street

1941 Yale Medical Library is dedicated

1945 The New Haven Hospital merges with Grace Hospital, becoming Grace-New Haven Community Hospital

1955 Edward S. Harkness Hall opens, providing dormitory and dining facilities

1963 Coat of Arms adopted

1965 Medical school and hospital revise their affiliation, creating Yale-New Haven Hospital

1966 Connecticut Mental Health Center opens as partnership between Yale and state of Connecticut

1970 Physician Associate Program founded

1974 Yale Cancer Center established

1981 Yale Faculty Practice Plan formed, precursor to Yale Medical Group

1991 Boyer Center for Molecular Medicine completed

1993 Yale-New Haven Children's Hospital opens

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



Computerized simulation is part of the third-year curriculum.

Students by degree program*

MD	371
MD/PhD	84
MD/MHS	28
MD/JD	1
MD/MBA	6
MD/MPH	2
MMSc (PA-C)	71
MPH	213
PhD	320
Total	1,096

MD program details

Class of 2014 profile	
Applicants	4,243
Class size	100
Acceptance rate	6.2%
Average GPA	3.78
MCAT mean of sections	12.15
Male-to-female ratio	51 to 49
Faculty-to-student ratio	4.8 to 1

Tuition, 2010–2011	\$45,600
Average debt, 2009 graduates w/debt	\$124,070

Medical Library

Volumes	483,993
Journals	10,177
Online books	17,544

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 from Yale and organizations including the Howard Hughes Medical Institute, the Sarnoff Foundation, and the Doris Duke Charitable Foundation. A living stipend is included. Students on funded fellowships also earn the MHS degree. The MD/MHS program offers access to resources and faculty guidance, but students design their own projects.

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.

*Of the 371 students enrolled in the MD Program, 45 are currently on extended study pursuing academic research, clinical rotations, or a combination of both.

Research activity

2,040 awards totaling \$612.9 million**

NIH Awards \$351.9 million
Rank among medical schools, total grant dollars 5
Rank, grant dollars per faculty member 2
Centers and Programs 43

Basic science departments 11

Active patents
U.S. 340
World 707

Yale-founded biotech companies 46
Laboratory space (net assignable sf) Medical School 611,152

Faculty profile
Teaching (ladder) 1,212
Research 570
Lecturer/Instructor 373
Subtotal 2,155

Visiting 122
Emeritus/Retired 212
Voluntary/Adjunct 1,630
Subtotal 1,964
Total 4,119

Postdoctoral fellows & associates 1,531

Memberships† National Academy of Sciences 60

Institute of Medicine 43
NIH study section members 47

HHMI investigators 17
Faculty holding endowed professorships 110

** Research award data are for Yale's fiscal year ending 6/30/10. NIH ranking is for the federal fiscal year ending 9/30/10, per faculty rank averaged over 2009 and 2010.

† Data as of 12/31/10. Includes the Faculty of Arts and Sciences and the graduate and professional schools.

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 \$344 million in 2001 to \$612.9 million in 2010.

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



Yale scientists use model organisms, such as *Drosophila melanogaster*, the common fruit fly, to study biological processes shared by all eukaryotes, including humans. Here, Joy Tanaka, a graduate student, counts flies as part of a project on ovarian muscle.

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.

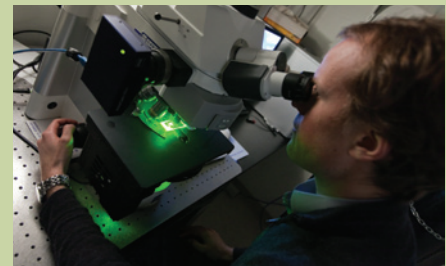
By the numbers

RWJ Scholars trained since 1974	151
PhDs awarded by Investigative Medicine Program (since 2003)	19
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 400 open trials in mid-2011 (see trials.yale.edu). 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 15 YCCI Scholars yearly and supports investigators in the areas of biostatistics, bioinformatics, study design, core technologies, regulatory review, patient recruitment, and community-based research.



Haakon Nygaard, MD, a postdoctoral fellow enrolled in the Investigative Medicine Program, prepares a recording electrode for an electrophysiology experiment. The research team is looking at the effects of the neurotoxic protein known as amyloid-beta, which aggregates in brain tissue and is believed to cause Alzheimer's disease.