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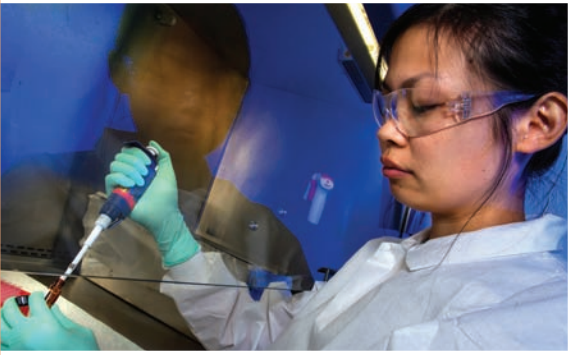

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101+ Careers in Public Health

Beth Seltzer, MD, MPH, is a public health physician, board certified in Public Health and General Preventive Medicine. She has been with the New York City Department of Health and Mental Hygiene since 2019, serving as the director for the Clinical and Scientific Affairs unit in the Bureau of Chronic Disease Prevention. Previously, she had the privilege to serve for several years doing clinical and public health work for the Makah Tribe in rural western Washington. She has also been a writer and consultant for the Discovery Health and Discovery Channel television networks, developing content for educational television shows and interactive media directed at both physicians and general audiences. Dr. Seltzer attended medical school at Case Western Reserve University and completed her preventive medicine residency at Stony Brook University, with an MPH degree from Columbia University. Prior to her medical career, she was a documentary film producer, earning multiple awards for her work.

Heather Krasna, MS, EdM, has served as the assistant dean of Career Services at Columbia University Mailman School of Public Health since 2013. In this role, she spearheads efforts to ensure that students and alumni of the school obtain meaningful careers in public health by developing career education programs and building connections with employers. Throughout her twenty-two years as a career services professional, she has served as the director of career services at the University of Washington's Evans School of Public Affairs as well as the Internship Program coordinator at Baruch College, City University of New York. She is currently pursuing her PhD in public health at the Care and Public Health Research Institute of Maastricht University in the Netherlands with a focus on public health workforce research, and she holds a Master of Education in Adult Learning and Leadership from Teachers College Columbia University and a Master of Science in Nonprofit Management from New School University, as well as a bachelor's degree in anthropology from the University of Michigan. She has published several articles on the public health workforce in leading academic journals including the first national study of employment outcomes of public health graduates published since 1992 as well as a unique analysis of more than 38,500 public health job postings. In addition to this book, she is the author of *Jobs That Matter: Find a Stable, Fulfilling Career in Public Service* (2010) as well as more than one hundred blog articles. She has a small private practice, specializing in careers in nonprofits, government, health, and the social sector. To learn more, visit her website at heatherkrasna.com.

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Third Edition

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To the public health heroes working tirelessly to create a world where all people are healthy and able to thrive.

And in memoriam to all those whose lives were lost to COVID-19.

Contents

Preface

When we agreed to take on this book revision, it was October 2019. We expected a straightforward process. We would make a few updates, add some new profiles, and perhaps add a new job description or two. Were we ever wrong! This book was written in New York City, by a public health physician working at the New York City Department of Health and Mental Hygiene[1] and the assistant dean of career services at Columbia University Mailman School of Public Health, during a time period when our city's schools and theatres closed, ambulance sirens wailed day and night, and thousands of our fellow New Yorkers perished in a pandemic, something public health experts had been warning about for years.

Almost everyone we interviewed had a role in the pandemic response. Some had to set aside their other work to focus on COVID-19. Across the country, new attention was suddenly being paid to public health, a field many people had never thought about before. Several jobs gained attention, which had not been as prominent in the past. The vast disparities in the pandemic's impact highlighted longstanding inequities in health. The devastation wrought by COVID-19, in the United States and globally, demonstrates that it is more important than ever to keep up our efforts and bring new energy into this work.

Even before the pandemic, public health was evolving. In 2020, public health leaders established a new code of ethics and a new set of essential public health services with equity, anti-racism, and justice centered in every aspect of the field. Public health professionals are actively working to end the practice of coming in to "solve community health problems," instead creating partnerships with the communities they serve. The language we use to describe the work, the challenges, and the root causes of public health inequities is evolving to reflect this change. With this perspective, we set out to ensure that the people profiled in this book reflected a diversity of race, ethnicity, age, sexual orientation, educational background, and other lived experiences. Representation matters, especially in a field with "public" in the name.

Technological breakthroughs, impacts of climate change, emerging infectious diseases, and better public awareness of racism and injustice as public health emergencies are all shifting how public health works. We have done our best to capture these changes. We have endeavored to ensure that this book is as accurate as possible, using cutting-edge research such as analyses of large-scale job postings data, an extensive literature review, outreach to subject matter experts, and data from vetted public health workforce and labor market research sources, as well as our own experiences working in the field and communicating with hundreds of public health professionals and employers.

We present this book to you with humility, with love and passion for public health, and with hope that, at last, our society will understand the need to treasure, listen to, and invest in the people who create the public health system. If this book inspires even a few new, passionate, and dedicated people to join the public health field, our work will be well worth it.

NOTE

1. Dr. Seltzer is writing from her own perspective and as a private citizen; nothing in the book should be construed as representing the views of the Health Department.

Acknowledgments

This book would never have been possible without the contributions of nearly 150 public health professionals. In addition to the fact that they have saved and improved millions of lives, what is also remarkable about these public health heroes is that they were willing to pause their lifesaving work, in the midst of the most widespread public health disaster in more than a hundred years, to share their wisdom with you. These individuals were often working very long hours and experiencing extreme stress, whether from the frantic pace of prevention efforts and research to rein in COVID-19, responding to emergency calls, fighting against misinformation, standing up mass vaccination efforts, or even, tragically, working overtime to create huge numbers of death certificates. That they spoke to us under such circumstances is a testament to their commitment to the public health field.

We would especially like to thank each person who shared their story for this book. There were many, many others whom we would have loved to include, but could not due to the length of the book. We hope to feature some of these individuals' stories on our website, 101careersinpublichealth.com. The individuals include Elizabeth Walsh Yoder, Les'Shon Irby, Ryan Brown, Bella Herold, My-Phuong "Maria" Huynh, Yuliya Buslovich, Colin Gibbons, Frances Dean, Tosan O. Boyo, Danish Hasan, Sheryl McCalla, Amita Patil, Roy Rillera Marzo, Jamie Jablonowski, Celia Wright, Brian Castrucci, Lauren Welch, Sarah Moyer, Tamer Hadi, April McCoy, Kathryn Cherkas, Melinda Schwarten, April Davies, and Helen Schiltz. We also thank those who shared their stories in prior editions, including Rosemary Flynn, Teré Dickson, Orion McCotter, Virginia Hastings, Mamie Elmore, Mike Barry, Jean Lubbert, Jennifer Greaser, Mario Roederer, Ron Stout, Shelley Anderson, James Lalumandier, Duane Herron, John Skirven, Allison Meserve, Brian Parker, Sara T. Losh, Donna Westawski, George Pourakis, David Abramson, Katherine Hull, Les Pappas, Leigh Ann Simmons, Steve Haines, John Wedeles, Sarah Schillie, Bindy Crouch, Paul Stannard, Chris Haag, Katherine Hull, Elizabeth Sazie, Sara Brenner, Asheesh Bhalla, Linda Fried, and Brenda Henry-Sanchez.

