

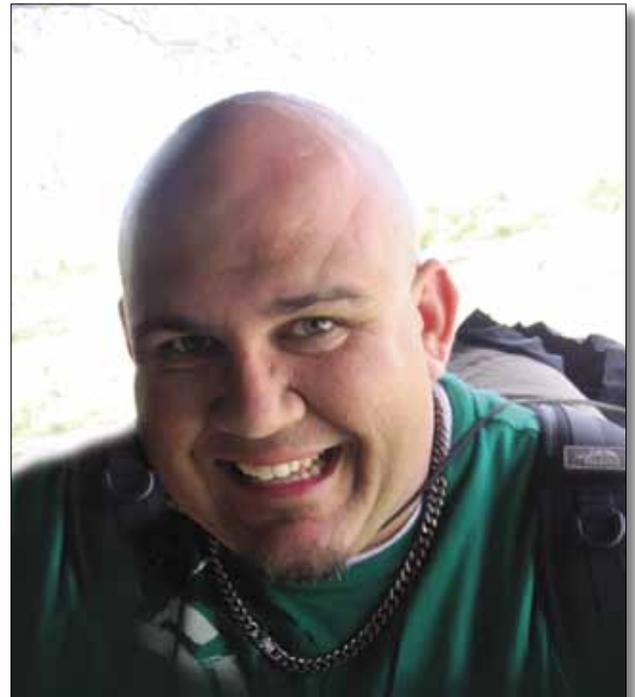
# Healthcare Pathways



## Patrick Ramirez – We Are Public Health

Patrick Ramirez, a student at the University of California, Berkeley School of Public Health, knows the value of collaboration. During his college studies, he has been involved with many student organizations, helping to build mentorships and support networks for public health students. With peer support, professional mentors, and straight-forward advice, he believes that more students who share his commitment to family and community will turn to public health careers.

Patrick Ramirez was not born a dedicated medical professional. But he decided as an undergraduate that he liked working closely and communicating with people. He is from Firebaugh, in the heart of the central valley, near Fresno, California. Patrick began college changing his major frequently until, through a friend, he attended a workshop held by the Health Careers Opportunity Program (HCOP) on the campus of California State University Fresno. HCOP is an academic/extra-scholastic support program preparing students for careers in healthcare. He began to develop strong relationships with individuals who shared a similar goal of improving the health of the community and saw healthcare as a way to truly make a difference. Through HCOP and its coordinators, he developed a plan to graduate, enrolled in academic enrichment courses, and changed his work schedule to allow more time to focus on school.



*Patrick Ramirez – Bringing students together for change*

***“My GPA was not the strongest, but I knew it was never too late to start something I believed in,” stated Patrick.***

Enrolling in the University of California, San Francisco (UCSF) post-baccalaureate program allowed him to conduct research in the areas of public health and health workforce diversity. It gave him a great understanding of the positive influence that health professionals can have on individuals, families, and beyond. “I began to realize that there was this whole world of public health out there,” he recalled. “I love the outdoors and I’ve played sports all my life – I know you can only do so much as an individual, but when you bring together physicians, nurses (and nursing assistants), educators, social workers, and emergency health workers, it is one big powerful public health team.”

### In This Issue:

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- Graduate Degrees in Public Health
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Following his studies at UCSF, he took on a management role at the California Health Professions Consortium, a statewide organization representing service providers, advocacy groups, academic institutions, and health pipeline programs, among others. Patrick learned that “public health means something unique to everyone, and you make it what you want. The more you look, the more you see that the field is so diverse.”

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# Graduate Degrees in Public Health

**T**oday, more than ever, public health professionals are needed in local health departments, universities and government agencies, as well as in clinics and community health centers. Students preparing for public health careers can choose from a wide variety of job opportunities. Many are well prepared to make positive changes in the health of minority and disadvantaged populations. This brings about more coordinated efforts in health promotion and disease prevention to improve overall health and reduce the costs of care.

