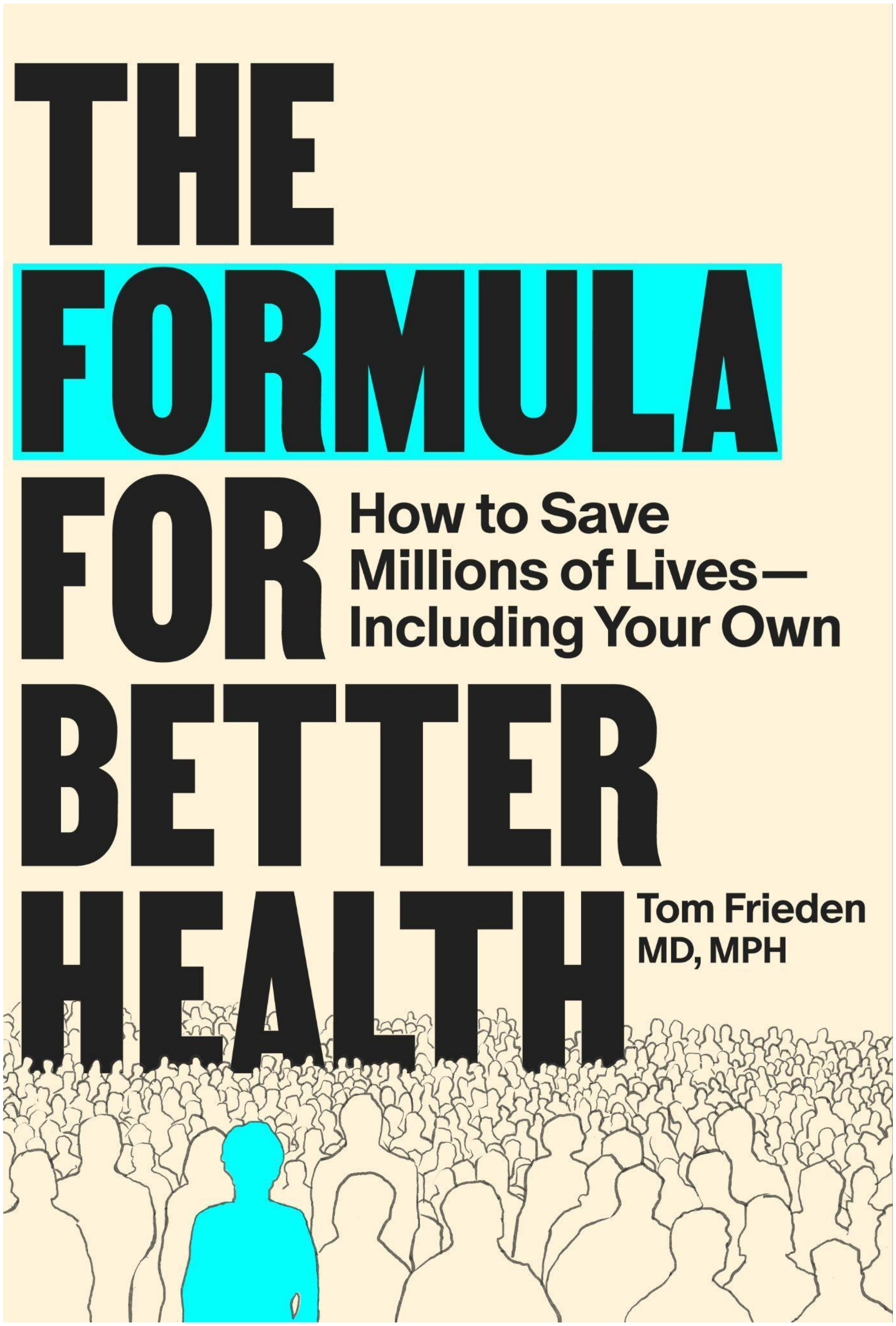

An Instructor Guide for Public Health Teaching

Dr. Tom Frieden

Introduction

Millions of people are sickened, disabled, or die each year from preventable causes – and attacks on public health threaten to further increase that number. The knowledge that would stop these tragedies exists. What happens next depends on a generation of professionals able to turn knowledge into community-wide progress. *The Formula for Better Health: How to Save Millions of Lives — Including Your Own* (MIT Press, 2025) offers a path forward. The See, Believe, Create framework is a new way to understand, convey, and improve health. This instructor guide brings that framework to public health education at a time of unprecedented threats to health – and unprecedented opportunities for further advances.

Public health education builds strong scientific foundations. This guide takes that foundation further. *See* teaches students to detect invisible threats, recognize why individuals and institutions fail to act on clear evidence, and distinguish actionable evidence from noise. *Believe* treats optimism as a strategic discipline: building conviction through documented victories and phased expansion of proven programs. *Create* brings operational rigor to public health practice — incident management systems, strategic communication, and policy competence that convert conviction into programs that save lives. Together, these three capacities equip students to do the hardest thing in public health: turn what is known into what gets done.

Each chapter provides an overview, key concepts, and discussion questions that move students from theory to application. Case studies drawn from real-world crises — smallpox eradication, Ebola containment, tobacco policy — challenge students to navigate real tradeoffs with incomplete information.

Every instructor who adopts this guide can join a Community of Practice — a forum to share classroom strategies, propose new case studies, and shape future editions. This resource will grow stronger with every educator who contributes. This first edition is a starting point. Please help make it better by signing up here.

Acknowledgements

The development of this instructor guide benefited from the attention and expertise of Rochelle Sun, whose contributions as a reviewer and editor strengthened the clarity, consistency, and quality of these materials. Cecilia Crews, Priya Parikh, and Laura Henderson provided essential support in the editing and finalization of this guide. LCN Education & Training, LLC participated in early discussions related to the materials.

Note on the use of artificial intelligence (AI) in material preparation

Artificial intelligence (Claude Cowork Opus 4.6) assisted in the development of these course materials as a collaborative tool. The author provided extensive inputs, including the full book manuscript, detailed outlines of each section and case, lecture transcripts, articles relevant to each chapter, and additional background material. The author also provided detailed guidance on what should be included in each of the course materials.

The author and Claude revised drafts through multiple iterations, with the author writing or rewriting sections and AI producing updated versions in response to the author's guidance and edits. Every section, fact, and methodological point was reviewed and where necessary refined by the author and a professional research assistant before inclusion in the final draft.

This process underscores the importance of human judgment and oversight in AI-assisted work. Artificial intelligence can accelerate drafting, revising, checking, and synthesis; accuracy, interpretation, and final decisions remain the responsibility of the author and reviewers.

Questions?

Queries can be directed to formulateaching@rtsl.org**.**

Table of Contents

****Test question banks and answer guides available on request***

Case studies*

Case Study	**Description**	**Relevant chapters**
Smallpox: The Power of Better Information	Bill Foege turned a vaccine shortage into a strategic breakthrough. Surveillance-and-containment replaced mass vaccination and eradicated smallpox. All three elements of the See, Believe, Create framework in action.	All
Tuberculosis in New York City: When Systems Fail	Multidrug-resistant TB overwhelmed New York City in the late 1980s, after years of neglect. Molecular surveillance revealed the epidemic; rebuilding the system stopped it.	All
Smoking in New York City: The Deadly Stall Surveillance Revealed	After sharp early declines, NYC's smoking rates plateaued. Regular tracking revealed the stall — and redirected the response.	Chapter 1

Case Study	Description	Relevant chapters
Alice Hamilton and the Cassandra Curse	Alice Hamilton proved lead poisoned workers. Industry blocked action on leaded gasoline for 70 years. Why evidence alone rarely drives policy change — and what it takes to break through.	Chapter 2
SIDS: When the “Gold Standard” Is the Wrong Standard	When demanding impossible evidence blocks action, and how to move past it.	Chapter 3
Tuberculosis in India: From Pilot to Scale	India faced 500,000 TB deaths a year. Why pilot projects die — and how phased expansion overcomes that.	Chapter 4
Ebola in Lagos: Organized to Respond	When Ebola reached Lagos in 2014, Nigeria contained the outbreak in weeks by activating an incident management system built on existing polio infrastructure. Organizational readiness as the precondition for rapid response.	Chapter 5
Karel Styblo: The Question That Changed Tuberculosis	Karel Styblo asked a simple question that transformed treatment programs: Of all your TB patients, how many did you cure?	Chapter 6
Ebola in Guinea: When Accurate Messages Backfire	Early Ebola messages in Guinea were factually accurate but counterproductive. Why getting the science right is not enough.	Chapter 7
Ebola in Guinea: Mandates vs. Trust	Guinea built voluntary cooperation through services; Sierra Leone enforced quarantines with police. Why legal authority without public trust can backfire.	Chapter 8
NYC Smoke-Free Air Act: The Politics of Prevention	Passing NYC’s Smoke-Free Air Act required political strategy, negotiation, and coalition-building. How public health policy actually gets made.	Chapter 8

Test question banks and answer guides available on request

Part I: SEE

Chapter 1: Seeing the Invisible

> *"Public health is at its best when it sees, and helps others see, the faces and the lives behind the numbers."*
> —Bill Foege

Overview

Chapter 1 establishes surveillance as public health's superpower: the ability to make the invisible visible. Through cases of drug-resistant tuberculosis, the West African Ebola epidemic, and tobacco control, students learn how systematic collection, analysis, interpretation, and dissemination of health data reveals threats, exposes disparities, and guides intervention. The chapter's central argument: what we cannot see kills us, and what we can see, we can act on.

> **Related case study:** Multidrug-Resistant Tuberculosis in New York City (*The Formula* case study library). This case study provides primary source material for the genomic surveillance and institutional accountability themes in this chapter.

Core Learning Objectives

By the end of this chapter, students should be able to:

- Define public health surveillance and explain why each element of the definition — collection, analysis, interpretation, and dissemination to those who need to know — is essential.
- Explain how traditional epidemiologic methods and modern genomic tools complement each other in outbreak investigation and other surveillance methods.
- Analyze how social, environmental, and institutional factors shape disease outbreaks and their severity.
- Describe how mathematical modeling can make future outbreak trajectories visible and explain how projections can inform urgent policy decisions while acknowledging uncertainty.
- Discuss how surveillance applied to program performance — not just disease — can prevent stagnation and enable course correction.
- Evaluate the ethical constraints on surveillance: minimum necessary data, confidentiality, and use only for public health purposes.

Themes and Concepts

Surveillance as Public Health's Foundation

Surveillance is more than data collection. It is the ongoing, systematic collection, analysis, interpretation, and dissemination of health information to those who need to know. Effective surveillance systems must be:

- **Timely:** delivering actionable information when it can still prevent harm.
- **Representative:** capturing patterns across diverse populations and settings, not only those easiest to count.
- **Accurate:** high data quality, with known and acknowledged limitations.
- **Stable and sustained:** ongoing, not one-time. CDC stopped national surveillance of drug-resistant TB in the 1980s, with tragic results of delayed recognition of the New York City outbreak.
- **Simple enough to function in practice:** a system too complex to operate reliably in the field will fail.
- **Designed for action:** built to inform specific interventions, not merely to document.

Integration of Traditional and Modern Methods

Genomic tools enhance but do not replace traditional epidemiology. Combining molecular data with field investigations, clinical records, and demographic information creates a more complete picture of disease transmission.

Vulnerable Populations and Health Equity

Both outbreak cases show how marginalized populations — people experiencing homelessness, those incarcerated, communities with weak infrastructure — bear disproportionate disease burdens. Surveillance can identify disparities; addressing them requires policy and action. Data disaggregated by race, income, neighborhood, and other factors makes invisible inequities visible.

Institutional Accountability and Leadership

Effective outbreak response requires institutional cooperation. The MDR-TB case shows how denial and resistance can obstruct control — and how surveillance evidence, combined with institutional authority, can ultimately compel accountability. Students should consider the ethical obligations of health care facilities during outbreaks and the challenges of investigating institutions which have the power to resist.

Making the Invisible Visible Through Data Science

Whether through genomic fingerprinting or mathematical modeling, surveillance transforms hidden patterns into visible evidence. This superpower enables detection of threats before they become catastrophic, identification of transmission chains that would otherwise remain mysterious, and projection of futures that inform urgent decisions. The kryptonite is loss of confidentiality: surveillance requires ethical discipline to sustain public trust.

Surveillance Applied to Program Performance

Surveillance is not only for infectious diseases. The tobacco case shows ongoing measurement of its performance can allow life-saving course corrections.

Theme	Cases			Activities and Assignments	
	MDR-TB	**Ebola**	**Tobacco**	**Surveillance System Design Challenge**	**Surveillance System Analysis**
Surveillance as Public Health's Foundation					
Integration of Traditional and Modern Methods					
Vulnerable Populations and Health Equity					
Institutional Accountability and Leadership					
Making the Invisible Visible Through Data Science					
Surveillance Applied to Program Performance					

Teaching Strategies

Opening: Framing Surveillance as Detection

Begin by asking students: What makes a good detective? List their responses — observation, pattern recognition, persistence, use of evidence. Public health professionals are disease detectives who must see patterns invisible to others. Use the Foege quotation to connect data to the people behind it.

The MDR-TB Case: Building the Investigation

Walk students through the recognition and response in sequence, pausing at each decision point:

Recognition

How did a clinician recognize that something unusual was happening? What observation triggered concern, and why was that observation not visible in aggregate data?

Investigation

What traditional epidemiologic methods did investigators use? How did mandatory submission of samples for standardized testing contribute to recognition of the problem, and what was needed to make this possible?

Revelation

What did DNA fingerprinting reveal about transmission that field investigations had missed? Molecular clustering suggests transmission; it doesn't prove direction or setting without confirmation.