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We would also like to thank the many experts who were generous enough to review our chapters and provide feedback. In particular, we received very helpful feedback from the incredible faculty, staff, and alumni of Columbia University Mailman School of

Public Health, where co-author Heather Krasna is fortunate to be surrounded by many of the world's leading public health experts, including Stephen Morse, Jeanine Genkinger, Joyce Pressley, Gina Wingood, Marita Murrman, Renata Schiavo, Kamiar Khajavi, Caitlin Hawke, Jonathan Sury, Clare Norton, Jeff Goldsmith, Adria Armbrister, and Ross Frommer. We received generous feedback, too, from leaders of the American Public Health Association's various sections and the broader public health community, including Adriana Babiak-Vazquez, Kathryn Mishkin, Shelly Burgess, David Dyjack, Alfreda Holloway-Beth, Brit Saksvig, Shauna C. Henley, Jenn Leiferman, Bryan O. Buckley, Shiela Krishnan, Byron Sogie-Thomas, Steven Reynolds, Jessica Keralis, David Verga, Peter Wainwright, and Carol Pinchefsky.

PERSONAL ACKNOWLEDGMENTS FROM BETH SELTZER

I want to express my ongoing gratitude to everyone who has contributed to this book since I started work on the first edition, way back in 2008. To the many, many public health professionals who advised on job descriptions, provided information, reviewed chapters, and shared your stories over the years, and to all the people I've met at conferences and workshops who were kind enough to chat a while about what you do: thank you. This past year has been a deeply difficult one. We have a long way to go before we are through this pandemic and its aftermath, and before we see health equity and health justice for everyone we serve. Knowing that my colleagues in public health are people like all of you, with your dedication, brilliance, and enthusiasm, gives me hope.

Once again, my friends and family have been my support and strength. Thank you Diana Goodwin, Alisa Roost, Shannah Whithaus, Jennifer Schaperow, Katey Coffing, Dorit Koren, Reena Jethva, Teju Patel, Elisa Waxman, Moira Malone, my parents Lynn and Robert Seltzer, and everyone else who has listened to my rants about the first months of the national COVID-19 response and the challenge of writing about public health careers in the midst of it all.

To Heather Krasna: I could not have dreamed of such an amazing co-author. You carried so much of the work while I was coping with my role as a public health physician during this crisis. This new edition would never have happened without you. It is better for your wisdom, your perspective, your knowledge, and your ideas.

PERSONAL ACKNOWLEDGMENTS FROM HEATHER KRASNA

I wish to thank my doctoral advisors, Drs. Katarzyna Czabanowska, Linda Cushman, and J.P. Leider, who helped me with my research on the employment outcomes of public health graduates and labor market taxonomies for the public health workforce.

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I

Introduction to Public Health

1

What Is Public Health?

Are you someone who wants to make a difference in the world? Do you want to help all people achieve their greatest level of health and wellness? Would you like to know that your work has helped save thousands, even millions of lives? Have you been shocked by the impact a virus like COVID-19 can have on society, and want to be part of the solution? Then a career in the diverse, challenging, meaningful, satisfying, and rapidly growing field of public health may be for you.

Not long ago, public health professionals used to joke that nobody understood what they did—until something went wrong. Until the COVID-19 pandemic, few of us in the United States worried much about infectious diseases. Until recently, words like "pandemic," "social distancing," or "epidemiology" were not on everyone's vocabulary list. We thought of pandemics as something from the distant past. Most of us are lucky enough to take it for granted that the water from our kitchen faucets is safe to drink. We assume that the medicine we buy from the local pharmacy will make us better, not make us ill. But when there is an outbreak of a deadly illness, *then* everyone looks to public health to save the day. As we have seen from the COVID-19 pandemic, a lack of investment—or lack of authority—given to public health entities can have devastating consequences.

Public health is the discipline that aims to keep our population safe from illness. Unlike a doctor who treats individual patients (often once they are already sick), the public health expert considers health from the perspective of entire communities: neighborhoods, cities, states, countries, and even across international boundaries. Public health addresses disease prevention and control, as well as health promotion, on a local, national, and global scale. Public health prevention measures can save far more lives, often more humanely and cheaply, than medical treatment. In fact, for every dollar spent on community efforts to prevent disease, we save $5.50 on healthcare costs; for every dollar spent on tobacco cessation, we save $2.00; and for every dollar spent on vaccination, we save $5.00.[1]

Many people confuse healthcare or medical care with public health. To illustrate the difference, imagine a patient coming to the emergency department (ED) with severe COVID-19. Medical care is provided to the patient, as an individual, by clinicians including doctors, nurses, respiratory technicians, and many others. But a public health professional asks what we can do to prevent that person—and everyone else—from needing to go to the ED in the first place.

There may have been individual factors which raised this patient's risk. Did the patient get COVID-19 because they believed misinformation or rumors from social media that downplayed the virus, and so took the risk of meeting friends indoors without a mask? Is the person an older adult and so more susceptible to severe COVID-19? Do they have a disability and could not find accessible care?

What about environmental factors? Did the patient have an essential job which caused them to become exposed to the virus, and if so, why did the workplace lack proper ventilation or safety precautions? Were they especially at risk for severe COVID-19 because they have diabetes—and was the diabetes worsened by factors like lack of access to healthy food or safe places to exercise? Does the patient live in an area with air pollution, causing their lungs to be more vulnerable? What environmental and global health issues caused COVID-19 to emerge and then travel around the planet in the first place?

Then there are policy and economic factors. Did the patient catch the virus from someone who didn't know they were infectious, because laboratory testing and contact tracing were unavailable in their neighborhood? Or was the patient exposed to COVID-19 because someone in their community could not afford to take unpaid time away from work to quarantine? Could a vaccine have kept the patient safe, and if so, how can we be sure a vaccine is safe and effective—and everyone can easily access it?

Each of these factors—workplace safety, testing, health education, air pollution, nutrition, access to care, policy and law, health communications, disease transmission patterns, health inequities, global health, and more—can be impacted by public health efforts, thus preventing our patient and millions of others like them from ever needing to set foot in the ED.

More than this, public health works to promote wellness, not just the absence of disease, by influencing conditions to make it as easy as possible for people to be as healthy as possible. This includes working to ensure people have access to good nutrition, a safe place to live, an environment free of pollution, social and community support, and other conditions needed to thrive.

A BRIEF HISTORY OF PUBLIC HEALTH

Public health measures have been around for millennia.[2] Excavation of a 4,000-year-old city in India revealed covered sewers to carry waste away from people's homes. An archeological study in Peru recently found a complex water filtration system using quartz and other minerals, built by the Maya in around 300 BCE.[3] In Rome about 2,000 years ago a system of aqueducts brought fresh water to the city. Legend has it that 2,500 years ago, a Greek ruler ended a malaria epidemic by changing the course of two rivers, making a marshy region less hospitable to mosquitoes.

The idea of quarantining people who were contagious became prominent in the Middle Ages. To combat leprosy, church leaders decided to separate people with leprosy from the rest of society, making life very difficult for those patients, but probably saving many healthy citizens from contracting the disease.[4] Similar measures were used when the Black Plague struck.