There are dozens of specialty positions serving the public and promoting public health. Responsibilities can include mobilizing efforts to identify and solve health problems, educating and empowering people about health issues, enforcing laws to protect health and safety, and linking people in need to health services. Many of these jobs require a graduate degree in public health. Graduate degrees can provide an advance level of expertise and develop leadership skills. There are many different public health degree programs throughout California. These programs include coursework directed toward public health careers in health administration, epidemiology, environmental health, behavioral health, health education, dentistry, nursing and others.

The following is a snapshot of some public health occupations and the average annual wage:

## **Environmental Scientist and Specialist**

Environmental scientists and specialists develop and evaluate safety and health standards and regulations. Environmental scientists monitor food safety and hazards in the water, air and soil, or prepare responses to emergency situations. Many work for federal or state government agencies, colleges, or with private companies assisting with environmental regulations.

Average annual wage: \$59,750\*

## **Epidemiologist**

Epidemiologists investigate many types of public outbreaks of infection from food borne to those spread by direct contact. These workers are sometimes referred to as “medical detectives” and usually work for state health agencies or research laboratories.

Average annual wage: \$61,360\*

## **Health Educator**

Health educators collaborate with other health professionals, worksites, schools, or community organizations to prevent illness and promote healthy lifestyles. Many work for nonprofit organizations, corporations, colleges, or in medical care settings. They plan and direct programs, design workshops, and work with community groups to promote public health programs.

Average annual wage: \$44,000\*

## **Nutritionist**

Nutritionists develop and supervise programs and empower people to make healthy decisions. They work to evaluate and offer solutions to nutritional gaps in communities.

These professionals may work with children with special needs, the elderly, or patients undergoing medical treatments. Many work conducting research, teaching in universities, or managing nutrition policies for hospitals, schools, or other local, state, or federal programs.

Average annual wage: \$50,590\*

## **Oral Health Professionals and Public Health Dentist**

Professionals in oral health and public health dentistry develop and manage dental programs for low-income communities and recommend education and disease prevention through organized community efforts. Many dentists provide care in private practice, nonprofit outreach organizations, and through government sponsored programs. Approximately 15% of general dentists work in specialty areas such as orthodontics, oral surgery, and prosthodontics.

Average annual wage: \$142,870\*

## **Public Health Nurse**

Public health nurses may serve as staff nurses, nurse educators, nurse clinicians, or nurse administrators. They develop and implement programs and interventions that improve health, such as providing immunizations or family planning services. Many specialty areas require additional licenses and certifications. Many work in hospitals, care facilities or become part of a public health team in local, state or federal programs.

Average annual wage: \$62,450\*

## **Public Health Physician**

Public health physicians provide medical direction, consultations, or services to medical teams, clinical staff, or patients in local communities. They may have expertise in one or more specialty areas of medicine. Many work in private offices, hospitals or care facilities, or at local, state, or federal agencies. They often help to identify threats of diseases or community health hazards.

Average annual wage: \$186,044\*

*\*(Bureau of Labor Statistics, May 2008)*



## PREPARE FOR PUBLIC HEALTH CAREERS

### Professional Field in Public Health

Epidemiology and Biostatistics

Behavioral Science, Health Education or Global Health

Health Sciences Administration

Environmental Health

### Beneficial Undergraduate Courses

Biology, Mathematics

Sociology, Psychology, Education and Anthropology

Business, Finance, and Management

Biology, Chemistry

Careers in public health are diverse and numerous, as are the many issues facing public health today. Preparing for a career in public health begins by selecting undergraduate courses that are beneficial to your career choice. Building your skills in verbal and written communication is always recommended. Studies in science and mathematics may be a great fit for some public health careers, but may not be as necessary for others.

Public health is healthcare for more than just the individual. It is the organized effort to bring about healthy conditions for communities, cities, states, and larger geographic regions. If you have had a flu shot or vaccination, trusted a restaurant to be clean and safe, or were taught health and safety issues in school, you have benefitted from the efforts of public health employees.

Now is the time for young professionals to enter a public health profession. Well-trained and dedicated people are needed to confront the public health challenges today and into the future. Students are thinking about how they will bring solutions to the needs of rural clinics and metropolitan hospitals, and these professionals often have the strongest connection with public health services and policy. Public health jobs are the “front lines” for healthcare, and each public health professional is a part of a larger system, which includes local, regional, and governmental public health agencies.