Resistance

Why did institutions resist evidence of transmission? How should public health leaders navigate institutional denial when evidence is strong but politically inconvenient?

Resolution

What interventions ultimately controlled the outbreak? How did surveillance guide those interventions rather than merely document them?

Use this case to illustrate that surveillance requires technological tools, human judgment, scientific rigor, institutional courage, data analysis – and the will to act on what data reveals.

The Ebola Case: Understanding Modeling

Mathematical modeling is often abstract to students. Make it concrete:

- Show the projection graph and ask students to interpret what they see.
- Explain exponential growth with analogies — compound interest, viral social media.
- Compare modeled projections with actual outcomes.

Emphasize that modeling does not predict the future with certainty. It reveals possible futures and helps decision-makers understand the consequences of inaction.

Tobacco Control in New York City: Surveillance and Program Performance

This case extends the surveillance concept beyond infectious disease. After major policy interventions reduced smoking rates in New York City, the rate of decline slowed — a plateau invisible in single-point prevalence data but clear in trend surveillance. Ask students:

- How would you know if a public health program is working — not just whether disease rates are low, but whether they are improving at the expected rate?
- What does a plateau in a trend line tell you that a snapshot of current prevalence does not?
- What interventions did the plateau trigger, and how did surveillance findings shape which populations the interventions targeted?
- How did ongoing surveillance confirm whether those actions worked?

Use this case to show that surveillance is a management tool, not just a detection tool. Without ongoing trend data, the plateau would have been invisible and the program would have continued unchanged. Understanding which populations continued to face the highest smoking rates shaped how and where program improvements were targeted. This is surveillance applied to program performance — one of its least appreciated but most consequential uses.

Connecting the Cases: Common Threads

Help students see the parallels:

- MDR-TB and Ebola case studies showed how social and structural factors shape who gets sick and how fast disease spreads.
- MDR-TB and Ebola case studies revealed systemic failures, not just disease patterns.
- MDR-TB and Ebola case studies required translating technical findings into language that compelled institutional action.
- The tobacco case study extends the principle: surveillance applied to program performance reveals stagnation invisible in aggregate data, enabling course correction before a plateau becomes permanent.
- All three case studies saved lives by making invisible threats visible.

Bridge to Chapter 2: Surveillance makes threats visible. Chapter 2 asks why we so often fail to act on what we can see.

Student Questions Worth Addressing

"Isn't genomic fingerprinting just what they do on crime shows?"

Yes and no. Both use DNA analysis to establish connections, but public health genomics tracks pathogen evolution and transmission rather than individual human identity. The logic is similar — unique genetic signatures reveal relationships invisible to the naked eye — but the methods and purposes differ. Public health genomics identifies which patients share a bacterial strain; it does not identify individuals from their own DNA. The connection between disease cases with the same genomic fingerprint may require detailed epidemiological investigation to allow valid conclusions.

"Can't models be manipulated to support any conclusion?"
Transparent models make their assumptions explicit and can be tested against real-world data. The Ebola projection's power came from its clarity and testability — when actual case counts tracked the model's prediction, that validated the approach. Scientific peer review, independent verification, and comparison with outcomes help ensure integrity. Models should inform decisions, not make them; human judgment remains essential.

"What about privacy? Isn't surveillance kind of creepy?"
Surveillance requires collecting minimum necessary data, protecting confidentiality, and using information only for public health purposes. The systems in this chapter focused on disease patterns, not individual monitoring. Data leakage — the kryptonite of surveillance — is a risk when those boundaries are crossed.

Activities and Assignments

In-Class: Surveillance System Design Challenge

Divide students into groups. Each designs a surveillance system for a specific disease and population — for example: influenza in college students, foodborne illness in a city, hypertension in a low-income country. Each group specifies:

- What data will be collected and from where.
- How frequently data will be analyzed and by whom.
- Who receives surveillance reports — and in what form.
- What actions findings will trigger.
- How the system's own performance will be evaluated.

Groups present their designs. Class discussion focuses on tradeoffs: timeliness versus completeness, cost versus representativeness, individual privacy versus population insight.

Out-of-Class: Surveillance System Analysis (3–4 pages)

Students research a real-world surveillance system — for example: CDC's National Notifiable Diseases Surveillance System, WHO's Global Influenza Surveillance System, a state-level syndromic surveillance program. The analysis addresses:

- What health threats the system monitors and why those were prioritized.
- What data sources it uses and how data flows from collection to dissemination.
- What actions surveillance has triggered — with at least one documented example.
- The system's strengths and limitations, including populations or threats it may miss.

Additional Resources

Required Readings

- **Frieden TR.** *The Formula for Better Health: How to Save Millions of Lives—Including Your Own*. Cambridge: MIT Press, 2025. Prologue and Chapter 1.
- **German RR, Lee LM, Horan JM, Milstein RL, Pertowski CA, Waller MN; Guidelines Working Group, CDC.** "Updated Guidelines for Evaluating Public Health Surveillance Systems." *MMWR Recomm Rep*. 2001;50(RR-13):1–35. — The foundational CDC framework for evaluating surveillance systems; source for the system attributes in this chapter.

Optional Readings

- **Teutsch SM, Thacker SB.** "Planning a Public Health Surveillance System." *Epidemiological Bulletin*. 1995;16(1):1–6. — Classic framework for surveillance planning; accessible introduction for students new to the field.
- **Gardy JL, Loman NJ.** "Towards a Genomics-Informed, Real-Time, Global Pathogen Surveillance System." *Nature Reviews Genetics*. 2018;19(1):9–20. doi:10.1038/nrg.2017.88. — Modern genomic surveillance; directly relevant to the MDR-TB genomic fingerprinting discussion.
- **Lee LM, Heilig CM, White A.** "Ethical Justification for Conducting Public Health Surveillance without Patient Consent." *American Journal of Public Health*. 2012;102(1):38–44. doi:10.2105/AJPH.2011.300297. — Core ethics framework; assign before the discussion questions on privacy and consent.

Videos and Multimedia

- CDC's "Disease Detectives" series — real-world outbreak investigations.
- Hans Rosling's data visualization demonstrations — making statistics visible and compelling.
- Frontline PBS documentaries on Ebola and other epidemics — human dimensions of outbreaks.
- Dr. Tom Frieden on Ebola Modeling
- CSIS book event for The Formula For Better Health: See
- Dr. Farzad Mostashari and Dr. Tom Frieden | Smoking

Guest Speakers

Consider: a state or local epidemiologist who manages a surveillance system; a laboratory scientist who performs genomic sequencing for public health; a modeler who forecasts disease trends.

CEPH Competency Crosswalk

This chapter addresses the following CEPH 2024 MPH Foundational Competencies:

No.	Competency	Where addressed in Chapter 1
C1	Apply epidemiological methods to settings and situations in public health practice	MDR-TB investigation; Ebola modeling; case discussion questions
C2	Select quantitative and qualitative data collection methods appropriate for a given public health context	Surveillance System Design Challenge activity; integration of genomic and field methods
C4	Interpret results of data analysis for public health research, policy, or practice	Ebola projection graph; translating genomic findings to institutional action
C6	Discuss the means by which structural bias, social inequities, and racism undermine health and create challenges to achieving health equity	Vulnerable populations theme; TB disparities by race and neighborhood; Ebola and fragile states
C11	Select methods to evaluate public health programs	Tobacco control surveillance; program performance discussion questions; Surveillance System Analysis assignment

Part I: SEE
Chapter 2: Why We Ignore Warnings

> *"People generally see what they look for, and hear what they listen for."*
> —Harper Lee

Overview

Chapter 2 explains why we ignore visible threats. Through the cases of tobacco addiction, the Million Hearts initiative, and smoke-free New York City, students learn that failure to act is not random. Six specific drivers—the prevention paradox, economic interests, the myth of unfettered free will, false alarms, social norms, and hyperbolic discounting—produce predictable blind spots. Each driver can be mitigated. Understanding mitigation strategies transforms the chapter from a catalogue of failures into a diagnostic and action framework. The chapter's central argument: we can break the Cassandra curse, but only if we can see it.

Related case studies: Smoking in New York City: The Deadly Stall Surveillance Revealed; Multidrug-Resistant Tuberculosis in New York City (*The Formula* case study library)

Learning Objectives

By the end of this chapter, students should be able to:

- Name and define the six drivers of the Cassandra curse, and identify at least one evidence-based mitigation strategy for each driver.
- Identify how inaccurate perceptions of ourselves, our world, and the future connect with the six drivers. Explain the prevention paradox and why interventions with diffuse benefits for many generate less political power than concentrated costs imposed on a few industries.
- Describe how economic incentives in most US health care systems create barriers to prevention.
- Explain how companies engineer products and marketing strategies in ways that can compromise individual autonomy and challenge assumptions of rational choice in health behavior and policy.
- Explain hyperbolic discounting and give examples from health behavior and public policy.

Themes and Concepts

The Cassandra curse

Cassandra was a priestess from Greek mythology who could see the future but was cursed: No one believed her warnings and therefore didn't act to prevent the disasters she predicted. Public health leaders face a similar challenge. Six drivers forestall our ability to act on public health threats:

1. **The Prevention Paradox**

   Small individual improvements produce large societal gains, but diffuse benefits to many generate less political power than concentrated costs imposed on a few. The Million Hearts initiative illustrates the paradox at scale. Blood pressure control had risen from 32 to 54 percent before the initiative, then fell to 44 percent during it. The initiative's failure was not scientific—it was structural. Kaiser Permanente controls blood pressure in 90 percent of its patients, roughly twice the national rate, because preventing hospitalizations saves it money. Same drugs, different incentives. The prevention paradox explains why standard approaches fail and what is required to succeed.

***Mitigation strategies**: Increase awareness of collective benefits, appeal to community cohesiveness and responsibility, align incentives by providing short-term benefits or subsidies to compensate direct costs, regulate to reduce harms*

2. Economic Interests

The most dangerous threats to health are sometimes not microbes or toxins but lobbyists, investors, and misaligned payment systems. Alice Hamilton could not persuade others to ban lead from gasoline for a specific reason: the gasoline industry had secretly paid public health officials. Economic interests operate invisibly. Identifying them is a public health skill, not a political act. The analytical lesson: when a well-evidenced intervention fails repeatedly, look for who benefits from the status quo.

***Mitigation strategies**: Uncover hidden economic interests, harness aligned interests, build coalitions to overcome self-interested entities that work against health, find funding for programs that promote health*

3. The Myth of Unfettered Free Will

In 1900, fewer than 2 percent of adults smoked. Tobacco companies manufactured the epidemic deliberately. Dr. Jim Pirkle and colleagues at the CDC tobacco laboratory documented how: filter holes that covered smokers' fingers but not the industry's own testing machine; nicotine concentrated at the tip for a first-puff rush; alkaline additives to increase free nicotine absorption; sugars to recruit adolescents; menthol to increase nicotine receptors in the brain. A puff delivers nicotine to the brain faster than an intravenous injection. More than 80 percent of smokers become addicted as teenagers—before they can make an informed adult choice. Government regulation of tobacco marketing and addiction design would increase individual freedom, not reduce it.

***Mitigation strategies**: Reveal and counteract forces that undermine free choice*

4. False Alarms

False alarms are a structural feature of any surveillance system sensitive enough to detect real threats. When three people in the same neighborhood develop the same rare cancer, a shared exposure seems obvious. But if that cancer strikes one in 100,000 people annually and the United States has thousands of small communities, such clusters occur by chance every year. Desensitization from repeated false alarms erodes trust in genuine warnings—a cost that deserves explicit acknowledgment in teaching.

***Mitigation strategies**: Prepare people for the inevitability of false alarms, increase the proportion of alarms that are accurate*

5. Social Norms

Social norms feel permanent because they are invisible. When Mayor Bloomberg proposed making New York City restaurants and bars smoke-free, bar owners called it ludicrous. Advocates reframed the issue: not a lifestyle choice but a worker protection measure. Flight attendants had won smoke-free cabins; restaurant workers deserved the same. The law passed. Bar revenues rose. The teaching point: showing that a norm is neither universal nor inevitable—comparing other cities, other eras—can be as powerful as scientific evidence.

Mitigation strategies*: Identify community leaders, media strategies, and healthy cultural norms to counteract unhealthy norms; show that current norms are neither normal nor inevitable and that the norm was absent or different in the past; recognize that patience may be required while impatiently working for change*

6. Hyperbolic Discounting

We shortchange the future. A patient with severe emphysema, gasping for every breath as she died, told Frieden she deeply regretted having smoked. She could not have predicted, decades earlier, how much she would suffer. We overestimate risks we feel we cannot control—shark attacks, elevator malfunctions—and underestimate risks we feel we do control, such as driving fast or skipping medication. The normalcy bias, or ostrich effect, leads people to assume tomorrow will resemble today, explaining why so many fail to evacuate before hurricanes or prepare for pandemics. Making the future visible—through models, personal stories, and tangible near-term benefits—partially counteracts hyperbolic discounting.

Mitigation strategies*: Make the future visible with models, vivid personal stories, description of future reality, and imagining that the distant future is tomorrow; compensate for the distance of future benefits with immediate benefits*

Theme	**Cases**			**Activities and Assignments**	
	Million Hearts Initiative	**Tobacco**	**Smoke-Free New York City**	**Driver Mapping**	**Free Will Spectrum**
Prevention Paradox					
Economic Interests					
The Myth of Unfettered Free Will					
Social Norms					
False Alarms					
Hyperbolic Discounting					

Teaching Strategies

Opening: Framing the Cassandra Curse

Begin with the Harper Lee quote. Ask: What does it mean for public health that people see what they look for? What determines what we look for? Then pose the chapter's core question: Why did we know for decades that smoking causes cancer, heart disease, and death —and still allow tobacco use to increase?