Of course, people have not always understood disease the way we do today. Some misunderstandings actually led to effective public health efforts—the idea that infectious

disease was caused by "bad air" eventually led to improvements in sanitation. But confusion about how diseases spread also led to less successful approaches. In Europe in the 1800s, government officials tried to stop the spread of cholera by quarantining people who were ill, destroying their belongings, and burying the dead immediately and away from highly populated areas. But none of these activities actually stopped cholera epidemics, which were caused by contaminated water.

The roots of modern epidemiology, one of the most important sciences in public health today, are widely thought to lie in work that was done around that time. Epidemiology is the study of how diseases occur within populations and how they can be controlled. Although no one knew exactly what caused cholera, John Snow, a doctor practicing in London, realized that the key to stopping outbreaks lay in figuring out how cholera was being transmitted. Instead of focusing on the disease in individual patients, he looked for patterns in where and when cases of cholera occurred. His investigation led to the discovery that outbreaks were linked to contaminated water and could be halted by providing a clean water supply. Snow was not the only one who attempted to use epidemiologic methods, but his story is among the most well known. It took years for his ideas to be accepted, but approaches similar to his are now widely considered to be at the heart of modern public health.

It has been estimated that life expectancy has doubled in the last two hundred years, primarily due to public health interventions. The greatest increase in life expectancy in United States history occurred between 1880 and 1920, before the discovery of medical interventions such as antibiotics or advanced surgical procedures, due to public health efforts to improve sanitation, water quality, sewerage, food inspection, housing and education, and labor laws.

THE ROLE OF PUBLIC HEALTH TODAY

Today, public health is far more than providing clean water, maintaining sanitation, and controlling the spread of contagious diseases. The field has expanded to include the prevention of chronic diseases and cancer, the control of conditions that are linked to disease, and attention to mental health. There are public health experts studying disparities in levels of disease among different racial and ethnic groups and trying to change the underlying structures and institutions in society to ensure everyone has the same chance to thrive. Public health topics also include infant and maternal mortality, access to dental care, the prevention of substance use disorders (including tobacco, alcohol, and drugs), and seat belt and helmet laws. Public health techniques are used to promote workplace safety, reduce on-the-job injuries, and prevent gun violence. Public health can also include clinics and other services to individuals, when those services are offered in the context of trying to raise the health of a community or group.

In fact, the field of public health has become so broad that even the people who practice it sometimes have trouble defining exactly what public health means today. In general, what public health efforts have in common is a focus on promoting health at the population level, instead of focusing on the individual interactions between doctor and patient. The Institute of Medicine offered a definition in their classic 1988 report *The Future of Public Health*.[5] The report specified the mission of public health as "fulfilling society's interest in assuring conditions in which people can be healthy." It also identified three core functions:

- **Assessment.** Public health agencies should collect and analyze information about the health of the communities they serve.
- **Policy Development.** Agencies should promote the use of sound science and act as leaders in the development of comprehensive public health policies.
- **Assurance.** Agencies should assure the provision of services necessary to meet public health goals.

In 1994, federal agencies and public health organizations collaborated to expand this definition, and created the list of 10 Essential Public Health Services, which has recently been revised to make health equity and justice a central focus:[6]

1. Assess and monitor population health status, factors that influence health, and community needs and assets.
2. Investigate, diagnose, and address health problems and hazards affecting the population.
3. Communicate effectively to inform and educate people about health, factors that influence it, and how to improve it.
4. Strengthen, support, and mobilize communities and partnerships to improve health.
5. Create, champion, and implement policies, plans, and laws that impact health.
6. Utilize legal and regulatory actions designed to improve and protect the public's health.
7. Assure an effective system that enables equitable access to the individual services and care needed to be healthy.
8. Build and support a diverse and skilled public health workforce.
9. Improve and innovate public health functions through ongoing evaluation, research, and continuous quality improvement.
10. Build and maintain a strong organizational infrastructure for public health.

Assessment and Monitoring

Monitoring is at the root of many public health efforts. If we do not know what patterns of disease are occurring, we cannot create rational programs to address those diseases. In the United States, certain contagious diseases are considered "reportable," which means that doctors or laboratories must alert health officials whenever a case is discovered. If there is an unusually high number of cases, public health experts swing into action to find out why. Public health agencies also monitor diabetes, heart disease, cancer, congenital disabilities (e.g., birth defects), certain types of injuries, and other serious medical problems. A sudden increase in disease, especially if it is in a single location, can signal an immediate problem to be addressed. Even a gradual, widespread change can expose the need for improved health measures on a local or national scale. Public health professionals collect and analyze health data, leveraging innovative technologies and data collection methods to find trends, patterns, and emerging threats. Some efforts place a specific focus on disproportionately impacted populations, with the goal of finding and addressing root causes of inequity and creating partnerships with communities to improve their health. Crucially, public health experts should also share and communicate data back to the community and ensure that community members serve as key partners and experts.

Investigating and Diagnosing Health Problems and Hazards

Once a problem (e.g., an infectious disease, environmental hazard, chronic disease, or injury) has been identified, public health experts use a wide range of methods to try to prevent it from causing further harm to a population. With COVID-19, for example, public health experts quickly realized that the virus was respiratory; that masks, social distancing, and handwashing could reduce the spread; that restrictions on crowds or mass gatherings could reduce opportunities for a "super-spreader" event to infect large numbers of people; and that extensive testing, isolation and quarantine, and eventually vaccination would be needed to control the outbreak. In more typical times, water treatment plants, free clinics to treat and prevent the spread of sexually transmitted infections, and ad campaigns promoting exercise are all examples of disease prevention efforts. So are programs to reduce pollution and efforts to encourage stores to stock more healthful foods. From low-cost vaccinations for children to national recommendations for exercise, the active prevention of disease and promotion of health are critical elements of modern public health activities.

Research

The best public health efforts are based on sound research, data, and scientific evidence. At schools of public health, government agencies, nonprofit organizations, and some for-profit businesses, scientists work on finding the best approaches to maintaining and improving health on a population level. Researchers are working hard to determine how to prevent new disease outbreaks, improve testing, and develop effective and safe vaccines. There is also research looking at how our environment affects our health and at why certain populations have consistently better health outcomes than others. Some researchers work on evaluating existing public health programs to see what works and where our tax dollars should be spent. There are researchers studying public health from many other angles, from the impact of personal choices to the effects of national policy.

Policy

Many public health programs and services are provided by state, local, tribal, territorial, and federal government agencies. These efforts are created and controlled by laws and regulations. Nonprofit organizations also operate according to their own overarching policies. A good policy provides for sound, science-based monitoring, detection, prevention, research, and other aspects of the Ten Essential Public Health Services. But even policies that come from the best intentions can have unintended consequences. There are public health experts who study the outcomes of past policies, examine the impact of current ones, and advise legislators and other policy makers on how to make good choices for the future. Public health is often thought of as a scientific, nonpolitical field—but when public health policy and politics collide, public health professionals must also stand up and become advocates for the communities those policies are intended to benefit.[7]

Health Services Research

Health services research is sometimes considered a separate category from public health, but many public health experts consider it a part of the continuum. Health services research looks at how healthcare is delivered, including the effects of billing and financial structures; the organization of hospitals, insurance companies, and medical practices; the use of health technologies; and the behavior of individuals. Researchers in this area look at patient outcomes, access to care, how people utilize doctors and hospitals, and how healthcare differs for different populations. The information they collect can be

used by doctors, patients, hospitals, insurance companies, policy makers, and others, and the overall goal—at least from the public health perspective—is to improve healthcare for all.