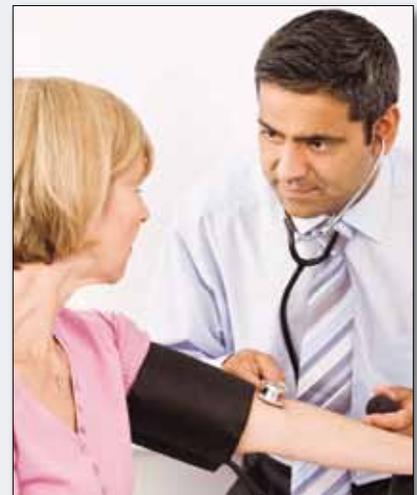
Information on careers in public health can be found at: [http://explorehealthcareers.org/en/Field/11/Public\\_Health/](http://explorehealthcareers.org/en/Field/11/Public_Health/)

The California Department of Public Health (CDPH) provides links to local vital services and programs, licensing and certification information, along with health data and information on promoting good health in your community. Visit CDPH at: [www.cdph.ca.gov/programs/Pages/default.aspx](http://www.cdph.ca.gov/programs/Pages/default.aspx)

### The Need for Primary Care Physicians

By 2020, the Association of American Medical Colleges predicts that the country will have a shortage of 45,000 primary care physicians. Primary care professionals often have the strongest connection with public health services and policy. They provide care in large urban areas and in rural communities, following a passion for change by seeking to work in areas of greatest need. Part of the dilemma for California is the lack of training programs for family practice physicians. The few multi-year residency programs in the state are very limited in the number of applicants they can accept into the program.

The Association of American Medical Colleges has resources for those considering a career in medicine or looking to apply to medical school. Learn more at: <https://www.aamc.org/students/>



# Combating Cancer in Men and Women

Cancer is a major public health problem in America and in other parts of the world. The American Cancer Society estimates 1.6 million new cancer diagnoses in 2011 for men and women in the United States. Cancer is the leading cause of death for Americans younger than 85, but can develop in men and women very differently and in different parts of the body. It is also known that men have a higher risk of developing and dying from cancer for a variety of reasons, some of which are not fully understood. Health professionals continue to work in many specialty areas of medicine to overcome gender disparities, enhance early detection methods and develop advanced treatment options for all cancers.

## CANCER INCIDENCE RATES

Each year, the American Cancer Society estimates the number of new cancer cases and deaths expected in the United States, including cancer incidence rates by gender. Data is used from the National Cancer Institute, the Centers for Disease Control and Prevention, and the North American Association of Central Cancer Registries, with additional mortality data from the National Center for Health Statistics. The results of the data review show clear differences in estimated new cases of cancer for men and women.

### TOP 5 ESTIMATED NEW CASES OF CANCER (INCIDENCE RATES)

Men	Women
1) Prostate	1) Breast
2) Lung & Bronchus	2) Lung & Bronchus
3) Colon & Rectum (colorectum)	3) Colon & Rectum (colorectum)
4) Urinary Bladder	4) Uterine Corpus
5) Skin Melanoma	5) Thyroid

*\*Cancer Statistics 2010, CA: A Cancer Journal for Clinicians, American Cancer Society, Inc.*



The cancer incidence rates for both men and women are very similar for lung and bronchus, and colorectum cancer, which are the most common. Among men, however, cancers of the prostate account for 28% of incidents. Among women, breast cancer alone is expected to account for 28% of all new cancer cases.

Gender differences are also found by researchers in other areas of health. Studies have shown that women have different heart attack symptoms than men. Other studies find that men are less likely to visit a doctor for annual exams or preventative services. Gender disparities in overall health, and in chronic diseases such as cancer, require different strategies for prevention, diagnoses and treatment.