Introduce the Cassandra curse: we can see real, documented threats and still fail to act. Six drivers explain why, grouped under three inaccurate perceptions—of ourselves, our world, and the future. Write the three categories on the board and tell students they will fill in the six drivers as class proceeds. This gives the lecture a structure students can follow.

The Prevention Paradox and Economic Interests

Present the Million Hearts data: blood pressure control rose from 32 to 54 percent before the initiative, then fell to 44 percent during it. Ask students to hypothesize why before revealing the answer. Then introduce Kaiser Permanente: 90 percent control, same drugs, different payment structure. Ask:

- What does this comparison tell us about what actually drives clinical performance?
- If the problem is incentives rather than knowledge, what kind of intervention would work?

Then introduce Alice Hamilton and the gasoline industry. Emphasize: economic interests operate invisibly. Naming them is a public health skill, not a political act.

The Myth of Unfettered Free Will and Hyperbolic Discounting: The CDC Tobacco Lab

Ask students to raise their hands if they know someone in their life who smokes. Ask students to keep their hands raised if they have suggested that this person stop smoking for their own health.

Introduce hyperbolic discounting with the emphysema patient: she deeply regretted having smoked, but could not have predicted, decades earlier, how much she would suffer. Ask: What is one thing you know is bad for you long-term but do anyway? What would make it easier to stop?

Walk through each tobacco engineering technique in sequence. For each one, ask: How much does this impact a person's autonomy over the activity? Build cumulative weight:

- Filter holes that deceived the industry's own testing machine
- Nicotine concentrated at the tip for a first-puff rush
- Alkaline additives to increase free nicotine absorption
- Sugars to recruit adolescents
- Menthol to increase nicotine receptors in the brain

Close with the 1994 congressional testimony: seven tobacco CEOs swore under oath that cigarettes are not addictive, while their companies were engineering greater addiction. In 1900, fewer than 2 percent of adults smoked. The epidemic was manufactured. Ask students: what does this imply for how we frame personal responsibility in public health?

Social Norms: Smoke-Free New York City

The smoke-free NYC case illustrates reframing as a change strategy. Bar owners called the proposal ludicrous. Advocates reframed it as worker protection. Ask:

- What made the worker protection frame more effective than a health frame?
- What other public health problems might benefit from reframing rather than head-on persuasion?

Connect to the broader principle: social norms change faster than people expect once the right frame appears. Show examples from other cities where similar changes seemed impossible before they became inevitable.

Student Questions Worth Addressing

"If behavior is shaped by industry and norms, why should individuals try to change?"
Because awareness is one of the most powerful change agents. Understanding that product design and social context shape your choices puts you in a position to act differently—to choose your environment, seek accountability, and advocate for system change. The drivers are obstacles, not destiny.

"Isn't the prevention paradox just an argument for government control?"
It is an argument for system design. Kaiser Permanente achieves 90 percent blood pressure control by aligning incentives, not by mandating behavior. The prevention paradox explains why individually focused interventions underperform and what is required to succeed at scale.

"This sounds pessimistic. Can we actually break the Cassandra curse?"
Yes—and the book shows it. Cardiovascular deaths fell by two-thirds over fifty years. Tobacco use dropped from half the adult population to fewer than one in eight. Smoke-free laws that seemed impossible are now the norm in hundreds of cities. Each gain required identifying and counteracting the specific drivers that stood in the way.

Bridge to Chapter 3: Chapter 2 diagnoses the barriers. Chapter 3 provides the technical framework for finding a path through them.

Activities and Assignments

In-Class: Driver Mapping

Divide students into groups of three or four. Assign each group a contemporary public health problem: opioid overdose, ultra-processed food, vaccine hesitancy, or gun violence. Each group identifies which of the six drivers are operating, rates them by importance, and proposes one mitigation strategy per driver. Groups present their maps; class compares and challenges each mapping. Works well in a 75-minute session with 8–10 minutes per group.

In-Class: The Free Will Spectrum

Present five health behaviors and ask students to place each on a spectrum from fully free choice to fully constrained:

- Smoking a cigarette in 1995
- Choosing a salad over a burger in a food desert
- Taking a prescription opioid as directed
- Drinking a sugary beverage in a school with no water fountains
- Exercising three times a week in a neighborhood with no safe parks

Debrief focuses on what determines where a behavior falls on the spectrum and what that implies for intervention design.

Out-of-Class: The Cassandra Case Study (3–4 pages)

Students select a documented public health program and identify the leading driver of challenge or failure and outline how that barrier manifests then develop a detailed plan to overcome it.

Additional Resources

Required Readings

- **Frieden TR.** The Formula for Better Health: How to Save Millions of Lives—Including Your Own. Cambridge: MIT Press, 2025. Chapter 2.
- **Rose G.** The Strategy of Preventive Medicine. Oxford: Oxford University Press, 1992. — Rose's original formulation of the prevention paradox.

Optional Readings

- **Frieden TR, Berwick DM.** "The 'Million Hearts' Initiative." New England Journal of Medicine. 2011. — The initiative's design and rationale; pairs with the evidence of its failure.
- Hurt RD, Robertson CR. "Prying Open the Door to the Tobacco Industry's Secrets About Nicotine." JAMA. 1998. — Primary source documentation of the CDC tobacco laboratory findings.
- Thaler R, Sunstein C. Nudge: Improving Decisions About Health, Wealth, and Happiness. New York: Penguin, 2008. — Standard text on choice architecture and hyperbolic discounting.
- Frieden TR. "Government's Role in Protecting Health and Safety." New England Journal of Medicine. 2013. — Framework for when government intervention is justified; directly relevant to the free will discussion.

Videos and Multimedia

- "Merchants of Doubt" (documentary, 2014). — Documents how industry interests manufacture uncertainty to block regulation. Direct illustration of economic interests and false alarms.
- Dan Ariely, "Are We in Control of Our Own Decisions?" TED Talk, 2008. — Choice architecture examples that illustrate hyperbolic discounting and the myth of free will in everyday settings.
- Why does the Cassandra Curse exist?

Guest Speakers

Consider: a state or local health official who has worked on tobacco control, sugar-sweetened beverage policy, or hypertension control. Ask them to describe one campaign that succeeded against concentrated opposition, and one that failed despite strong evidence. What determined the outcome? Which of the six drivers proved hardest to counteract?

CEPH Competency Crosswalk

This chapter addresses the following CEPH 2024 MPH Foundational Competencies:

No.	Competency	Where addressed in Chapter 2
C1	Apply epidemiological methods to settings and situations in public health practice	Six-driver framework applied to cardiovascular disease, tobacco, and smoke-free NYC cases; Driver Mapping activity
C3	Design a population-based policy, program, project, or intervention	Free Will Spectrum activity; mitigation strategy discussion; Cassandra Case Study assignment
C4	Interpret results of data analysis for public health research, policy, or practice	Million Hearts data; Kaiser Permanente blood pressure figures; tobacco addiction engineering evidence
C6	Discuss the means by which structural bias, social inequities, and racism undermine health and create challenges to practice	Social norms and smoke-free NYC; economic interests that perpetuate health disparities; myth of unfettered free will
C10	Explain the role of governmental public health in a pluralistic society, including tensions between protecting health and respecting individual rights	Free will versus regulation discussion; tobacco regulation and individual freedom; government role in countering economic interests

Part I: SEE

Chapter 3: The Pathway to Progress

> *"Certainty is the Achilles' heel of science."*
> —Richard Feynman

Overview

Chapter 3 completes the SEE arc. Chapters 1 and 2 showed how to detect invisible threats and why we so often ignore them. Chapter 3 asks: once we see a problem clearly, how do we know what to do about it? The answer is technical rigor—a pathway that is complicated, requires judgment, and demands humility. The more we know, the more we recognize how much more we need to know. One wrong answer is that technical rigor means demanding an RCT before acting; many of the most important public health questions cannot be answered by randomized trials. Practice-based evidence—implementing a promising intervention, monitoring rigorously, revising on what is found—is not a lower standard but often the most honest one. Three tools structure the pathway: Burden × Amenability identifies what to tackle; the Health Impact Pyramid identifies the most effective level of intervention; and technical packages focus implementation. The chapter closes with humility—the recognition that technical rigor does not produce certainty. The goal is to know more precisely what we do and do not know.

Related case studies: SIDS: When the "Gold Standard" Is the Wrong Standard (*The Formula* case study library)

Learning Objectives

By the end of this chapter, students should be able to:

- Explain why the randomized controlled trial is not the universal gold standard of evidence for public health questions, and identify at least three types of questions for which RCTs are impractical or misleading.
- Describe program-based evidence and explain when it is an appropriate basis for action.
- Explain the J-curve phenomenon and why it is most often a product of confounding rather than a true protective effect.
- Apply the Burden × Amenability framework to compare and prioritize among competing health interventions.
- Describe the five tiers of the Health Impact Pyramid and predict, for a given health problem, which tier is likely to produce the greatest population impact.
- Define a technical package and explain the trade-offs between specific interventions and comprehensive programs.
- Explain why humility is a technical skill rather than a personal virtue, and give an example where overconfidence caused harm.

Themes and Concepts

The RCT Fallacy

The evidence-based medicine movement, which emerged in the 1990s, established a hierarchy of evidence with the randomized controlled trial as the gold standard. For many clinical questions—comparing two drugs in a defined patient population—the hierarchy is sound. The fallacy is treating this hierarchy as universal. Randomization controls for confounding in a closed system; public health rarely operates in closed systems.

RCTs cannot answer many of the most important public health questions. They cannot randomize communities to clean water or dirty water. They cannot assign babies to sleep prone when researchers already suspect prone sleeping causes death. They cannot follow populations for the decades required to measure vaccine durability or long-term treatment effects. They cannot evaluate whether tobacco taxes reduce smoking: you cannot randomize a tax. The nasal-spray influenza vaccine illustrates the opposite failure: multiple high-quality RCTs showed it superior to the injected vaccine in children aged 2–8, but real-world surveillance showed it was not working. The RCT was right for the study participants; it was wrong for the broader public.

Dr. George Comstock exemplifies technical rigor beyond the RCT fallacy. His landmark studies of tuberculosis preventive therapy were scientifically impeccable. He then called for his own findings to be replicated, because the organism, inoculum, or immune status of populations may have changed. His humility was itself an expression of rigor—the recognition that even excellent studies may not generalize.

Program-based evidence may be the best and only way forward for many public health questions: implement a promising intervention, monitor rigorously, revise on evidence.

Program-Based Evidence

In New Zealand, a pattern of healthy infants dying unexpectedly had been identified. Dr. Edwin Mitchell, a researcher and pediatrician, was assigned to investigate. His team built a rigorous case-control study and found a strong association between prone sleeping and sudden infant death syndrome. New Zealand launched the "Back to Sleep" campaign. Infant deaths from SIDS fell by more than half.

No RCT preceded this action. An RCT was impossible—you cannot randomize infants to sleep position when you already suspect one position causes death. Mitchell used observational evidence, collected with sufficient rigor to act on, and monitored outcomes after the intervention. That is program-based evidence: the question is not whether evidence is from an RCT, but whether it is rigorous enough for the decision at hand.

The J-Curve and Confounding

Studies repeatedly find a J-shaped relationship between a harmful substance and a health outcome: abstainers appear to fare worse than moderate consumers. The most common explanation is confounding: abstainers include former heavy drinkers who quit because of illness, making them sicker on average than current moderate drinkers. When former drinkers are excluded, the J-curve typically flattens or disappears. The J-curve illustrates why statistical association is not causal evidence—and why recognizing the limits of what the data show is itself an act of technical rigor.

Tool 1: Burden × Amenability

Not all high-burden problems are equally amenable to intervention. Technical rigor requires multiplying the two: a problem with enormous burden but no available intervention warrants research investment, not program scale-up. A problem with modest burden but a highly effective, inexpensive intervention may be the better use of operational resources.

Three comparisons from the book illustrate the calculation. Breast cancer: 700,000 deaths per year globally, but mammography is a weak tool—it detects some cancers early but also generates false positives and overdiagnosis. Burden is high; amenability is modest; more research is needed. Smoking: 8 million deaths per year; cessation support roughly doubles quit rates but is difficult to scale up to reach many smokers. Burden is very high; amenability is meaningful; the priority is population-level policy. Hypertension: more than 11 million deaths per year; treatment with inexpensive, available drugs reduces those deaths substantially. Burden × Amenability points unambiguously to hypertension for clinical care programs, to smoking for public policy, and to breast cancer for research investment.

Amenability is not immutable. As new tools develop—better early detection, new drugs, new delivery platforms—the calculation changes. Teaching this prevents students from treating the framework as static.

Tool 2: The Health Impact Pyramid

The Health Impact Pyramid (Figure 3.1, page 48) has five tiers. Actions lower in the pyramid require less individual effort and produce greater population impact. From base to apex:

- Tier 1 — Socioeconomic factors: education, income, housing, economic opportunity. The greatest long-term determinants of health, but the hardest to change through health sector action alone.
- Tier 2 — Changing the default: clean air, clean water, safe food, potassium-enriched salt replacing regular salt. Benefits entire populations without requiring individual action.
- Tier 3 — Long-lasting protective interventions: vaccination, surgical sterilization, long-acting contraception. One-time or infrequent actions with durable benefit.
- Tier 4 — Clinical interventions: ongoing treatment for hypertension, diabetes, HIV. Effective but limited by adherence, access, and the need for repeated contact.

- Tier 5 — Counseling and education: individual behavior change messaging. Least population impact. Often seen as core public health action, but more often a reflection of the failure to implement effective programs at lower tiers.