Direct Service

There are many public health efforts that incorporate direct patient care. There are local and national hotlines to help people quit smoking, provide assistance in cases of accidental poisoning, and direct victims of relationship or domestic violence to services. Emergency medical services use a public health perspective, aiming not only to match their services to community needs but also to stand ready to serve in case of disaster or attack. Many members of the US Public Health Service Commissioned Corps are assigned to the Indian Health Service, which provides comprehensive health services to American Indians and Alaska Natives. Local health departments often run clinical services to address certain communicable diseases, including sexually transmitted infections and tuberculosis.

Public Health Ethics and Competencies

To become a public health professional, you must commit yourself to not only a career, but a calling, with its own ethics and competencies. The American Public Health Association outlines core ethical principles for public health professionals. **Professionalism and trust** require that decisions be based on the strongest possible ethical, scientific, and professional standards. **Health and safety** means taking responsibility for preventing, minimizing, and mitigating health harms as well as promoting public safety, health, and well-being. **Justice and equity** highlight the importance of making sure all people have equal opportunities for optimal health. **Interdependence and solidarity** are about the interconnectedness of individual people, communities, other living creatures, and our environment, and the importance of public health work to foster positive relationships among people, societies, and our environment. **Human rights and civil liberties** highlight the need for public health practice to honor personal autonomy and privacy and allow for self-determination. **Inclusivity and engagement** remind us that we must be accountable to the people we serve, and that decision-making processes must include the diverse people, communities, and others who will be impacted.[8]

PUBLIC HEALTH NEEDS YOU NOW MORE THAN EVER

While the third edition of this book is being written, the United States is experiencing the worst viral outbreak in a hundred years. Both of the authors lived in New York City at the height of the pandemic, and one of us was working at the New York City Department of Health at the time. We cannot discuss public health without pointing out that this disaster—the deaths, the long-term health consequences, the damage to the livelihoods, education, and mental health of so many—could have been much less devastating if the United States had had a well-functioning, well-funded public health system, and if key political leaders had supported science-based public health efforts from the beginning. In recent years, the United States has been spending less than 3% of its health-related funding on public health.[9] The Centers for Disease Control and Prevention has had its budget for public health preparedness cut in half in the last decade; other federal agencies focused on public health have faced similar cuts.

Since the COVID-19 pandemic began, we have seen leaders of public health agencies in the United States receiving death threats, being barred from public testimony, sharing concerns about data being manipulated or hidden from the public, and having their recommendations rewritten—or directly contradicted—by political appointees and elected officials who seemed to have little understanding of public health. Local and state health departments have experienced budget cuts for decades, leading to well-documented staff shortages. Some countries with far less wealth than the United States have done a better job in controlling COVID-19 and preventing deaths.

In some ways, public health pushes against deeply held beliefs of many people in the United States. "Rugged individualism" cannot stop a pandemic, which must be controlled through community-wide efforts. The exercise of "individual freedoms"— such as choosing not to wear a mask during a pandemic or choosing not to receive a vaccine—can directly harm the health of the whole community. Addressing health inequities also means addressing entrenched problems, including systemic racism, poverty, mass incarceration, gun violence, and income inequality. Public health shines a bright light on underinvestment in other areas of public life, such as unequal investments in education, nutrition, and air quality; and the COVID-19 pandemic clearly illustrates how our society pays less attention to the lives of workers in meat-processing factories, older people in assisted living facilities, people living in prisons, people with disabilities or chronic conditions, and children and teachers in schools—all of whom have been broadly impacted. Public health sometimes sends messages that conflict with people's beliefs on controversial topics like sexual health education or needle exchanges for substance users. Many public health interventions are low-tech, low-cost, and "unsexy," like handwashing, while many elected officials would rather invest in high-tech medical solutions. Some public health programs can take years to have an impact, while American culture often values a quick fix. Public health is based on science and expertise, in a time when anyone can be an "expert" by posting a video on YouTube and conspiracy theories are rampant. And some public health programs push against profit-making enterprises, like sugary beverages and tobacco, and thus have to contend with the vast resources of corporations in order to move a public health policy forward.

Given all these challenges, it may seem discouraging to work in public health. But the vast majority of people working in public health continue "fighting the good fight," and remain committed because they find it the most meaningful work imaginable. They have persevered because they know their work saves countless lives. It is our hope that the readers of this book will come to value and support public health, not just in their career choices, but as advocates for a better public health system, too.

Medical professionals, frontline healthcare workers, and other essential workers are often the most visible heroes of the COVID-19 pandemic, but many of the unsung heroes are public health experts. And, in general, medical care is estimated to account for only 10% to 20% of the modifiable aspects of human health,[10] with the remainder explained by social, behavioral, and environmental determinants of health—which can be improved through public health efforts.

This book will walk you through how to decide which public health career is right for you, show you more than a hundred different public health career paths, give you real-life insights from public health professionals, and help you go out and find your perfect public health job. There has never been a better time to be part of the public health solution. Let's start your public health journey today!

REFERENCES

1. Zelman W, Stevens G. Public health: Swimming upstream in search of influence. *Health Affairs* blog. Published July 9, 2020. Accessed August 28, 2021. https://www.healthaffairs.org/do/10.1377/hblog20200706.8051/abs
2. Rosen G, Fee E, Imperato PJ. *A History of Public Health.* Revised expanded ed. Johns Hopkins University Press; 2015.
3. Gershon L. Researchers uncover 2,000-year-old Maya water filtration system. *Smithsonian Magazine*. Published November 2, 2020. Accessed August 28, 2021. https://www.smithsonianmag.com/smart-news/researchers-uncover-2000-year-old-mayan-water-filtration-system-180976186
4. Porter D. *Health, Civilization and the State: A History of Public Health from Ancient to Modern Times*. Routledge; 1999.
5. Institute of Medicine. *The Future of Public Health*. National Academies Press; 1988.
6. Centers for Disease Control and Prevention. *10 essential public health services*. Last reviewed March 18, 2021. Accessed August 29, 2021. https://www.cdc.gov/publichealthgateway/publichealthservices/essentialhealthservices.html
7. Selig WKD, Jenkins KL, Reynolds SL, et al. Examining advocacy and comprehensive cancer control. *Cancer Causes Control*. 2005;16(suppl 1):61–68. doi:10.1007/s10552-005-0485-1
8. American Public Health Association. *Public Health Code of Ethics* [issue brief]. American Public Health Association; 2019. https://www.apha.org/-/media/files/pdf/membergroups/ethics/code_of_ethics.ashx
9. Himmelstein DU, Woolhandler S. Public health's falling share of US health spending. *Am J Public Health*. 2016;106(1):56–57. doi:10.2105/AJPH.2015.302908
10. Hood CM, Gennuso KP, Swain GR, Catlin BB. County health rankings: relationships between determinant factors and health outcomes. *Am J Prev Med*. 2016;50(2):129–135. doi:10.1016/j.amepre.2015.08.024

2

Choosing a Public Health Career

There are many different careers within public health—even more than the 101+ covered in this book. Deciding which ones may be a good fit for you can feel overwhelming. There are many factors to keep in mind when making a career decision:

- **Skills, Abilities, and Job Functions:** What skills do you like to use (and which do you dislike)? What activities come naturally to you and which are a struggle? What tasks would you prefer to do during your work day?
- **Mission and Work Setting:** What issues or public health challenges are you most passionate about? For example, are you inspired to help specific populations, such as children and youth? To reduce the incidence of a particular disease like cancer? To make big-picture changes in health systems?
- **Lifestyle/Values:** Which lifestyle and values considerations, such as salary, benefits, job security, culture of the organization where you work, geographic location, travel, work–life balance, and so on, are important to you when choosing a career path?