## CAREERS COMBATING CANCER

Health professionals are actively working to improve diagnostic tools, preventive care, and treatments for specific cancers. There are radiologists and surgical oncologists who use advanced medical equipment and surgical procedures to fight cancers in the body. There are laboratory technicians working on a variety of therapy options and researchers performing statistical analysis to identify incidence rates for specific cancers, which can assist in the development of concentrated public health efforts. Many of these professionals have advanced education which allows them to specialize in treatments for specific cancers. Some of these careers include:

**Gynecologists/Medical Oncologists** diagnose and treat cancers of the female reproductive organs, including the ovaries, uterus, cervix, and fallopian tubes. Develops and coordinates treatment plans with other medical professionals and specialists with an emphasis on radiation therapy, chemotherapy, and hormonal therapy. Educational requirements include graduation from an approved medical school and certification from the American Board of Obstetrics and Gynecology (ABOG). Certifications are available for additional areas of expertise.

**Hematologists/Oncologists** diagnose and treat blood cancers and blood-related disorders such as leukemia, lymphoma, and hemophilia. Many specialize in the care and treatment of tumors, blood or bone marrow transplants, and clinical trials. Educational requirements include graduation from an approved medical school, and then additional study for an advanced degree in hematology specialty areas.

**Laboratory Technologists** perform complex testing and examinations of chemical and biological cultures using sophisticated laboratory equipment and computerized instruments. They may prepare specimens for examination or analyze test results. Many specialize in cytology (preparing and examining cells for cancerous growth) or histology (preparing and examining tissues for research

or diagnosis). May also supervise and monitor programs and procedures to ensure accuracy of tests. Educational requirements include graduation from a bachelor's degree program in medical technology or other life science. Most professionals work in the offices of physicians or in medical diagnostic laboratories.

**Pulmonologists** diagnose and treat diseases and cancers of the lungs and respiratory system including asthma, pulmonary disease, and cystic fibrosis. May also work to develop interventional treatments and procedures in the chest cavity or be involved in lung transplant care. Educational requirements include graduation from an approved medical school, then additional study prior to obtaining state board certification in internal medicine and pulmonary disease, which is required to practice medicine.

**Radiologists** specialize in advanced medical imaging of areas inside the body using x-rays, magnetic resonance imaging, and other technologies. Interprets medical images and test results and works closely with other healthcare team members to diagnose and treat disease and injury. Educational requirements include graduation from an associate or bachelor's degree program in radiation therapy or radiography. Many obtain certification from the American Registry of Radiologic Technologists (ARRT).

**Surgical Oncologists** specialize in surgical procedures to diagnose, relieve symptoms, and treat cancer. May perform biopsies, resections, reconstructive surgery, or palliative surgery to treat pain and discomfort. Educational requirements include graduation from an approved medical school, continuing with specialized training or residency program. Professionals can apply for certifications and continue further training in sub-specialties of cancer surgery.

**Urologists** specialize in diseases of the urinary tract for men and women, including male reproductive organs. Performs surgeries on the prostate gland, kidneys, and bladder. May also use non-invasive surgical procedures



and technologies such as computer-controlled micro instruments. Educational requirements include graduation from a doctorate program in medical science with a focus on urology and reproductive health. Many professionals work as residents in a urology center prior to obtaining state board certification, which is required to practice medicine.

There are many health professionals in diverse areas of medicine who work to ease the cancer burden on men and women.

You can join in the fight by becoming part of a healthcare team sharing a commitment to good health and bringing new insights and discoveries to the prevention and treatment of chronic disease.

For more information on cancer statistics for California, visit CA: A Cancer Journal for Clinicians, from the American Cancer Society at: <http://caonline.amcancersoc.org/>

The Cancer Prevention Institute of California (CPIC) partners with organizations and individuals to promote prevention resources and research. Visit CPIC at: [www.cpic.org](http://www.cpic.org)

Information on cancer research careers is provided by the National Cancer Institute at: <https://icrc.nci.nih.gov/icrc/>

### **Seven Tips to Reduce Your Risk of Cancer by the Mayo Clinic Staff**

- 1) Don't use tobacco. Any type of tobacco use increases your cancer risk.
- 2) Eat a healthy diet. Limit fat intake and eat plenty of fruits and vegetables.
- 3) Maintain a healthy weight and include daily physical activity. Try to include 30 minutes of exercise in each day.
- 4) Protect yourself from the sun. Cover up to avoid midday sun and use sunscreen often.
- 5) Get immunized. Viral infections such as Hepatitis B and the Human Papillomavirus (HPV) can increase the risk of developing cancer.
- 6) Avoid risky behaviors. Practice safe sex and don't share needles.
- 7) Take early detection seriously. Perform regular self-exams and get professional screenings from your doctor.