Hypertension illustrates the pyramid in practice. Counseling individuals to eat less salt (Tier 5) produces modest results. Treating patients with medication (Tier 4) is effective but reaches only those in care. Reformulating processed food to reduce sodium (Tier 2) changes what everyone eats without requiring individual action. Effective programs work at all levels—lower tiers whenever possible, even though lower-tier interventions often take longer to implement.

Tool 3: Technical Packages

Knowing what to tackle and at what level of intervention is still not enough. Programs fail because they attempt too much, spreading effort thin across too many activities. A technical package is a limited set of synergistic interventions, chosen because each works and together they reinforce each other.

The model is Karel Styblo's DOTS framework for tuberculosis control: five components—political commitment, good quality diagnosis, drug supply, patient support through directly observed treatment, and rigorous monitoring of the outcomes of every treated patient. Four decades of tuberculosis programs had failed to reverse epidemic growth. DOTS did it. Why? It focused attention on what mattered. The same records were used in more than 100 countries, enabling training, procurement, and standardized outcome monitoring. The information system asked one powerful question: what was the outcome of every patient who started treatment? Simplicity enabled scale.

The same logic applies to HEARTS for cardiovascular disease and MPOWER for tobacco control. A technical package is not a comprehensive list of everything that might help. It is a focused set of what will help most, implemented with enough rigor to know whether it is working.

Humility as Technical Rigor

Technical rigor does not produce certainty. The more we know, the more we recognize how much more we need to know. Two contrasting examples frame the lesson.

Overconfidence is among the most dangerous failures in public health. When the CDC stated that any US hospital could handle an Ebola patient—based on evidence from African treatment units that did not apply to US hospital wards—two nurses were infected. The error was applying evidence from one context to a different context without testing whether it transferred. The dean's first-day warning at medical school applies throughout a career: half of what we teach you is wrong—we just don't know which half.

Theme	Cases		Activities and Assignments		
	SIDS	**TB India**	**Evidence Hierarchy**	**Apply the Pyramid**	**Technical Package**
RCT Fallacy					
Program-based Evidence					
J-Curve and Confounding					
Burden × Amenability					
Health Impact Pyramid					
Humility					

Teaching Strategies

Opening: The Ebola/Texas Case

Begin without framing this as a chapter about evidence. Tell the story briefly: a man arrived in Dallas having been exposed to Ebola in Liberia. He went to the hospital with fever and was sent home. He died. Two nurses who cared for him were infected. CDC had stated that any US hospital could handle an Ebola patient.

Ask students: What went wrong? Collect answers. Then reframe: CDC's protocols were based on evidence from African Ebola treatment units, where all patients and workers wore full protective equipment at all times. In a US hospital, nurses removed gowns and gloves between tasks. The evidence was sound for one context. Applied to a different context without testing, it failed. This is the chapter's core lesson: technical rigor means knowing which evidence applies to your situation.

The RCT Fallacy: Building the Critique

Start by acknowledging what RCTs do well: they eliminate selection bias in controlled conditions, making them the right tool for comparing treatments in defined populations. Then build the critique systematically. For each limitation, use a concrete example:

- Time and cost: An RCT of tobacco tax effects on mortality would take decades and cost more than the intervention itself.
- Ethical impossibility: You cannot randomize infants to sleep position once you suspect prone sleeping causes SIDS.
- External validity: The nasal spray flu vaccine outperformed in RCTs for children aged 2–8, then failed in real-world surveillance.
- Rare diseases: Too few patients exist to power an RCT for many conditions.
- Long-term outcomes: Vaccine durability over decades cannot be measured in a practical trial.

Then introduce Comstock: his studies were excellent. His insistence on replication was also excellent—because the organism, inoculum, or immune status of populations may have changed. Technical rigor includes knowing when your own evidence, however strong, is not yet sufficient for the decision at hand.

Introduce the J-curve here. Ask: Why would abstainers from alcohol have worse cardiovascular outcomes than moderate drinkers? Collect hypotheses. Then reveal the confounding explanation: former drinkers who quit because of illness. Statistical association is not causal evidence.

The SIDS Case: Program-Based Evidence in Action

Walk students through Mitchell's work. He saw a pattern (healthy infants dying), built a case-control study, found the association with prone sleeping, and recommended action. New Zealand implemented the "Back to Sleep" campaign. Infant deaths fell by more than half—and it was the campaign that provided unequivocal proof, because when the behavior changed across the population, the deaths fell in proportion.

Ask: At what point was the evidence strong enough to act? This question does not have a clean answer—and that ambiguity is the teaching point. Public health must often act on imperfect evidence. The standard is not certainty; it is 'rigorous enough for this decision.'

The Three Tools

Open with the breast cancer / smoking / hypertension comparison. Put the three numbers on the board: 700,000; 8 million; 11 million deaths per year. Ask students to rank the three by priority before introducing amenability. Most will rank by burden alone. Then introduce the amenability dimension and ask them to re-rank. The revision illustrates why Burden × Amenability produces different answers than burden alone.

For the Health Impact Pyramid, use hypertension across all five tiers. Ask students to identify the intervention at each tier, then predict which tier reaches the most people with the least individual effort. The river parable (widely available online) is a useful one-minute opening: pulling drowning people from a river one at a time versus walking upstream to find out who is pushing them in.

For technical packages, use DOTS. Ask: Why did four decades of tuberculosis programs fail to reverse epidemic growth when the drugs existed? Walk through the five DOTS components. The key insight: simplicity is a design principle, not a limitation. A program simple enough to implement reliably outperforms a comprehensive program implemented inconsistently.

Student Questions Worth Addressing

"If RCTs can be wrong, why do we use them?"
Because they are the best tool for specific questions—comparing treatments in defined populations where randomization is possible and ethical. The critique is not that RCTs are bad. It is that treating them as universally superior causes people to ignore forms of evidence that are, for many public health questions, the only evidence available.

"Isn't Burden × Amenability just a rationalization for ignoring rare diseases?"
No. It is a tool for allocating marginal program resources, not for deciding what deserves any attention at all. Rare diseases with highly effective treatments score well on amenability even if burden is low. The framework identifies where additional resources will save the most lives—not which lives matter more.

"Why is counseling at the top of the pyramid if it's what clinicians do all day?"
Because counseling individuals to change behavior—without changing the environment that shapes their choices—produces modest, expensive results. This does not mean counseling is worthless. It means that if the goal is population health, resources concentrated at the pyramid's base will consistently outperform resources concentrated at its apex.

Bridge to Chapter 4: Technical rigor reveals the pathway to progress. Chapter 4 addresses the next barrier: even when people know the pathway, they may not believe the destination is reachable.

Activities and Assignments

In-Class: Evidence Hierarchy Challenge

Divide students into groups of three or four. Assign each group a public health question: Does banning trans fats reduce cardiovascular deaths? Do tobacco taxes reduce smoking? Does mandatory bicycle helmet use reduce head injuries? Each group identifies what study design they would ideally want, whether that design is feasible, and what evidence they would actually use to make a decision. Groups present their reasoning. Class discussion focuses on the gap between ideal and available evidence, and what threshold of evidence is sufficient to act.

In-Class: Apply the Pyramid

Present one health problem—childhood obesity or hypertension in a specific country context. Students work individually to identify an intervention at each of the five tiers, then rank the tiers by expected population impact. Debrief focuses on why most current programs concentrate at the top of the pyramid and what structural changes would shift resources downward.

Out-of-Class: Technical Package Design (2–3 pages)

Students select a high-burden health problem and design a technical package: identify the top three to five synergistic interventions, explain why each was chosen and the others excluded, and specify the minimum dataset required to know whether the package is working. The paper should address:

- Burden × Amenability justification for selecting this problem.
- Which tier(s) of the Health Impact Pyramid the package primarily addresses, and why.
- How the package will be monitored—what does 'working' look like?

Additional Resources

Required Readings

- **Frieden TR.** The Formula for Better Health. MIT Press, 2025. Chapter 3: The Pathway to Progress.
- **Frieden TR.** “A Framework for Public Health Action: The Health Impact Pyramid.” American Journal of Public Health. 2010;100(4):590–595.
- **Frieden TR.** “Evidence for Health Decision Making—Beyond Randomized, Controlled Trials.” New England Journal of Medicine. 2017;377(5):465–475.

Optional Readings

- **Deaton A, Cartwright N.** “Understanding and Misunderstanding Randomized Controlled Trials.” Social Science and Medicine. 2018. — Rigorous philosophical critique of RCTs as the sole standard of evidence, from a Nobel laureate economist; accessible and provocative.
- **Mitchell EA et al.** “Results from the 1st Year of the New Zealand Cot Death Study.” New Zealand Medical Journal. 1991. — Primary source for the SIDS case.

Videos and Multimedia

- The river parable (multiple short versions on YouTube). — One to two minutes; memorable opening for the Health Impact Pyramid session.

Guest Speakers

Consider: a program officer from a global health organization who has designed or evaluated a technical package; a clinical epidemiologist who has navigated the tension between RCT evidence and practice-based decisions. Ask them: Describe a decision you made on imperfect evidence. What made it rigorous enough to act?

CEPH Competency Crosswalk

This chapter addresses the following CEPH 2024 MPH Foundational Competencies:

No.	Competency	Where addressed in Chapter 3
C1	Apply epidemiological methods to settings and situations in public health practice	RCT fallacy case analysis; Ebola/Texas; SIDS/New Zealand; J-curve and confounding; evidence hierarchy challenge activity
C3	Design a population-based policy, program, project, or intervention	Technical package design assignment; Burden x Amenability matrix activity; Health Impact Pyramid activity
C4	Interpret results of data analysis for public health research, policy or practice	Burden x Amenability calculations; interpreting observational vs. RCT evidence; J-curve confounding discussion
C5	Compare the merits of addressing a particular public health problem by changing individual behavior versus addressing upstream factors	Health Impact Pyramid tier analysis; counseling at top vs. socioeconomic factors at base; hypertension across tiers
C11	Select methods to evaluate public health programs	Program-based evidence discussion; SIDS case; technical package evaluation framework; Comstock replication principle

Part II: BELIEVE

Chapter 4: Believe in a Healthy Future

> *"The future belongs to those who believe in the beauty of their dreams."*
> —Attributed to Eleanor Roosevelt

Overview

Chapter 4 is the shortest chapter and the only one in Part II—the critical hinge between See and Create. The See section established that public health can identify invisible threats, understand why we ignore them, and find a technical pathway to progress. Chapter 4 asks: once the pathway is visible, what keeps practitioners and the public from walking it? The answer is the illusion of inevitability—the assumption that current and future illness and death cannot be prevented. Three practices shatter that illusion: celebrating past successes, making phased progress, and cultivating optimism as a deliberate strategy.

> **Related case studies:** Smallpox Eradication; Stopping Tuberculosis in India (*The Formula* case study library)

Learning Objectives

By the end of this chapter, students should be able to:

- Explain why the illusion of inevitability is the central obstacle between seeing a public health problem and acting on it.
- Identify at least three examples of major public health progress and articulate why celebrating them is strategically important.
- Explain why public health practitioners are often reluctant to publicize victories and why that reluctance is counterproductive.
- Describe the three criteria for a well-designed first phase of a public health program and explain why each matters.
- Distinguish between cultivated optimism as a strategy and misplaced optimism, and give an example of each.
- Apply the chapter's three-part framework—celebrate, phase, cultivate—to a current public health challenge.

Themes and Concepts

Celebrate Past Progress

Public health has achieved extraordinary things: eradicating smallpox, reducing cardiovascular deaths by two-thirds in the United States between 1960 and 2010, eliminating trans fats from most of the world's food supply, controlling tuberculosis epidemics that once seemed permanent. Each was regarded by many as impossible at the time.

Hans Rosling made two related points. First, the world is much better than most people think—dramatic reductions in child mortality, extreme poverty, and preventable disease have occurred within living memory. Second, and more unsettling: it is entirely possible for things to be simultaneously better than before and still profoundly bad. Both facts are true. Practitioners who can hold both are better equipped to motivate action without inspiring complacency.

Two quotations anchor this section. The first—whose precise origin the chapter discusses—captures a curse worse than Cassandra's: Cassandra's curse was that her warnings about the future were not believed; public health's curse is double. The public neither heeds warnings about future threats nor recognizes past successes. C.-E. A. Winslow put the second dimension precisely: public health's victories are silent because they consist of diseases people did not get. The people who would have died are not there to be counted. Students rarely grasp this until it is stated directly—ask them to name a disease they have never had to worry about because of a program they have never heard of.

Why is public health reluctant to celebrate? The reluctance has real roots: fear that announcing success invites budget cuts, professional discomfort with overclaiming causation, and a culture oriented toward identifying threats rather than documenting victories. Each of these deserves respect—and none justifies silence. Belief is a resource. Programs that cannot demonstrate past success cannot recruit the staff, politicians, and donors needed for future progress. The obligation is to communicate honest progress clearly, not to overclaim.

Make Phased Progress

Programs fail not because they lack evidence but because they attempt too much too fast, in too many places, without the supervision required to adapt. The chapter's alternative is phased expansion. The critical question is not "does this work somewhere?" but "how do we make this work everywhere?"

Phased programs differ fundamentally from pilots. Pilots ask whether an intervention works under favorable conditions; they are, in practice, a graveyard of innovation—promising results that never become programs. A phase commits to further phases. It is the first step of a planned journey, not a test with an uncertain future. Karel Styblo's approach to tuberculosis control is the model: he launched phases, not pilots.