Before making a major decision, it's important to first clarify which criteria are most crucial to you. Then, you can research careers and compare them with your criteria to see if they match your key priorities.

SELF-REFLECTION: SKILLS, ABILITIES, CAREER INTERESTS, AND JOB FUNCTIONS

To help clarify your skills and abilities, think about your past experience, including school, volunteer work, internships, jobs, and even hobbies or leisure activities. Look for themes. Write down at least six stories, focusing on experiences where you felt so focused on what you were doing that you lost track of time, or accomplishments that you feel especially proud of.

What skills cut across all of your stories? Did you notice that in each story, you spent most of your time talking to people? Being creative and coming up with new ideas?

Analyzing information? Getting things organized and focusing on details? Persuading others? Working with your hands or physical objects?

Another way to analyze your career interests/skills is to try an online career assessment. One option is a simple, free tool called My Next Move, offered by the career website O*Net Online: www.mynextmove.org/explore/ip. O*Net Online is sponsored by the U.S. Department of Labor. This assessment takes only a few minutes, and will provide you with a list of potential career interests, classified into six categories or career themes, each with a theme letter:

- Realistic (R)
- Investigative (I)
- Artistic (A)
- Social (S)
- Enterprising (E)
- Conventional (C)

Each of these is described briefly in what follows. Most people will have a top three career themes. O*Net characterizes jobs by the same themes in order to help match them to your interests.

There are nearly endless combinations of job functions and mission areas within the public health field. In order to help simplify your research, here is a list of some of the jobs which are described in this book, along with their corresponding career themes. Theme letters are included for jobs that appear on the O*Net Online site. Though some of the jobs in this book are too specific to be included in the website, this list may still give you some ideas to start with. Your Interest Profile results don't need to correspond exactly to the letters in a particular career. For example, if Artistic is your first career interest category and Social is your second, you may be happy with a career where Social is first and Artistic is second or third. Please know, this exercise is meant to give you just a starting point for your research, and should be used as only one part of your career exploration process. It can also be helpful to discuss your career exploration with a career counselor; many universities offer them to their students or alumni.

Investigative (I)

Investigative occupations include research, analysis, working with ideas, problem-solving, and complex thinking. Many careers in public health require these skills, and some require significant scientific knowledge and training.

- Public health geneticist (I/A/R)
- Behavioral scientist, health policy analyst (I/A/S)
- Epidemiologist, medical epidemiologist, infection preventionist (I/S)
- Nutritionist (I/S/E)
- Disease ecologist, climate change and health specialist (I/E)
- Program analyst, program evaluator, outcomes researcher, monitoring and evaluation specialist (I/E/C)
- Urban planner (I/E/A)
- Industrial hygienist, biostatistician, data analyst (I/C)
- Health economist (I/C/E)
- Public health pharmacist (I/C/S)

- Data scientist/bioinformatician (I/C/R)
- Public health veterinarian, vaccine researcher, hydrologist, health physicist, biomedical engineer, entomologist (I/R)
- Public health laboratory scientist, environmental health specialist (health inspector), environmental engineer, toxicologist, medical examiner, food service sanitarian, food scientist, geospatial information scientist/geographic information systems (GIS) mapper (I/R/C)
- Public health dentist (I/R/S)

Artistic (A)

Artistic careers allow for self-expression and creativity. They often involve visual design, writing or communications, and the ability to "think outside the box." While there are relatively few public health jobs which are primarily artistic, there are several where Artistic is second on the list, such as policy analysts, social scientists, activists, and even epidemiologists who focus on data visualization.

- Medical writer, journalist (A/E/I)
- Grant writer (A/I/C)

Social (S)

Social occupations are helping professions. Many of these roles require working with, listening to, counseling, or teaching people. Empathy and cooperation are key values in these careers.

- Researcher in aging and public health, professor, school of public health, public health social worker, mental health researcher, implementation scientist (S/I)
- Contact tracer, community engagement specialist, community health worker (S/I/E)
- Public health nurse, home visit nurse, employee health nurse (S/I/C)
- Medical officer, environmental health physician, occupational medicine physician, medical officer/drug evaluation, global health physician, armed forces preventive medicine officer (S/I/R)
- Health teacher (S/A)
- Continuing education coordinator (S/A/C)
- Health educator, patient navigator, tobacco quitline coach/smoking cessation specialist, perinatal educator, health promotion program coordinator, director of emergency medical services, emergency management director (S/E)
- Fitness/exercise program manager (S/R/E)

Enterprising (E)

Enterprising careers involve leading, managing, or influencing people, launching and implementing projects, making decisions, risk-taking, and business or operations management.

- Violence prevention program director, executive director, health commissioner, chief operating officer, federal agency director, logistician (E/C)
- Quality improvement specialist (E/C/R)
- Administrator of family health services, provider liaison for Area Agency on Aging, food security program coordinator, behavioral health program coordinator, volunteer coordinator, program officer (E/C/S)

- Public health lawyer (E/I/A)
- Administrative law judge (E/I/S)
- "Aging-in-Place" program coordinator, dementia services coordinator, employee wellness manager, food security program manager, behavioral health program coordinator (E/S)
- Communications director, development director (E/A)
- Community activist, social media strategist, advocacy director (E/A/S)
- Chef (E/R/A)

Conventional (C)

Conventional occupations focus on attention to detail, following set procedures and routines, working with data, and ensuring compliance with regulations.

- Study coordinator, informatics specialist (C/I)
- Hazardous waste inspector (C/I/R)
- Regulatory affairs specialist (C/E)

Realistic (R)

Realistic occupations are practical, hands-on jobs, often dealing with real-world materials, plants or animals, or machinery. While there are not as many public health jobs in this category, many jobs do include Realistic among the top two or three codes, including GIS mappers, information technology professionals, engineers, and certain scientists and clinicians.

- Laboratory technician (R/I/C)
- Food inspector, department of agriculture; consumer safety officer, Food and Drug Administration (FDA) (R/C/I)

SELF-REFLECTION: MISSION AND TOPIC AREA

A mission or topic area is the public health issue your work focuses on. Many people become inspired to pursue careers in public health because of a passion for a particular mission area, sometimes caused by a personal experience such as their own or a loved one's illness, a desire to end health-related injustices, or an interest in contributing to a bigger, systems-wide change in the health of populations. Think about what particular mission areas, populations, or ideas are driving your own interest in public health. Here are some examples of mission or topic areas. This is not a complete list; including all the possible topics would take up many more pages.