For more information on healthy living from the Mayo Clinic, visit [www.mayoclinic.com/health-information/](http://www.mayoclinic.com/health-information/)

# Dentistry Careers

Dental care is a basic component of good health. The connections between oral health, physical health, and mental health are becoming more known to public health researchers and community clinicians. Good health for your teeth can help improve your overall health. Dental and oral health professionals provide care and prevention of gum disease, tooth decay, throat cancers, and mouth and facial pain. But often, the most important role for dental professionals is educating patients and families on healthy eating habits and preventative care.

Oral disease affects underserved populations disproportionately because of limited access to oral health services. Cost-effective community and school-based preventative and educational programs bring valuable solutions, including low-cost screening and health education for parents and children alike. Oral health education helps parents become more involved in reducing childhood caries (cavities) and improving family health literacy.

The field of dentistry has many careers which provide dental care to patients of all ages. Health careers in dentistry include dental assistants, laboratory technicians, dental hygienists, dentists, and oral care specialists. Each of these professions can have an impact on the health of the community. Students can earn degrees of all levels from dental programs at universities, community colleges, and regional occupational centers.

Students who graduate from dentistry programs can find employment in private practices, public dental clinics, or within federal, state, or local government agencies or institutions. Dental careers offer many opportunities to



make a difference in community health. Dental and oral health professionals, from primary dental care providers to laboratory technicians, work closely with patients to create healthy smiles and build healthy lifestyles.

For a complete listing of California schools for dental and oral health professionals, please visit the Health Professions Education Program Search tool at: [www.oshpd.ca.gov/healtheducationprogram/](http://www.oshpd.ca.gov/healtheducationprogram/)

Detailed information on dental careers can be found by visiting the California Dental Association at: [www.cda.org/careers\\_in\\_oral\\_health/become\\_a\\_dental\\_professional](http://www.cda.org/careers_in_oral_health/become_a_dental_professional)

The Dental Board of California has online resources for dental examinations and license requirements, including approved educational programs at: [www.dbc.ca.gov/applicants/index.shtml](http://www.dbc.ca.gov/applicants/index.shtml)

## CAREERS IN DENTISTRY

Career	Description	Education	Average Annual Salary*
Dental Assistant	Helps with patient comfort before, during, and after treatment. Some work in the front office, while others work alongside the dentist during dental procedures.	Most certification programs take 1 year to complete. State license required.	\$32,380
Dental Laboratory Technician	Completes prescriptions for crowns, bridges, dentures, or other specialty dental prosthetics.	Most certification programs take 1-2 years to complete. State license required.	\$34,460
Dental Hygienist	Provides preventative, educational, and other treatments to patients. Some conduct oral exams, polish teeth, give anesthesia, or perform other advanced procedures.	Most programs offer an Associate Degree which takes 1-2 years to complete. State license required.	\$66,570
Dentists	Provides diagnoses and treatments for oral health problems along with preventative care and education for patients of all ages.	Most dental schools take 4 years to complete and require a 2-year minimum of pre-dental education prior to admittance. State license required.	\$142,870

\* Bureau of Labor Statistics, May 2008

## Dental Assistant Program at College of the Redwoods

College of the Redwoods in Eureka, California, has a dental assistant program, accredited by the American Dental Association's Commission on Dental Accreditation, and approved by the Dental Board of California. This program can be completed in 1-2 years, depending on the student's full-time or part-time commitment. Students in the program train in the on-site Dental Health Center clinic. The College of the Redwoods Dental Health Center provides reduced cost dental services to the community. Students learn through hands-on experience and patient interaction at the dental health center and also through clinical internships in local dental practices.

Upon graduation students are awarded a Certificate of Achievement from the College of the Redwoods as well as any additional certificates earned in the areas of radiation safety, sealants, and oral health techniques such as coronal polishing. Graduates of the dental assistant program qualify to take the Dental Board of California written and practical examination for state licensure as a Registered Dental Assistant (RDA) and the Certified Dental Assistant (CDA) written examination.