A well-designed first phase has three components:

- At least one real location—not a model district but a place with the constraints, politics, and resource limitations the program will actually face.
- A strong manager—with the authority and competence to make decisions and adapt protocols. Weak management in Phase 1 produces lessons that cannot be applied; strong management produces a transferable model.
- Accessible for joint supervision—close enough that program leaders can visit regularly and learn alongside local staff. Phase 1 supervision is joint learning, not inspection.

From prototype to proof to scale: Phase 1 establishes that the program works in real conditions. Proof means replication across sites with varying constraints. Scale applies those lessons system-wide. Each transition requires deliberate documentation of what worked, what failed, and what needed adaptation. The Vir district in India illustrates this: Dr. Vir's success was replicable not because he was exceptional but because his approach was documented, supervised, and designed for transfer. The lesson is not "find more people like Vir"—it is "build the system that makes Vir's results normal."

Cultivate Optimism

Optimism in this chapter is not an attitude—it is a strategy. Ambitious goals attract talent, motivate sustained effort, and force organizational changes that incremental goals allow programs to defer. Foege's goal of eradicating smallpox was ambitious to the point of seeming impossible. His role as "Resident Con Man" was to protect his team from the despair and cynicism that kill programs before goals are reached—and it worked. With that cultivated optimism, more than 200,000 health workers in over 70 countries identified more than 10 million contacts and vaccinated them within five days of exposure.

Failure festivals are one institutional expression of this strategy. When a program openly discusses what it learned from failure, it signals that the organization learns rather than punishes, and that the goal remains worth pursuing despite setbacks.

Misplaced optimism is the failure mode. Fred Soper had genuine achievements—he eliminated Anopheles gambiae from Brazil and Egypt. His confidence was earned. But he applied it too broadly, assuming his model would transfer to settings with different vectors, different operational constraints, and different political environments. Calibrated optimism: "we can do this because we have done comparable things and we understand the differences." Misplaced optimism: "we can do this because we have done things that looked like this." The difference is not enthusiasm—it is whether the evidence has been tested against the current context.

The chapter's synthesis: Believe = evidence + optimism. Evidence without optimism produces paralysis. Optimism without evidence produces Soper. Belief is the spark that connects seeing to creating.

Theme	**Cases**	**Activities and Assignments**		
	Smallpox	**Rosling Challenge**	**Phase Design**	**Believe Case**
Celebrate Past Progress				
Make Phased Progress				
Cultivate Optimism				

Teaching Strategies

Smallpox, Roosevelt, and the Illusion of Inevitability

Smallpox killed hundreds of millions across recorded history. In 1967 it still infected 10 to 15 million people a year. Within two decades of a concerted global campaign, it was gone—the only human disease ever eradicated. Smallpox eradication is the chapter's proof of concept: the most ambitious public health goal in history was achieved not because it was easy but because enough people believed it was possible and organized systematically to pursue it.

Read the epigraph attributed to Eleanor Roosevelt. Ask whether it belongs in a public health textbook. The question surfaces the tension between scientific rigor and the role of belief in driving action—exactly the chapter's central argument. Then present the smallpox facts: 10 to 15 million cases a year in 1967; global eradication declared in 1980. The vaccine had existed for nearly two centuries. What changed was the belief that eradication was achievable and the organized, phased action that followed.

Foege and Soper as a Contrast Pair

Present both figures. Foege's "Resident Con Man" role: he knew the goal was achievable because the evidence supported it, but also knew his team needed protection from moments when evidence seemed to contradict it. Is that manipulation or leadership? Then Soper: his confidence was grounded in real achievement. Where did it go wrong? The transfer—applying a model beyond the conditions that made it work. Ask students to identify one example from a program they know where confident action outran evidence. Close with the synthesis: Believe = evidence + optimism. What does a program look like when each element is present or absent?

Better and Bad: The Rosling Paradox

Ask students: is the world better or worse than it was fifty years ago? Most will struggle to answer confidently. Present Rosling's two points directly: dramatically better by most measurable indicators; still profoundly bad by any decent moral standard. Both are true simultaneously. Ask: what does a public health practitioner do with that? The answer connects to both the reluctance to celebrate and the case for cultivated optimism.

Phase vs. Pilot

Ask students to articulate the difference between a pilot and phase 1 of a program. Most will struggle—they use the terms interchangeably. Introduce the distinction: a pilot asks whether something works; a phase is the first part of a more comprehensive program. Pilots are a graveyard of innovation; phases commit to further phases. Walk through the three Phase 1 criteria using a specific program context—a new hypertension protocol, a community health worker program, a school nutrition intervention. Ask students to evaluate the program against each criterion. What organizational pressures push programs to scale before proof? Political timelines, donor pressure, and leadership ambition come up reliably.

Student Questions Worth Addressing

"Isn't cultivating optimism just telling people what they want to hear?"

No. Cultivated optimism is grounded in evidence: here is what we have achieved, here is why comparable progress is possible, here is what it will require. Foege did not tell his team the goal was easy—he showed them it was achievable. That is the distinction the chapter draws.

"Why celebrate progress if the problems are still there?"

Because belief drives action, and action requires belief in possibility. Celebrating past progress is not complacency; it is the evidence base for continued effort.

Bridge to Part III: Chapter 4 establishes that belief is achievable and strategic. Part III asks: once practitioners believe the pathway is real, what does organized action look like?

Activities and Assignments

In-Class: The Rosling Challenge

Before class, ask students to estimate: what percentage of the world's population lived in extreme poverty in 1990? In 2015? Present the actual data (about 36% in 1990; about 10% in 2015). Why did most people underestimate the progress? What does that tell us about how public health communicates its victories? What should practitioners and journalists do differently?

In-Class: Phase Design Exercise

Phase 1 achieved 87% treatment success across four pilot districts. Phase 2 launches next month in twenty new districts. Program leadership has scheduled a two-day exchange meeting — Phase 1 district officers and frontline staff will meet their Phase 2 counterparts before handoff. The Phase 2 teams have read the reports. Your task: build the agenda for what the reports can't convey. You have six sessions of 90 minutes each. For each session, specify who presents, what question it answers, and what Phase 2 teams leave with.

Out-of-Class: Believe Case Analysis (2–3 pages)

Students select one public health program that succeeded and one that stalled at a similar scale. Applying the chapter's three practices: did either program celebrate its early progress? How did leaders and staff maintain or lose belief during difficult periods? Was optimism cultivated strategically or assumed? The paper concludes with one specific recommendation for how the stalled program could have applied the framework differently.

Additional Resources

Required Reading

- Frieden TR. The Formula for Better Health: How to Save Millions of Lives—Including Your Own. MIT Press, 2025. Chapter 4, "Believe in a Healthy Future."

Optional Readings

- Rosling H, Rosling O, Rönnlund AR. Factfulness: Ten Reasons We're Wrong About the World—and Why Things Are Better Than You Think. Flatiron Books, 2018. — Chapter 1 ('The Gap Instinct') develops the better-and-bad paradox.
- Foege WH. House on Fire: The Fight to Eradicate Smallpox. University of California Press, 2011.
- Soper FL. Ventures in World Health: The Memoirs of Fred Lowe Soper. Pan American Health Organization, 1977. — Counterpoint to Foege on the limits of confident action.

Videos and Multimedia

- Hans Rosling, 'The Best Stats You've Ever Seen,' TED Talk, 2006. (20 min.) — Demonstrates how to communicate past progress compellingly.
- WHO smallpox eradication archive footage (available online). — Brief clips make the eradication story visceral.
- Why Hope Is Often the Most Important Thing in Public Health
- ABC News | "Progress is possible"
- CSIS book event on The Formula for Better Health: Believe

Guest Speakers

Consider: a program officer who has managed a multi-site scale-up and can speak concretely to Phase 1 decisions; a practitioner who has experienced organizational despair and recovery. Ask them: describe a moment when belief in your program was tested. What sustained it?

CEPH Competency Crosswalk

This chapter addresses the following CEPH 2024 MPH Foundational Competencies:

No.	Competency	Where addressed in Chapter 4
C2	Select quantitative and qualitative data collection methods appropriate to a given public health context	Evidence-for-belief discussion; Rosling data exercise; phased expansion monitoring
C3	Design a population-based policy, program, project, or intervention	Phased expansion framework; Phase 1 criteria; Styblo model
C5	Compare the merits of addressing a particular public health problem by changing individual behavior versus addressing upstream factors	Celebrating past progress; why reluctance exists; misplaced vs. calibrated optimism
C8	Apply awareness of cultural values and practices to the design or implementation of public health policies or programs	Failure festivals; Foege resident con man role; overcoming organizational despair
C11	Select methods to evaluate public health programs	Phased expansion monitoring; prototype-to-proof-to-scale; Vir case

Part III: CREATE
Chapter 5: Organize for Impact

> *After leading the global eradication of smallpox, Bill Foege was asked what public health should tackle next. He replied: 'The eradication of bad management.'*
> —Bill Foege

Overview

Chapter 5 opens Part III of the book—Create—and makes the case that organization is a precondition for public health action, not a backdrop to it. Having established in Part I how to see invisible threats and in Part II why belief in progress is rational and strategic, the chapter confronts the hardest question: how do practitioners actually make things happen? The answer is direct: without clear structures, sound prioritization, quality teams, and corruption-resistant institutions, vision and belief accomplish little. Organization is what converts them into outcomes.

The chapter opens with a contrast. Nigeria stopped an Ebola outbreak in Lagos in 2014 within weeks by activating an incident management system—a tool suited to emergencies. The chapter then broadens: most of public health does not operate in emergency mode, and the organizational principles that matter most are those that govern ordinary, ongoing work. The Eisenhower prioritization matrix, the foundations of effective institutions, the structural obstacles to hiring good people, and the corrosive effects of corruption apply whether or not a crisis is underway.

Related case studies: Stopping Ebola in Lagos; Multidrug-Resistant Tuberculosis, New York City (*The Formula* case study library)

Learning Objectives

By the end of this chapter, students should be able to:

- Explain what an incident management system is, why it suits emergency response, and what the absence of one costs.
- Apply a prioritization framework to distinguish all four quadrants of urgency and importance, analyze why organizations systematically underinvest in quadrant II, and identify what urgent work, low-value interruptions, and time-wasting activities each displace.
- Identify the three essential principles for effective public health institutions and give examples of each.
- Analyze the structural and political barriers to building high-quality public health teams—including civil service hiring constraints and salary limitations—and evaluate strategies to overcome them.
- Describe how corruption undermines public health systems and evaluate strategies—institutional, legal, and cultural—to reduce it.
- Explain how nongovernmental organizations can implement each component of the See/Believe/Create formula and articulate the organizational conditions that determine whether they succeed.

Themes and Concepts

Incident Management Systems

When Ebola arrived in Lagos in July 2014, Nigeria activated a formal incident management system: unified command, clear functional responsibilities across training, logistics, laboratory, research, and communication, and an empowered IMS manager accountable for the response. Within days, hundreds of staff were deployed. A functional isolation unit was built in ten days. More than 18,000 contacts were visited at home. The outbreak was stopped—and the entire response was then replicated in Port Harcourt when two patients fled there.

The key feature of an IMS is not just clarity about who is in charge but how it breaks a large, complex emergency into defined functions that can be managed simultaneously. When many people are in charge, no one is; when one person commands and each function has a clear owner, the whole operation can move in parallel. The contrast with a response lacking such a structure illustrates this: multiple entities nominally responsible meant decisions on testing, supply chains, and public communication were never clearly assigned—and therefore never clearly executed.

A competent emergency management structure includes a clear strategy, an empowered incident commander aligned with leaders at every level, systematic approaches to case management, contact tracing, and public communication, and protection for the technical institutions needed to implement them. Each of these elements is an organizational choice, not a technical one.

Incident management is an emergency tool. The chapter's broader point is about organization in everyday public health work: the systems, teams, and institutions that determine whether a program succeeds or fails over years, not weeks. Those require different but related disciplines—prioritization, staffing, institutional design, and corruption resistance.

Prioritization: The Eisenhower Matrix

The chapter introduces a 2×2 matrix—based on President Eisenhower's approach and developed by Stephen Covey in The 7 Habits of Highly Effective People—that divides work by urgency and importance. The framework is simple. Following it is not.

The four quadrants:

	URGENT	NOT URGENT
IMPORTANT	**Quadrant I — React** Respond to disease outbreaks, natural disasters, medical supply shortages, urgent clinical guidance	**Quadrant II — Plan (invest here)** Build coalitions, mentor staff, improve laws and information systems, change policies to reduce disease risk, improve financial sustainability
NOT IMPORTANT	**Quadrant III — Interrupt** Avoidable emails, poorly run meetings, declarations without follow-through, self-created deadline crises	**Quadrant IV — Avoid** Unfocused news monitoring, nonstrategic networking, low-relevance webinars, mandatory training of limited value

Table 5.1: Matrix to manage public health time and resources (adapted from Frieden, The Formula, 2025)

Practitioners naturally spend most time in quadrants I, III, and IV. Quadrant II—building the systems and coalitions that prevent future crises—yields no immediate reward and is therefore systematically neglected. Spending more time there reduces the volume of quadrant I emergencies over time.

The hypertension example: treating a patient who has had a heart attack from years of uncontrolled blood pressure is quadrant I. Improving blood pressure control through better treatment protocols, team-based care, and information systems is quadrant II. Effective programs invest in quadrant II to reduce the need for quadrant I. What organizational, political, and personal pressures push practitioners out of quadrant II—and what structural changes would make that investment routine rather than exceptional?

Teams and Institutions: Mission, Pragmatism, and Data

The most common mistake in public health management is believing that the right people alone will fix the institution. James Q. Wilson, whose scholarship on government organizations is cited at length in the chapter, addressed this directly: leaders are shaped by their institutions as much as they shape them, and even capable leaders accomplish little without authority and resources. His formulation: “Public management is not an arena in which to find Big Answers; it is a world of settled institutions designed to allow imperfect people to use flawed procedures to cope with insoluble problems.”