- Accident or injury prevention: road safety, intimate partner violence, child abuse, drug overdose, brain injury, violence prevention, gender-based violence, gun violence
- Aging: healthy aging, dementia, aging-friendly environments
- Chronic/non-communicable disease: asthma, diabetes, cancer, autoimmune diseases, genetic disorders
- Disasters and emergencies: management, preparedness, response
- Environmental health: water quality, food safety, air quality, radiation safety, climate change

- Families and parenting: child/youth and family health, school health
- Global health: humanitarian assistance, forced migration, neglected tropical diseases, Sustainable Development Goals
- Health education: school health, health literacy, sexual health education
- Healthcare: healthcare access, healthcare reform, health insurance, health systems, Medicare/Medicaid
- Health equity: health disparities, health justice, human rights, poverty, unemployment, mass incarceration, systemic racism and public health, disability rights and inclusion, immigration
- Infectious Disease: transmission, disease outbreaks, HIV/AIDS, emerging infectious diseases/zoonotic diseases, One Health (focusing on interconnectedness of humans, animals, plants, and the environment)
- Mental health: health promotion, access to treatment, trauma, suicide prevention
- Nutrition: obesity, physical activity, food security/food deserts
- Pharmaceutical safety: antimicrobial resistance
- Sexual health: reproductive health, family planning
- Substance use disorder: addiction, tobacco use
- Urban health and rural health
- Workplace or occupational health

SELF-REFLECTION: SETTING AND TYPE OF EMPLOYER

Beyond the mission, consider what type of employer or industry setting you prefer. Public health professionals are employed in a range of organizations—the United States federal government; state, local, US territorial, and tribal governments; the military; nonprofit organizations (including domestic nonprofits, community-based organizations, grant-making philanthropies, and international nongovernmental organizations); universities; K–12 schools; hospitals and clinics; and corporations (including insurance firms, pharmaceutical companies, technology startups, marketing agencies, and consulting companies).

Government Agencies

The classic, quintessential public health professional has long been thought of as a public health official, working for a government agency like the Centers for Disease Control and Prevention (CDC) or a local health department. Approximately 290,988 people worked in governmental public health in the United States in 2014.[1] But within governmental public health, there is some complexity.

As you may recall from your high school civics classes, there are three branches of government—executive, legislative, and judicial. The vast majority of people employed in government work in the executive branch—those who implement (or "execute") public health programs—and are considered "civil servants." There are also different levels of government, including the national (federal) government, state and local government, and even international and intergovernmental entities like the United Nations and its specialized agencies, including the World Health Organization (WHO). Governmental public health is considered by many to be the crucial, "core" public health workforce, and many aspects of public health are delivered only through government. Working for government can provide a highly meaningful career and often includes superior benefits and job security compared to other sectors. However, a government career can also come with

challenges related to hierarchy and bureaucracy, rigid rules and regulations, and changing political influences.

Federal Government Agencies

The federal government's role in public health includes supporting all levels of government to provide essential public health services, acting when health threats cross state lines or affect the nation, assisting the states in public health emergencies, creating public health goals, supporting creation of scientific tools and resources, conducting research, designing policies, and, very significantly, providing funding to both local and state health departments, as well as for research and higher education.

The US Department of Health and Human Services (HHS) is the principal federal agency tasked with protecting the public's health and providing certain social services. It employed about 80,000 people in 2021 with a budget of about $1.5 trillion, of which approximately 90% was spent for Medicaid, Medicare, and other mandatory expenses.[2] (When we list the number of people in the federal government working in a certain occupation, the data come from a federal website called Fedscope.[3]) HHS incorporates multiple operating divisions, each of which has at least some programs that address public health issues, including:

- Administration for Children and Families (ACF). ACF focuses on the economic and social well-being of families, children, individuals, and communities.
- Administration for Community Living (ACL). ACL's mission is to increase access to community support and resources for people with disabilities and for older Americans.
- Agency for Healthcare Research and Quality (AHRQ). AHRQ supports research on healthcare quality, costs, and outcomes, as well as efforts to improve quality, cost-effectiveness, and access to care.
- Agency for Toxic Substances and Disease Registry (ATSDR). ATSDR's focus is the prevention of diseases related to toxic substances and exposures to substances that can be harmful.
- CDC. The CDC's efforts include monitoring, research, programs, services, and policy development related to health promotion, disease prevention, prevention of injury and disability, and preparedness for new health threats.
- Centers for Medicare & Medicaid Services (CMS). CMS handles the administration of Medicare and the federal aspects of Medicaid and the Children's Health Insurance Program.
- FDA. The FDA is tasked with assuring the safety, effectiveness, and security of prescription medications, over-the-counter drugs, medical devices, radiation-emitting products, vaccines, and blood and biologic treatments, as well as the safety of cosmetics and some aspects of our food supply. The FDA also regulates tobacco products.
- Health Resources and Services Administration (HRSA). HRSA's mission is to improve access to healthcare, with a focus on people who are uninsured, geographically isolated, or medically vulnerable.
- Indian Health Service (IHS). The IHS provides personal and public health services to American Indians and Alaska Natives, with the goal of maximizing these populations' physical, mental, social, and spiritual health.
- National Institutes of Health (NIH). The NIH is a major funder of medical research and has a significant impact on what subjects are studied. The NIH also employs several thousand researchers at its own research centers.

- Substance Abuse and Mental Health Services Administration (SAMHSA). SAMHSA focuses on mental health issues, and its mission is to reduce the impact of substance abuse and mental illness on America's communities.

Several other federal agencies have roles in protecting and enhancing the public's health. Public health-oriented programs and practices can be found at many agencies including:

- The US Department of Agriculture (USDA) regulates some aspects of food safety and manages several nutrition programs, such as the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) and the Supplemental Nutrition Assistance Program (SNAP).
- The Environmental Protection Agency (EPA) oversees and enforces environmental health regulations.
- The Consumer Product Safety Commission (CPSC) develops safety standards for products.
- The Department of Labor's Occupational Safety and Health Administration (OSHA) ensures worker safety.
- The Department of Energy (DOE) has some functions related to environmental cleanup and hazard reduction.
- The Department of Veterans Affairs (VA) provides health services to veterans.
- The Department of Defense (DOD) and related military agencies run programs related to bioterrorism, can coordinate humanitarian and disaster responses, and ensure the health of military service members.
- The US Agency for International Development (USAID) includes a global health unit.
- The Department of Housing and Urban Development (HUD) manages a healthy homes program.

Federal agencies often provide superior job security, benefits, and the chance to make a national impact on public health issues. Details on the federal job search are outlined at the end of this book.

State, Local, and Tribal Government Agencies

Public health in the United States is a very local effort. While federal agencies have vast influence, state, county, city, and tribal health departments ultimately implement a great proportion of public health work. State health departments hold significant authority for public health, often overseeing local health departments and frequently providing screening and treatment for certain diseases of public health concern, technical assistance and training, laboratory testing, and disease surveillance. Meanwhile, local health departments frequently provide adult and child immunizations, infectious disease surveillance, tuberculosis screening and treatment, food services/restaurant inspections and food safety education, school and daycare inspection, and public health nutrition. Tribal governments may have their own health departments, and US territories also provide public health services.[4]

The exact structure of state and local health departments varies from place to place, and there is an enormous range of opportunities at these levels for professionals pursuing careers in public health. According to the Association of State and Territorial Health Officials (ASTHO), there are about 91,540 full-time equivalent staff working in state and territorial health departments around the United States.[5] In addition, the National Association of County and City Health Officials (NACCHO) estimates there are about 136,000 full-time equivalent staff working in 2,800 local health departments[6]—meaning

that state and local health departments are key drivers of the public health infrastructure. Local health departments, in particular, show tremendous variety. Some very small departments, especially in rural areas, have a very small staff who are responsible for a broad range of duties, while large health departments in big cities can have hundreds of staff with highly specialized training and experience. Throughout this book, data about the percentage of staff in local or state health departments who work in a certain occupation come from NACCHO and ASTHO. In many ways, if you want to get "close to the action" and see the impact of your work directly, working for a local health department may be a great fit for you.