To find more information on the Dental Assisting program at College of the Redwoods, please visit:  
[www.redwoods.edu/Departments/HO/DentalAssisting.asp](http://www.redwoods.edu/Departments/HO/DentalAssisting.asp)



...*“Patrick Ramirez - We Are Public Health” (continued from page 1)*

Patrick is currently attending the Master's of Public Health program at UC Berkeley, with a focus on health policy, hospital administration, and management. He is a Leadership Fellow at the UC Berkeley Center for Health Leadership and participates in the administrative residency program at the UCSF medical center, learning how a medical center runs from the inside.

***“I am proud to be from a small farming community, but never in a million years did I think I would be where I am now – learning from some of the best in the country. And although my parents did not attend college, they helped me understand commitment to community. Someday I can return to the Fresno area to work in a hospital or clinic and be of value to the area's health and wellness,” related Patrick.***

Patrick's interest in public health has grown into assisting other students using social networking tools. Together, Patrick and his classmates have developed an online community for high school students, college undergraduates, or anyone interested in public health careers. ***“Our online community is called ‘We Are Public Health’ and is truly developed and run by students. We offer discussions between students, mentors, professors and professionals, with advice on admissions, fellowships and scholarships. We hope to increase awareness of public health, the importance of workforce diversity, and fight to eliminate health disparities.”***

Visit the student public health social networking effort “We Are Public Health” at: [www.wearepublichealth.ning.com](http://www.wearepublichealth.ning.com)

For more information on health professions programs at University of California campuses, visit:  
[www.universityofcalifornia.edu/health/schools.html](http://www.universityofcalifornia.edu/health/schools.html)

Information on the Health Careers Opportunity Program (HCOP) at California State University Fresno can be found at: [www.csufresno.edu/hcop/home/about.shtml](http://www.csufresno.edu/hcop/home/about.shtml)

The California Health Professions Consortium and its network of programs, students and advocacy tools can be found at: [www.calhpc.org/](http://www.calhpc.org/)

Search and locate public health educational programs throughout the state using the OSHPD Health Professions Education Program Search Tool at: [www.oshpd.ca.gov/HealthEducationProgram/](http://www.oshpd.ca.gov/HealthEducationProgram/)

# Starting College Prepared

**G**etting good grades in college requires additional skills and a network of support and encouragement. High school seniors have many academic skills, but many students do not know how to start preparing themselves for the new challenges to come. So how do students start college “prepared”?

Here are four areas to consider as you get ready for college life:

**Know your campus – know your instructors:** Learn every aspect of your school in order to keep yourself safe and on the right path. Look into the wide variety of campus services and resources such as health facilities, housing, and student groups and events. Then incorporate these into your daily routine! Get to know your instructors by meeting with them regularly. Let your instructors get to know you, so that you aren’t just another face in the crowd. Let them know your strengths and you may find helpful advice or a mentor in the process!



**Continue building note-taking and research skills:** First year college students need proficiency in note-taking and research skills. The pace of classes may be swift with larger class sizes so the ability to listen and write is essential. Research projects may be assigned to individuals or groups requiring hours of coordination. Check out all the campus library resources available by taking a tour or speaking with the library staff.

**Build a supportive academic network:** Working alongside fellow students in workgroups can greatly benefit your understanding of course material and your grades! They also support you when your motivation hits a low point. Friends, study groups, and student organizations are an easy way to boost your spirits throughout the year.

**Build a supportive social network:** Social situations will also change as you meet new classmates, new roommates, or new neighbors. Being able to communicate with a variety of people in many different locations and scenarios will help you find others who share your values and your goals.

Just as you pack your suitcases and boxes, you need to prepare your social and academic skills for college. If you are prepared for the wide variety of challenges to come, your first year of college will be a success!

For answers to frequently asked questions about preparing for college life please visit:

- California State University – [www.csumentor.edu/faq/student.asp](http://www.csumentor.edu/faq/student.asp)
- University of California – [www.universityofcalifornia.edu/students/welcome.html](http://www.universityofcalifornia.edu/students/welcome.html)
- Community Colleges – [www.cccapply.org/colleges/](http://www.cccapply.org/colleges/)

## Healthcare Pathways

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