Three institutional principles:

Mission. Effective organizations give staff a sense that their work matters. Mission is not a slogan—it is the filter through which organizations decide what to do and, equally important, what not to do. Organizations with clear mission attract better staff, maintain morale through setbacks, and resist the scope creep that diffuses impact.

Pragmatism. The CDC’s historical pairing of epidemiologists with public health advisors (PHAs) illustrates this principle. Epidemiologists may know what to do; PHAs are more likely to know how to get it done. Headquarters staff who have spent years in local implementation give guidance grounded in what is actually possible. The prescription: early career postings in the field, long enough to draft a budget and live with the consequences of the policies being set centrally.

Data for management. Government agencies and many nonprofits lack the market feedback that tells private firms when a product fails. Programs that don’t work can continue indefinitely if funding continues. The solution is to build feedback loops: tracking smoking rates by neighborhood and redirecting outreach in real time is one example of data used as a management tool rather than a reporting one.

Hiring: The Bureaucratic Bottleneck

In 1991, New York City had the funds to hire hundreds of staff urgently needed for TB control. Twenty-seven sequential steps stood between deciding to hire someone and getting them into the job. The budget office took months to review each position—yet approved virtually every one, after many of the applicants had accepted other offers. The employee health program could conduct twenty-five exams per week when nearly a thousand were needed.

Both bottlenecks were solved by applying surveillance logic to the administrative process: measure each step, find the rate-limiting stage, redesign around it. Budget approval moved to post-hire review. TB physicians staffed the health center on Saturdays. Median time for budget approval dropped from 117 days to zero.

Speed alone was not enough. The existing staff was also wrong for the work—a problem rooted in civil service pay far below what qualified professionals could earn elsewhere. The solution required a new job classification, negotiated by grounding the proposal in an analogous existing title. The principle generalizes: base organizational change proposals on analogous precedents. Incremental proposals are harder to reject than systemic challenges.

Beyond specialists, programs need staff with a wide range of skills—epidemiology, law, communication, informatics, advocacy—and teams that reflect the communities they serve. Trainees also force organizations to improve: when supervisors must teach and systematize, protocols get documented and weaknesses surface.

The Corrosion of Corruption

The chapter pairs two stories deliberately. In India, a physician was asked to sign documents falsely certifying that expensive imported medical equipment was destined for charitable organizations, allowing a corrupt group to resell it to for-profit hospitals and pocket the tax savings. He refused, named the request for what it was, and was transferred the next morning. The corrupt procurement was eventually canceled, and he was later recruited to run the program honestly.

The American counterpart: "In our country, if a company gives money to a politician and the politician gets a law passed that benefits the company, it's legal." Civil service hiring processes with twenty-seven steps exist, in part, because of prior corruption—procedural accumulation as a substitute for institutional trust. The larger loss of public dollars is often from inefficiency rather than outright fraud, but both are organizational failures.

Applying the See/Believe/Create formula to corruption: see its costs and the benefits of preventing it; recognize that progress is possible—some countries have substantially reduced corruption; create the institutional conditions—independent accountability, clear ethical guidelines, whistleblower protection, data mining to detect patterns—that make corruption harder and integrity easier. This requires vibrant civil society alongside rigorous, specific institutional action.

NGOs and the Formula

Nongovernmental organizations can implement each component of See/Believe/Create—but only if they maintain mission, pragmatism, and use of data. The chapter examines several NGOs as organizational models: one whose funding independence allows it to sound alarms that politically constrained institutions cannot; one that uses phased implementation to build confidence in governments that a problem is solvable; one that mobilizes political capital at the head-of-state level to make neglected diseases visible; and one that applies rigorous data and operational discipline to deliver high-quality care at dramatically lower cost. What each illustrates is how organizational design shapes what an NGO can see, say, and do.

Financial independence matters: organizations that depend on a single funder or government are constrained in what they will report. Scale and field presence matter: organizations staffed by people from affected communities see problems that headquarters-based organizations miss. Mission discipline matters: organizations that say no to out-of-scope funding maintain the focus needed for sustained impact.

Theme	**Cases**		**Activities and Assignments**	
	Ebola	**MDR-TB**	**Time Audit**	**Organizational Diagnosis**
Incident Management Systems				
Prioritization				
Teams and Institutions				
Building Teams				
Reducing Corruption				
NGOs				

Teaching Strategies

Opening: Management Is the Work

Begin by asking students: name a public health program that failed—not because the science was wrong or the money ran out, but because it was poorly organized. Give them a minute. Most will struggle. Then ask: name a program that succeeded largely because of how it was run. The same hesitation.

That hesitation is the problem this chapter addresses. Practitioners are trained to think about evidence, epidemiology, and policy. They are rarely trained to think about organizational design. Yet this chapter's evidence is direct: Nigeria stopped Ebola not because it had better drugs or diagnostics but because it activated a clear organizational structure. New York City reversed its TB epidemic not because it found a new treatment but because it redesigned its hiring process and assigned accountability for every patient. Ask: in your training so far, how much attention has been paid to how organizations are structured, how people are hired, and how decisions get made? The gap between that answer and what this chapter covers is why the chapter exists.

The Lagos Ebola Response: Walk Through the Outbreak

Walk students through what happened in Lagos in sequence, pausing at each decision point. The goal is not to test recall but to surface the organizational choices that shaped outcomes.

Arrival

A Liberian diplomat arrives in Lagos in July 2014 and dies five days later. Ask: what organizational question arises immediately? Who has authority to act, and who has to be consulted before anything happens?

Activation

Nigeria activates a formal incident management system with a single commander and discrete functional units for training, logistics, laboratory, research, and communication. Ask: what does that structure make possible that a committee convened by the minister would not? What happens to decisions about testing, supply chains, and public communication when those responsibilities are unclear?

Operations

More than 18,000 contacts were visited at home. An isolation unit was built in ten days. Ask: which of these was a logistics question, which was a personnel question, and which was a data question? What organizational feature made it possible to run all three simultaneously?

Spread and Replication

Two patients fled to Port Harcourt before they knew they were infected. The same IMS structure was replicated there, and the outbreak was controlled. Ask: what does this replication tell us about what mattered in Lagos? Could the outcome have been attributed to a particularly talented individual, or does the replication settle that question?

Limits of the Model

Incident command is the right structure for acute emergencies. Ask students what is different about building a blood pressure control program or a tuberculosis elimination effort that runs for years. Which organizational principles from Lagos carry over, and which do not?

Prioritization: What Are You Actually Not Doing?

Rather than categorizing a list of hypothetical tasks, ask directly: think of the most important thing in a program you know that is not being done—or not being done well. Not something urgent, something that matters. Give students a moment to write it down. Then ask: is it quadrant II? And if so, what is filling the time that would otherwise go to it?

Drive toward three questions:

- Which quadrant III and IV demands come from outside your control—from your organization, your funders, your political environment?
- What would have to change above you for you to protect time for quadrant II work?
- Name one quadrant II investment that has been deferred long enough that it is now becoming quadrant I.

The hypertension example makes this concrete: building data systems and treatment protocols that keep blood pressure controlled is quadrant II. Treating patients who have had strokes from uncontrolled hypertension is quadrant I. The system that produces the second outcome is the one that underinvested in the first.

Teams, Hiring, and What Organizations Select For

The New York City TB hiring story is worth slowing down on. Ask: what does a 27-step hiring process select for, ultimately? Students often answer "compliance" or "patience." The chapter's answer is more precise: it selects for people willing to accept the process, which excludes the candidates with the most options. Ask: where in the hiring process of an organization you know do the best candidates get lost? What is the rate-limiting step?

Then shift to team composition. The chapter argues programs need people with a wide range of skills—epidemiology, law, communication, informatics, advocacy—and that teams should reflect the communities they serve. Ask:

- What specific skills are most often absent from public health teams you have encountered?
- What does a team look like when it lacks communication professionals, legal expertise, or data specialists?
- Wilson's point was that even capable leaders accomplish little without authority and resources, and that institutions shape leaders as much as leaders shape institutions. What institutional features—reward structures, accountability mechanisms, leadership signals—would make it easier for a well-composed team to do its best work?

NGOs: What They Can and Cannot Do

Rather than assigning NGOs to formula components, surface the structural question: what can an NGO do that a government cannot? What can a government do that an NGO cannot? Students typically identify NGO advantages—flexibility, independence, ability to advocate—then ask for the limits.

Drive toward three questions:

- What happens to an NGO's independence when it depends on a single government funder?
- What does an NGO miss when its staff is based in headquarters, not in the field?
- How does mission drift—toward donor priorities rather than population needs—affect what the organization can see and say?

The resolution: NGOs are most effective implementing pieces of the See/Believe/Create formula that governments are structurally constrained from doing—sounding alarms, demonstrating proof of concept, mobilizing political will. Durable health improvement requires functional government. The question for each context is how the two complement each other.

Student Questions Worth Addressing

"Isn't this chapter really about management, not public health?"

It is about both, and the distinction is the point. Organizational failure is a proximate cause of preventable death. Nigeria controlled Ebola because of its organizational structure. New York City reversed its TB epidemic because of hiring reforms and staff accountability. Managing well is not separable from doing public health well.

“Why does corruption belong in a public health course?”

Because public health is implemented through institutions, and institutions are susceptible to corruption in many forms. Practitioners who ignore corruption find their programs subverted from within. The strategies in the chapter—transparency, simplified processes, accountability mechanisms, whistleblower protection—are public health tools as much as surveillance systems or clinical protocols.

“How can an individual practitioner change a civil service hiring system?”

Sometimes they cannot, directly. The chapter’s answer is to apply the same surveillance logic used for disease: identify the rate-limiting step, measure it, and propose a redesign grounded in an analogous existing practice. Incremental proposals framed as minor adjustments are harder to reject than systemic challenges.

“Can NGOs substitute for government?”

The chapter does not argue they can. NGOs are most effective implementing parts of the formula that governments are structurally constrained from doing—sounding alarms, demonstrating proof of concept, mobilizing political will. Durable population health improvement ultimately requires functional government systems. NGOs that understand this work toward building those systems rather than substituting for them.

Bridge to Chapter 6: Chapter 5 establishes that organization is necessary but not sufficient. Even a well-organized program can fail to reach scale if its approach is too complex. Chapter 6 asks what makes programs simple enough to work everywhere—and why simplicity is harder to achieve than complexity.

Activities and Assignments

In-Class: The Time Audit

Before class, students categorize their last five working days by Eisenhower quadrant for each block of time. In class, compile the distribution. Discuss what drives it—organizational culture, political demands, personal habit. Each student identifies one specific quadrant II investment to complete before the next session: a named deliverable, a time commitment, a deadline. Debrief at the following class.

In-Class: Organizational Diagnosis

Groups receive a real or composite program facing a known performance problem—high patient dropout, persistent vaccination coverage gap, recurring compliance failure. Groups diagnose the problem using the chapter’s framework: Is command structure clear? Is the team invested in quadrant II work? Does the institution have mission, pragmatism, and data feedback? Is corruption affecting performance? Each group identifies the single highest-leverage organizational change. Class evaluates whether proposed changes address root causes or symptoms.

Additional Resources

Required Reading

Frieden TR. The Formula for Better Health: How to Save Millions of Lives—Including Your Own. MIT Press, 2025. Chapter 5, "Organize for Impact."

Optional Readings

- **Wilson JQ.** Bureaucracy: What Government Agencies Do and Why They Do It. Basic Books, 1989. — The source of the Wilson passages in the chapter; the most rigorous analysis of why public organizations behave as they do.
- **Covey SR.** The 7 Habits of Highly Effective People. Free Press, 1989. — Chapter 3 develops the urgency/importance matrix.
- **Gawande A.** The Checklist Manifesto: How to Get Things Right. Metropolitan Books, 2009. — Extends the simple management tool argument to clinical and organizational settings.
- **Foege WH.** House on Fire: The Fight to Eradicate Smallpox. University of California Press, 2011. — Foege's account of managing the eradication campaign; the organizational lessons are explicit.
- **Transparency International.** Corruption Perceptions Index (annual). — Empirical context for the corruption section.

Videos and Multimedia

- WHO Emergency Management Principles (available at who.int). — Explains incident command structure in health emergencies.
- Aravind Eye Care: multiple available profiles. — Illustrates data-driven institutional discipline described in the chapter.
- Speed Makes All the Difference

Guest Speakers

Consider: an incident commander from a state or local emergency management agency; a civil service HR official who can speak to where hiring flexibility actually exists; or a practitioner who has worked in both government and an NGO. Ask any of them: describe a moment when organizational structure either enabled or blocked something that mattered for health. What changed it?

CEPH Competency Crosswalk

This chapter addresses the following CEPH 2024 MPH Foundational Competencies:

No.	Competency	Where addressed in Chapter 5
C3	Design a population-based policy, program, project, or intervention	Incident management structure; prioritization matrix
C4	Select quantitative and qualitative methods appropriate to a given public health context	Real-time data for management; surveillance applied to administrative bottlenecks
C6	Discuss multiple dimensions of the policy-making process, including the roles of various actors	IMS and political alignment; civil service constraints; corruption and institutional safeguards; NGOs as political actors
C8	Apply awareness of cultural values and practices to design or implementation of public health policies	Hiring teams that reflect communities served; field staff from affected communities; cultural dimensions of corruption resistance
C11	Select methods to evaluate public health programs	Outcome vs. process metrics; real-time program tracking

Part III: CREATE
Chapter 6: Simple, Scalable Solutions

> *Simplicity is the ultimate sophistication.*
> —Leonardo da Vinci

Overview

Chapter 6 is the second of four chapters in Part III: Create. Building on Chapter 5's foundation of organizational structure, it asks what determines whether a functioning program reaches everyone in need. The answer is a triad: simplicity, speed, and scale. All three are necessary. The chapter's argument is that even a well-organized program built on sound science will fail to save lives at population scale unless it is simple enough to implement widely, fast, and structured for large scale implementation.