There is also a tremendous need for new workers in state and local health departments. There has been a documented shortage of workers in these departments for many years. A 2017 study, the Public Health Workforce Interests and Needs Survey, found that 22% of public health workforce staff were planning to retire by 2023. Combined with potential new funding, this retirement wave could potentially create many new career opportunities.

Visit the websites of your state and city or county health departments to see the roles they play in water quality, environmental health, maternal and child health, nutrition, patient safety, clinical care and preventive services, and more. And keep in mind that local governments also employ public health staff in departments outside of the department of health—for example, school nurses and health teachers often work in the public school system, while emergency preparedness professionals may work in the emergency management department. Most states and some local governments have an environmental protection agency, separate from the health department, that includes public health functions.

Nonprofit Organizations

Much of the key work in public health is delivered by nonprofit organizations—typically classified as 501(c)(3) tax-exempt organizations—which are funded through contributions from donors, philanthropies, and government grants or contracts. Nonprofit organizations can range from small, almost-all-volunteer organizations providing grassroots support to various communities, to research institutes and think tanks like the Robert Wood Johnson Foundation, Kaiser Family Foundation, or de Beaumont Foundation, to grant-making foundations and philanthropies like the Bill & Melinda Gates Foundation, to large and famous nonprofits like Save the Children or the American Heart Association. According to the National Center for Charitable Statistics, there are 1.5 million different nonprofit organizations in the United States, and according to www.guidestar.org, a national database of nonprofits, about 79,000 focus on issues related to public health. This includes 10,440 different nonprofits focused specifically on public health and thousands of others providing preventive care, school-based health, healthcare access, health education, food and nutrition, and emergency medical services, and ensuring healthcare access and quality. About 6,400 focus on global health or humanitarian aid. To learn more about the nonprofit sector, explore the websites www.guidestar.org, www.candid.org, and www.idealist.org.

Hospitals, Clinics, and Other Health Services Providers

While the main focus of hospitals, clinics, and health systems is clinical care and healthcare provision, they are also a key part of the public health system, especially those that provide care to those who cannot access it elsewhere, and through their role in preventive care. Many hospitals are actually 501(c)(3) nonprofits, while some are government-run (e.g., public hospitals and VA medical centers), and some are for-profit companies. This is a growing area for public health graduates, as hospitals see the benefit of a public health approach.

Universities

Universities, including schools of public health, conduct significant amounts of crucial public health, behavioral, social science, and clinical research, and sometimes also implement public health programs directly, such as Columbia University's ICAP global health program, which supports health initiatives all over the world. University hospitals or teaching hospitals (which are typically affiliated with medical schools) not only provide healthcare but also conduct research that pertains to public health and sponsor public health outreach and programs. The NIH spends $41.7 billion on research each year, including significant amounts of public health-related research. Approximately 80% of the funds are used by 25,000 universities and other research institutions through highly competitive research grants; the CDC and other federal agencies also provide research funding.[7] Universities also provide health education to their students, provide ongoing education in public health, and offer services to their communities.

For-Profit Companies

While it may seem less traditional, for-profit companies also can contribute to the public health system.

- Consulting firms are companies that other organizations (the "clients") utilize to provide specialized guidance in areas where the client does not have specific expertise. A consulting firm can be a large, international corporation which has one department focused on public health, or it can be a small boutique operation that provides one specific type of consulting, such as program evaluation or survey research. Consulting firms are often distinguished by the type of expertise they offer (strategy, management consulting, analytics consulting, etc.) or the type of clients they have (government agencies, hospitals, insurance firms, or nonprofits). There are many government contractors and consultancies that implement or evaluate public health initiatives. Some consulting firms that focus on public health resemble research institutes or think tanks.
- Pharmaceutical, biotechnology, and medical device companies create vaccines, medicines, and equipment that can be used in public health efforts.
- Food manufacturers and other consumer products companies employ experts and work with government agencies to ensure their products are safe.
- Health technology companies design new data analysis and management systems, apps, and interventions which can be used to collect and analyze public health data, evaluate programs, or improve health behaviors.
- Communications and marketing agencies can provide public health outreach and marketing initiatives.
- Health insurance companies analyze health problem "hotspots" to try to keep their members healthy, which reduces costs.
- Occupational health is a key concern of many larger corporations, and many corporations now run corporate social responsibility programs to reduce the chance that their products or services will harm workers or the environment.

SELF-REFLECTION: LIFESTYLE

The last criterion—lifestyle—is the one which typically changes the most over people's lifespans. For example, an individual may have a life change, such as having a new baby,

developing a disability, or needing to care for an older family member, which can make their priorities shift dramatically in terms of work-life balance, salary, or benefits. Other lifestyle factors could include the culture of the organization where you work, your relationships with coworkers or supervisors, the geographic location of the job, job security, professional growth, or advancement opportunities.

It is also important to consider what the actual work environment will be like. For many roles in public health, the work takes place in an office setting, sitting at a computer, using software, and making phone or video conference calls. For others, the work can be very "hands-on," taking place in a laboratory, clinical, or even disaster setting, or in a range of situations which might make some people squeamish. Yet other roles require significant public speaking, outreach to individuals, groups, and communities, and even walking around the neighborhood and talking to strangers.

Consider what work setting and activities you will be most comfortable with. Think about what work-connected lifestyle criteria are most important to you now, and also think ahead to the future that you want. As you look through this book, notice that each job includes salary and job growth estimates, plus information about what a "day in the life" for the job might be like. (Note that the salary data, as well as employment outlook data, come primarily from the Bureau of Labor Statistics and O*Net Online, salary surveys from various professional associations, and analysis of job postings. Salaries can differ markedly in different places around the country and in different types of organizations. Job outlooks can change with changes in government funding, new technologies, and evolving priorities and needs.)

PRIORITIZING

Once you have listed the skills/career interests, mission areas, and lifestyle factors that are most important to you, consider prioritizing them. Many of us are not lucky enough to get every item on our list of important criteria, at least not for the very first job we may get in a new field. Which factors are "deal breakers"—in other words, factors which limit your career choices entirely? (For example, if you must live in a certain city, then limiting your job search to positions in that city—or which allow telework—makes sense.) Which factors are just "nice to have"? Where are you potentially willing to compromise?

Re-examine and revise this list periodically; your priorities will change over time as you have new life experiences. Flexibility and an open mind are key to a long-term public health career. Perhaps you won't realize you really love doing data analysis until you have a chance to do it. Perhaps you won't realize how important it is for you to have a good relationship with your supervisor until you have a difficult one. Use your list to reflect your progress and reflect on your goals. And have it handy when it is time to decide whether or not to accept a job offer, so you have your important factors in front of as you make your decision.

Here is a sentence you might want to be able to fill in, once you've read this book:

I am seeking a _____ (job title) position with a _____ (type of organization), working on _____ (mission area), with a salary of $_____ and the following lifestyle factors: _____.

For example:

I am seeking a **health educator** (job title) position with a **nonprofit organization** (type of organization) working on **maternal-child health and HIV prevention** (mission area), with a **salary of** at least $60,000 and with **good benefits and a work culture which allows me to learn and grow** (lifestyle factors).