Dr. Karel Styblo's question—'Of the 3,811 patients with tuberculosis diagnosed in New York City last year, how many did you cure?'—opens the chapter and anchors it. That question is the simplest possible statement of what a public health program is for: the outcome of every patient, no excuses. Styblo's cohort accountability method transformed tuberculosis control in New York City and eventually in more than 150 countries. The chapter traces why that approach worked, why the same logic applies to hypertension and other leading killers, and why—through the contrasting cases of COVID in New York City and San Francisco, and of the DOTS strategy for tuberculosis control versus the Nurse-Family Partnership—simplicity, speed, and scale determine which programs save lives.

Related case studies: Multidrug-Resistant Tuberculosis, New York City; Karel Styblo: The Question That Changed Tuberculosis (*The Formula* case study library)

Core Learning Objectives

By the end of this chapter, students should be able to:

- Understand Styblo's cohort accountability method and why tracking the outcome of every patient is both simple in concept and transformative in practice, and identify the organizational conditions that make it possible.
- Be able to apply the simplicity principle to evaluate a clinical algorithm or information system: identify steps that can be eliminated, standardized, or automated without reducing effectiveness.
- Understand the relationship between speed of response and lives saved in epidemic and non-epidemic settings, using specific examples of both successful and failed speed.
- Be able to explain why many effective programs fail to scale, and identify the factors—scientific, operational, political, and economic—that influence scalability.
- Be able to apply all three elements of the simplicity-speed-scale triad to analyze a complex public health response and identify the leverage points where the triad was strong or failed.

Themes and Concepts

The Styblo Question: Cohort Accountability

Styblo's insight was deceptively simple: a public health program is responsible for the outcome of every person diagnosed in its area, no exceptions. This means tracking each patient prospectively from diagnosis to cure, default, transfer, or death—and refusing to treat any category of missed patients as acceptable loss. When Styblo asked Frieden how many of New York City's 3,811 tuberculosis patients had been cured, neither knew. The honest answer was far less than half. The shame that question produced drove a decade of program redesign.

The cohort review—systematic quarterly examination of every patient's status—establishes accountability. Each review revealed specific failures: outreach workers without cars, overcrowded clinics, private doctors prescribing the wrong medications. The simple act of reviewing every patient forced the program to address every problem. By the early 2000s, New York City was curing nearly all tuberculosis patients. The cure rate rose not because of new drugs but because of relentless accountability because of a simple outcome metric.

The same principle applies to hypertension. At most 20 percent of people with high blood pressure have it controlled. Most programs track the number of patients screened or who receive treatment, not the number whose blood pressure is controlled. Applying the Styblo question to hypertension—'Of the patients with elevated blood pressure, how many have it controlled?'—and tracking that proportion consistently can more than double control rates.

Simplicity in Protocols, Algorithms, and Information Systems

Simplicity is the disciplined elimination of unnecessary complexity. President Eisenhower described a political opponent as being so smart he could see eleven sides to every two-sided question. Effective programs identify the single most useful data point or decision and design around it.

The hypertension treatment algorithm in the chapter illustrates this. Multiple treatment options and dozens of monitoring indicators—standard in many guidelines—produce fragmented care. A four-step linear algorithm using three medications controls blood pressure in more than 80 percent of patients and can be implemented by any trained clinician. The fewer decision branches, the more reliably the protocol will be followed.

Information systems are subject to the same logic. The Simple app—built for hypertension and diabetes treatment programs in low- and middle-income countries—reduced data entry time to an average of thirteen seconds per follow-up visit, saving nurses twenty-four minutes daily and making paper records obsolete. That thirteen-second threshold was the point at which health care workers stopped reverting to paper. The lesson: the relevant standard for a digital tool is not what it can theoretically record, but what health workers will actually use under real conditions in clinics which may have as little as five minutes or less per patient.

In emergencies, complexity kills. During the West Africa Ebola epidemic, CDC officers were spending weeks entering data from multipage intake forms—and no one had analyzed the data, or even checked whether all fields were necessary. A one-page form was ordered immediately; it took more than a month to produce. That month's delay, compounded by exponential spread, cost lives. Simplicity is not a compromise, it's a design principle.

Speed: The Cost of Delay

Martin Luther King Jr.'s phrase, the 'fierce urgency of now' captures the operational reality: every hour of delay in an epidemic causes preventable deaths.

New York City and San Francisco were both hit by COVID early and led by excellent health departments. San Francisco declared a state of emergency before its first confirmed case; New York City waited until nearly 100 cases were confirmed. San Francisco closed indoor businesses at 472 known cases; New York City waited until 5,000. In 2020, New York City's death rate was nine times higher than San Francisco's. The difference was not science, resources, or capacity. It was ten days of political delay, during which cases were doubling every two to three days.

Speed also requires flexible resources. A hundred dollars to fix a building, a tank of gasoline for a jeep, a day's food for community health workers in training can accelerate a response. Bureaucratic funding cycles built for long-term programs cannot move at epidemic speed.

The 7-1-7 target is a global benchmark for outbreak response: identify every suspected outbreak within 7 days, notify the relevant public health authorities within 1 day, and mount an effective response within 7 days. Countries, districts, and health systems can measure their performance against this standard and improve it over time, making the invisible visible—the See part of the formula applied to response capacity.

Uganda's COVID response in 2020 illustrates what a capable system can produce: 927 cases diagnosed, more than ten contacts traced per case, and a cumulative infection rate approximately 10,000 times lower than the United States a hundred days after the first case. Uganda did not have more resources. It had pre-established rapid-response funds, a national incident management system, and border screening protocols in place before the virus arrived. Speed is a capacity built before the crisis begins.

Scale: Why Good Ideas Fail to Reach Everyone

Scale means reaching most or nearly all people in need—not just demonstrating effectiveness in one location. The chapter compares the DOTS strategy for tuberculosis control and the Nurse-Family Partnership (NFP). Both are built on decades of rigorous science. Both are technically sound. The DOTS strategy for tuberculosis control, now used in more than 150 countries, has improved the outcomes of more than a hundred million patients. The NFP, despite strong evidence, has never scaled, and even with intensive effort didn't reach more than 10 percent of eligible mothers in New York City.

Table 6.1: Why tuberculosis control scaled and the Nurse-Family Partnership did not

Feature	Tuberculosis Control	Nurse-Family Partnership
Simplicity	Simple diagnosis, treatment, and monitoring; implementable by workers with a high school education	Requires trained nurses; complex curriculum; harder to implement at low cost
Endorsement	WHO endorsed and promoted globally, catalyzing international commitment and funding	Multiple endorsements, but no authoritative body unambiguously promoted at scale
Affordability	Cost-effective and became more affordable (<$30/patient) at scale as lab and drug costs fell	Cost-effective but $30,000+ per mother-child pair with minimal economies of scale
Political salience	Patients with acute, identifiable needs seek care; benefits are immediate and measurable	Benefits are long-term, hard to document, and less compelling for short political horizons

Adapted from Frieden, The Formula for Better Health, 2025.

Scale also requires confronting the problem of 'pilot-itis': the tendency to run small-scale pilots that require intensive investment of resources rather than design for scale. Phased expansion—as Styblo demonstrated with tuberculosis control, starting with at least two areas, proving the approach, then moving systematically to the next—is different. Phased expansion sets benchmarks, builds institutional capacity, and establishes and strengthens political commitment at each step.

Misguided concern about sustainability can paralyze scale-up. Successful implementation strengthens sustainability. Advocates become champions. Operational habits become embedded. Visible progress builds political commitment grows. Tobacco control policy illustrates this: once implemented, smoke-free laws and graphic warning labels are nearly irreversible. The Bloomberg Initiative's support for the WHO MPOWER package in more than one hundred countries reduced global cigarette sales despite a growing world population.

The Triad in Practice: Stopping the Ebola Epidemic

The West Africa Ebola epidemic required all three elements simultaneously, and the chapter's final case shows what happens when one is missing. Data collection was complex and slow—weeks of multipage forms with no analysis. Case finding was too slow. And the response hadn't yet reached rural communities at scale.

The RITE protocol—Rapid Isolation and Treatment of Ebola addressed all three. Simple: streamlined protocols for isolation and contact tracing. Fast: teams deployed within one to two days of a new case or cluster. Scalable: the same approach applied community by community by local health workers and government staff. Communities stopped outbreaks twice as fast using RITE—twenty-five days instead of fifty-three—and nearly tripled patient survival, from 28 percent to 81 percent. Hans Rosling, observing from Liberia, identified who made it work: not heroic organizations or individual leaders, but government staff and local health workers who changed ancient funeral practices in days and did the dangerous, meticulous work of finding and isolating contacts. That is what the triad looks like when it functions.

Theme	Cases	Activities and Assignments	
	MDR-TB	Simplicity Audit	Scale Analysis
Cohort Accountability			
Simplicity			
Speed			
Scale			

Teaching Strategies

Opening: What Is the Simplest Metric for Your Program?

Begin with Styblo's question. Ask students: Think of a health program you know—from your work, your training, or the chapter—and name the single most important indicator of whether it is working. Write it down. Then ask: Is that indicator tracking outcomes for every person in the program, or is it tracking something easier to count?

Most programs track process indicators—visits, doses administered, tests ordered—rather than outcome indicators. Process indicators are easier to collect and almost always higher. They allow programs to report progress while patients are lost. Styblo's insight was that the proportion cured is the only honest measure. Ask students: What happens to a program that tracks visits but not outcomes? What is the harm of a high process indicator and a low outcome indicator—for the program's reputation, its funding, its staff culture?

Use this discussion to introduce the chapter's frame: simplicity is not simplistic. It is the discipline to identify what matters most and build around it.

The Styblo Case: Walk Through the Turnaround

Walk students through what happened in New York City's tuberculosis program after Styblo's 1993 visit, pausing at each decision point.

The Question

Styblo asks: Of 3,811 patients, how many were cured? The program director doesn't know. Ask: What does not knowing this number tell you about how the program was organized? What was the program tracking instead?

The Cohort Review

The program begins reviewing every cohort of patients, every quarter. Reviews reveal specific failures: outreach workers without cars, overcrowded clinics, wrong medications from private doctors. Ask: Why did reviewing every patient reveal problems that aggregate statistics hid? What is the organizational precondition for a cohort review to produce change rather than just embarrassment?

The Response

Outreach workers go to park benches, abandoned buildings, and homeless encampments—wherever patients are. Solutions are sometimes complex, but the accountability standard is simple: every patient, no exceptions. Ask: How does a clear, simple outcome standard change what frontline staff do? How does it change what managers pay attention to?

The Result

New York City's tuberculosis cure rate rises from less than half to nearly all patients. Ask: Was the turnaround driven by a new drug, more money, or a new information system?

The Generalization

Ask students: Styblo's question was about tuberculosis. Apply it to a program you know. What is your program's equivalent of 'how many did you cure?' What would happen in the next team meeting if you asked that question out loud?

Speed: Two Cities, Two Decisions

Present the March 2020 timeline without naming the cities first. Two cities, both in the same country, both with leading health departments, both hit early by the same pandemic. In City A, the mayor declared a state of emergency before the first confirmed case and closed indoor businesses at 472 known cases. In City B, the mayor waited until nearly 100 cases to declare an emergency and until 5,000 cases to close businesses. By the end of the first wave, City B's death rate was nine times higher than City A's.

Then reveal the cities: San Francisco and New York City. Ask:

- The health departments in both cities were giving the same advice. What variable determined the outcome?
- Cases were doubling every two to three days. How do you calculate what a ten-day delay costs, given exponential growth?

Then pivot: Ask what Uganda's response to COVID in 2020 tells us about what speed requires. Not only political will—Uganda had pre-established rapid response funds, a national incident management system, and border screening protocols in place before the virus arrived. Speed is a capacity built in advance.

Scale: Why One Program Reached the World and the Other Did Not

Present the two programs in parallel, without framing one as success and the other as failure until students have analyzed them. Tuberculosis control and the Nurse-Family Partnership were both built on decades of rigorous science. Both had strong evidence. Both had champions. Walk students through the four comparison dimensions from Table 6.1:

- Simplicity: Who can implement this program, with what training, at what cost per worker?
- Endorsement: What authoritative body promoted this, and what did that promotion require countries to commit?

- Affordability at scale: Does cost per person fall as volume increases, or does it rise?
- Political salience: Are the benefits immediate and visible, or long-term and diffuse?

Ask: If you were advising a ministry of health with limited resources, which of these four dimensions would you weight most heavily? Does the answer depend on the disease or condition? Then ask: What would the Nurse-Family Partnership need to change to become more scalable?

Close with the cookstoves case: a promising intervention that cannot scale not because the evidence is wrong but because real-world conditions—ease of use, cultural acceptance, infrastructure—prevent adoption. Ask: What is a program you know of have the equivalent of the cookstove problem?

Connecting the Triad

Help students see the three elements as interdependent, not sequential. Ask:

- Can you have speed without simplicity? What happens when a complex program tries to move fast? (Point to the multipage Ebola intake forms.)
- Can you have scale without simplicity? What happens when a program that requires nurses and a detailed curriculum tries to reach 10 million people?
- Can you have scale without speed? What does it cost to have the right approach and the right structure but act too slowly?