A NOTE ABOUT HOW THIS BOOK IS ORGANIZED

Considering that jobs within public health have a combination of four elements—the job function (what it is that you actually do, what skills you use), the mission (the topic or issue you are working on within public health), the setting (what type of organization you work for), and the lifestyle—you can see that in reality, there are far more than 101 careers in public health.

We have organized this book mostly according to mission areas, but there are certain roles that cut across all mission areas in public health. These roles might appear in only one chapter of the book but could exist in every chapter. Some of these include epidemiologists and biostatisticians, health educators, program managers, program evaluators, nurses, physicians, researchers and scientists, laboratory technicians, computer-related roles, and community health workers.

Additionally, some of the jobs included in this book are much more common than others. The book attempts to give you a sense of how broad and varied public health careers can be, and that means that some roles included in this book have only a small number of people working in them, while others employ large numbers of public health professionals. Some of the most common occupations in public health, based on data from NACCHO, ASTHO, FedScope[3] (a database on federal government employment), and other research studies,[8–11] include:

- public health nurses and other nursing professionals
- environmental health specialists, inspectors, and sanitarians
- program managers and program specialists
- health educators
- nutritionists
- behavioral health professionals
- laboratory workers
- epidemiologists
- researchers, research support, and university faculty

Throughout the book, we mention in the "employment outlook" section of each job description whether the job employs a large or small number of people. (Data regarding what percentage of the local or state public health workforce is in a particular occupation come from NACCHO or ASTHO.) It is important to note that even in occupations which employ small numbers of people, sometimes there can also be very few people with the specialized qualifications for a job. Just because a job exists in small numbers does not mean it is impossible to obtain, if you build the right skills. We have generally organized the jobs in this book so that in each chapter, the jobs with the largest workforce appear

first, while jobs with fewer openings in public health, or which are the most unusual for public health, are listed towards the end.

The way we have organized the chapters is partly thematic. We start by outlining some of the major issues in public health (infectious disease and chronic disease), then focus on the cross-cutting theme of health equity. We then turn to public health issues geared to protecting people from risk, such as environmental health, injury/violence prevention, disaster preparedness, occupational health, food safety, and drug safety, while also touching on "life course" issues of maternal/child health and aging. Later chapters highlight issues related to the promotion of health, such as mental health, health communication, and education. We then touch on issues which support the underlying infrastructure of the public health system, such as policy and law, evaluation, data/technology, and administration. Finally, we describe public health careers that exist in specific settings such as nonprofit organizations, the military, and global health.

Finally, while individuals who study public health may enter into a broad range of jobs in different sectors, this book focuses specifically on jobs that contribute to the 10 Essential Public Health Services (described in chapter 1). For example, many public health graduates enter careers in healthcare settings which focus on medical treatment, or in for-profit corporations which focus on selling health products. These jobs are part of the larger health structure, but this book focuses specifically on jobs where the focus is on prevention of illness and promotion of wellness, and not on patient treatment alone.

CAREER RESEARCH

Now that you have a list of your criteria, it will be easier to create a list of questions to ask yourself when considering a public health career. You can use the rest of this book to inform your decision-making and give you a list of action items you can implement to pursue your new career in public health. In addition to this book, it is highly recommended that you speak with professionals in the field to learn more about what they do, or to try an internship, volunteer opportunity, or other part-time work to try out the experience before you make a decision.

Now that you have a general overview of public health careers, in the next chapter we discuss the education needed to pursue these careers, then dive into the many amazing careers in public health. At the end of this book, you will find strategic tips on how to find a job in the field.

REFERENCES

1. Beck AJ, Boulton ML, Coronado F. Enumeration of the governmental public health workforce, 2014. *Am J Prev Med*. 2014;47(5)(suppl 3):S306–S313. doi:10.1016/j.amepre.2014.07.018
2. Office of Budget. HHS FY2020 budget in brief. Last reviewed May 28, 2021. Accessed August 28, 2021. https://www.hhs.gov/about/budget/index.html
3. U.S. Office of Personnel Management. FedScope: federal workforce data. Updated March 2021. https://www.fedscope.opm.gov
4. Centers for Disease Control and Prevention. About CSTLTS. Last reviewed August 12, 2021. Accessed August 28, 2021. https://www.cdc.gov/publichealthgateway/about-cstlts/index.html

5. Association of State and Territorial Health Officials. *ASTHO Profile of State and Territorial Public Health, volume five*. Association of State and Territorial Health Officials; 2020. https://www.astho.org/profile/#openModal3
6. National Association of County & City Health Officials. *2019 National Profile of Local Health Departments.* National Association of County & City Health Officials; 2019. https://www.naccho.org/uploads/downloadable-resources/Programs/Public-Health-Infrastructure/NACCHO_2019_Profile_final.pdf
7. National Institutes of Health. Budget. Last reviewed June 29, 2020. Accessed August 28, 2021. https://www.nih.gov/about-nih/what-we-do/budget
8. Krasna H, Czabanowska K, Beck A, et al. Labour market competition for public health graduates in the United States: a comparison of workforce taxonomies with job postings before and during the COVID-19 pandemic. *Int J Health Plann Manage*. 2021;36(S1):151–167. doi:10.1002/hpm.3128
9. Beck AJ, Meit M, Heffernan M, Boulton ML. Application of a taxonomy to characterize the public health workforce. *J Public Health Manag Pract*. 2015;21(suppl 6):S36–S45. doi:10.1097/PHH.0000000000000295
10. Plepys C, Krasna H, Leider J, et al. First-destination outcomes for 2015–2018 public health graduates: focus on employment. *Am J Public Health*. 2021;111(3):475–484. doi:10.2105/AJPH.2020.306038
11. Sellers K, Leider JP, Harper E, et al. The public health workforce interests and needs survey: the first national survey of state health agency employees. *J Public Health Manag Pract*. 2015;21(suppl 6):S13–S27. doi:10.1097/PHH.0000000000000331

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Education in Public Health and Related Fields

Now that you have begun your process of self-reflection and career research, you may wonder what training or credentials you will need to pursue a public health career. There are many roads to a career in public health. For many jobs, the Master of Public Health (MPH) is considered the most appropriate degree, but there are also jobs for which additional credentials—or entirely different ones—are essential. Some roles don't require any specialized credentials at all, but provide on-the-job training. While many people spend their whole careers in public health, it is also common to meet people who started out in other areas. Some began as hospital nurses or physicians in clinical practice; others were lawyers, teachers, activists, or even journalists. Before choosing your own path, including what degree to pursue, it is worth exploring which jobs you can get with each level of education.

PUBLIC HEALTH JOBS AT EVERY LEVEL OF EDUCATION

There is room in public health for people with all levels of education. Some jobs have very specific requirements, while others have room for a combination of education and experience. Some career paths have varying levels of responsibility or seniority with increasing education, and there are many which are easier to obtain with increased education. Here are some examples of jobs available at each education level. Keep in mind that the level of education is only one part of the picture. The subject your degree is in also matters. Throughout this book, you can see which specific areas of study are the best matches for different jobs. As you plan your career, keep in mind what type of work you are interested in and what subjects you will need to study.

High School Diploma or Associate's Degree

Many public health jobs require on-the-job training or certifications, but not necessarily a four-year college degree. Some examples from this book include smoking cessation coaches, community health workers, patient navigators, food inspectors, chefs, community activists, and vital records specialists.