The RITE protocol is and example of all three. Ask students to identify the specific design choices that made each element of the triad possible: What made RITE simple? What made it fast? What made it scalable across areas?

Student Questions Worth Addressing

"Isn't Styblo's method just holding clinicians responsible for social problems they can't control?"

The method holds programs accountable for doing everything within their power to find, treat, and support every patient. It does not pretend that poverty, housing instability, or structural racism don't exist—but it refuses to use those factors as reasons to stop tracking. The New York City experience shows that once the program committed to accounting for every patient, it found solutions to the problems that had previously been treated as inevitable. Accountability creates the incentive to problem-solve.

"Why did San Francisco's mayor listen and New York City's didn't?"

The chapter does not fully resolve this question, and that gap is worth exploring. It was not a difference in health department quality or in the scientific advice being given. It appears to reflect differences in how mayors weighted competing considerations—economic disruption, public resistance, political risk—and in the relationships between health officials and their political principals. The lesson is both technical and political: communicating effectively, building relationships before emergencies, providing clear, actionable data early, , and framing the cost of inaction in concrete terms all increase the odds of being heard. But none of them guarantee it if political leaders don't listen.

"If simplicity is so powerful, why do programs keep getting more complex?"

Because complexity is easy to add and hard to remove. Each addition to a protocol or information system is proposed by someone with a legitimate reason: a clinician who wants to capture more data, a manager who wants more accountability, a funder who wants more indicators. Removing any one of them creates a political problem with whoever proposed it. Simplicity requires active resistance to the accumulation of complexity—it must be a standing organizational commitment. Einstein's formulation applies: programs should be as simple as possible, but no simpler.

"What is the difference between a pilot and phased expansion?"

A pilot tests whether something works; phased expansion tests whether it can grow. A pilot ends with a report. Phased expansion doesn't end until the entire target population is reached. A pilot project doesn't have to consider how to make the approach scalable.

Bridge to Chapter 7: Even the simplest, fastest, most scalable program will fail if the people it needs to reach do not trust it, act on it, or support it. Chapter 7 asks what makes communication effective—how to reach people, change beliefs, and build the public will that programs need to succeed.

Activities and Assignments

In-Class: The Simplicity Audit

Each student selects one clinical protocol, information system, or program component from their work or training. Working individually for ten minutes, they map every step in the process from first patient contact to documented outcome. Then they identify: Which steps are necessary? Which exist because of legacy design, funder requirements, or organizational inertia? Which could be eliminated, combined, or automated without reducing effectiveness? Students share their maps in pairs. Class discussion identifies patterns: What categories of complexity appear most often? Who in the organization has the authority to remove them, and what would it take?

Out-of-Class: Scale Analysis (3–4 pages)

Students select a public health program that has scaled in at least two countries and one that has not scaled despite strong evidence. Using the chapter's framework—simplicity, endorsement, affordability at scale, political salience—they analyze what drove one program's reach and limited the other's. They identify one specific change that would most increase the scalability of the program that has not yet scaled, and assess the tradeoffs.

Additional Resources

Required Reading

Frieden TR. The Formula for Better Health: How to Save Millions of Lives—Including Your Own. MIT Press, 2025. Chapter 6, “Simple, Scalable Solutions.”

Optional Readings

- **Gawande A.** “Slow Ideas.” The New Yorker. July 29, 2013. — Explores why some innovations spread quickly and others do not; directly relevant to the scale question.
- **Simeon DT, et al.** “The Nurse-Family Partnership Programme: A Systematic Review.” Lancet. 2019. — Provides the evidence base for the NFP comparison in the chapter.
- **Kateh F, et al.** “Rapid Response to Ebola Outbreaks in Remote Areas—Liberia, July-November 2014.” *MMWR*. 2015;64(7):188–192.
- **Burka, D, et al.** “Keep it simple: designing a user-centred digital information system to support chronic disease management in low/middle-income countries.” *BMJ Health Care & Informatics.* 2023; 30(1):e100641.
- **Frieden TR, et al.** “7-1-7: An Organising Principle, Target, and Accountability Metric to Make the World Safer from Pandemics.” *The Lancet*. 2021; 398(10300): 638-40

Videos and Multimedia

- Resolve to Save Lives: Simple app demonstration videos (available at resolvetosavelives.org). — Illustrates the 13-second data entry principle.
- Hans Rosling, “Facts About the Ebola Outbreak” (YouTube). — Rosling explains the epidemic’s trajectory; useful context for the speed section.
- CDC Global Health: 7-1-7 target explainer (cdc.gov/globalhealth). — Operationalizes the speed framework for outbreak response.
- PEPFAR’s greatest legacies

Guest Speakers

Consider: a public health practitioner who has led a cohort review process in TB, hypertension, or another program; a digital health specialist who has built or evaluated a simplified information system in a resource-limited setting; or an epidemiologist with field experience in outbreak response who can speak to the decision speed required in real emergencies. Ask any of them: Describe a moment when complexity was making your program fail. What made it possible to simplify? What was lost—and was the tradeoff worth it?

CEPH Competency Crosswalk

This chapter addresses the following CEPH 2024 MPH Foundational Competencies:

No.	Competency	Where addressed in Chapter 6
C3	Design a population-based policy, program, project, or intervention	Styblo cohort method as program design template; hypertension algorithm design; RITE protocol as emergency response design
C4	Select quantitative and qualitative methods appropriate to a given public health context	Cohort outcome tracking; syndromic surveillance (COVID); speed modeling; scale analysis (TB vs. NFP)
C6	Discuss multiple dimensions of the policy-making process, including the roles of various actors	COVID response and political leadership; mayoral decision-making; Operation Warp Speed; Bloomberg Initiative global policy expansion
C8	Apply awareness of cultural values and practices to the design or implementation of public health policies	Community health worker engagement in Ebola response; cultural adaptation in safe burial practices; local adaptation of treatment algorithms
C11	Select methods to evaluate public health programs	Outcome indicators vs. process indicators; cohort review as evaluation method; 7-1-7 target as performance benchmark

Part III: CREATE
Chapter 7: Communication

> *"A word after a word after a word is power."*
> —Margaret Atwood

Overview

Chapter 7 is the third of four chapters in Part III: Create. Organization (Chapter 5) and simplicity, speed, and scale (Chapter 6) determine whether programs can function and reach everyone. Chapter 7 asks what determines whether the right people hear the right message at the right time—and act on it. The answer has three components: the right message, the right messenger, and the right audience.

The chapter opens with a community survey in Douglas, Tennessee. The health clinic was empty not because people were not sick but because half the community did not know it existed—and those who knew were better off and less likely to need it. Poverty, the chapter argues, is not just about money. It is also about access to information. The Cassandra curse—failure to make visible threats seen and believed—is a communication failure. Effective communication determines whether people see a problem, believe it can be addressed, and take action.

Related case studies: Ebola in Guinea: When Accurate Messages Backfire (*The Formula* case study library)

Learning Objectives

By the end of this chapter, students should be able to:

- Understand the principle of the Single Overriding Communication Objective (SOCO) and be able to apply it to evaluate a real public health message.
- Be able to distinguish among the right message, the right messenger, and the right audience, and identify which was missing in a failed communication campaign.
- Identify and understand the key principles of crisis communication.
- Be able to develop a strategy to address health misinformation in a specific community, applying the principles of pre-bunking, trusted messengers, and accessible information.
- Understand why trust is the foundation of effective communication and identify strategies to build it in a low-trust community.

Concepts and Cases

The Right Message: SOCO

The Single Overriding Communication Objective is the discipline of reducing every message to one clear, compelling idea. Ryan White made the HIV epidemic visible by putting a face on stigma—a single story that concentrated abstract statistics into a human being. The Ebola projection graph (figure 1.1) conveyed urgency in one image: without action, millions would die. Both succeeded because they did not try to communicate everything at once.

SOCO does not mean oversimplifying science. It means choosing, from the full complexity of a public health situation, the one thing that most needs to reach the most people. The discipline of

SOCO is partly editorial—what to leave out—and partly strategic: What must this audience walk away knowing or doing?

Table 7.1 in the chapter compares two national COVID communication responses across dimensions of consistency, accuracy, clarity, trust in science, and outcome. The comparison shows that when multiple elements of communication fail simultaneously—mixed messages, contradictory guidance, inconsistent tone—the cumulative cost in lives can be enormous. Refer students to the table directly and ask them to identify the two or three failures they think mattered most for public compliance.

The Right Messenger

Jorge, an outreach worker in New York City's tuberculosis program, was from the Dominican community he served. He knew the neighborhoods, the bodega owners, and the park benches where patients spent their days. His job title was borrowed from a deceased outreach worker known as "Dead Lenny." Similarly, Nwigwe worked with Nigerian immigrants, navigating cultural norms and language barriers that no external official could have crossed as effectively.

Terrie Hall, whose larynx had been removed by throat cancer from decades of smoking, volunteered for the CDC's Tips from Former Smokers campaign. Her honesty about suffering—recorded and broadcast nationally—was more persuasive than any clinical statistic. The messenger's credibility derives from proximity: to the disease, to the community, to the experience of harm.

The Right Audience

Trans fat was the right target for a communication campaign because the audience that mattered was small: food manufacturers, restaurant chains, and the FDA. A population-wide education campaign aimed at consumers would have been largely irrelevant—people cannot easily identify trans fat in packaged food, and even awareness does not enable avoidance. The right audience for trans fat communication was the producers, regulators, and legislators who could eliminate it from the food supply. New York City's ban worked because it targeted the right audience with the right ask.

Audience segmentation requires asking who must change their behavior for the program to succeed, and whether that group is a government agency, industry, clinicians, patients, families, or the general public. Different audiences require different messages, messengers, channels, and calls to action.

Crisis Communication

Be first: In crisis settings, timeliness is critical. Rapid dissemination of information is essential, as initial sources often shape public understanding and become the primary reference point for evidence.

Be right: Credibility depends on accuracy. Communication should clearly distinguish between established facts, areas of uncertainty, and the measures being taken to resolve outstanding questions.

Be credible: Trust depends on consistency and transparency. Information shared during crises should adhere to high standards of honesty and avoid exaggeration or omission.

Express empathy: Crisis communication should explicitly acknowledge the emotional and material impacts experienced by affected populations. Recognizing these experiences fosters trust and builds rapport.

Promote action: Providing clear, feasible guidance supports collective efficacy. Specific recommendations can mitigate uncertainty and enhance individuals' sense of control.

Show respect: Communication should reflect consideration for affected communities, particularly in contexts of vulnerability. Respectful engagement promotes cooperation and reinforces institutional trust.

Misinformation and Disinformation

The chapter distinguishes misinformation (false beliefs spread without intent to deceive) from disinformation (deliberately false content). Both kill. Benjamin Franklin's 1736 response to opposition to cleaning up Philadelphia's streets offers a model of pre-bunking—anticipating the objection and addressing it before it hardens into resistance. Telling people what opponents will say, and why, is more effective than rebuttal after the fact.

The tobacco industry mastered disinformation: funding misleading research, creating the illusion of scientific controversy, and targeting communities where trust in government was low. Public health's counter-strategy must be faster, more trusted, and more specific. Fact-checking alone is insufficient; once misinformation is widely believed, correction rarely reaches the same audience or carries the same emotional weight as the original falsehood.

Trust: The Foundation

The Tuskegee syphilis study, in which the US Public Health Service deliberately withheld treatment from Black men with syphilis for forty years, destroyed trust that has not fully recovered decades later. Vaccine hesitancy in Black communities during COVID was not irrational—it was a reasonable response to a documented history of exploitation.

In Guinea during the Ebola epidemic, CDC teams focused on infection control while communities were asking for doctors who would treat their sick. Dr. Abdou Salam Gueye summarized: "You say you're doctors, but you've been here for eighteen months and you haven't treated a single patient." Trust is earned by showing up to help, not only to protect. Guinea's microcerclage strategy—which paired outbreak containment with childhood vaccinations, food, bed nets, and medical care—worked because it addressed community needs alongside epidemiological goals. Nearby communities without Ebola cases asked to participate.

Theme	Cases			Activities and Assignments	
	Douglass Case	MDR-TB	COVID-19	SOCO Workshop	Campaign Critique
SOCO					
Messengers and Audiences					
Crisis Communication					
Misinformation and Disinformation					
Trust					

Teaching Strategies

Opening: What Stopped People from Using the Douglas Clinic?

Before students have opened the chapter, ask them: A community in rural Tennessee built a new health clinic at significant public expense. The clinic stands nearly empty. Most community members are poor, sick, and unserved. What would you investigate first? Take three or four responses, then read the opening paragraphs aloud.

The survey finding—that half the community did not know the clinic existed, and that those who knew were better off—inverts the common assumption that access failure is about geography or transportation. The barrier was information. Introduce the concept that poverty is not only about money but about access to information. Ask: What does this mean for how we design public health programs? What does it mean for how we evaluate whether a program is reaching the people it is supposed to reach?

The Douglas Case: Walk Through the Investigation

Walk students through the community survey, pausing at each methodological and communication decision.

The Mystery

The clinic is empty. Community health workers say people are sick and in need. A group in Nashville sends a young researcher to investigate. Ask: What are the competing hypotheses? The clinic is poorly located. People distrust medical care. People cannot afford the visit. People do not know the clinic exists. How would you rank these before you had any data?

The Method

The survey uses random sampling of households—rare for community surveys because of cost and effort. The researcher didn't know more efficient methods existed. Ask: Was this a liability or an advantage? What would stratified sampling have revealed that random household sampling revealed? What did the ground-level, door-to-door method allow the researcher to observe that a telephone or mail survey would not?

The Findings

Half the community did not know the clinic existed. Four out of five did not know a visit cost only $10. Almost no one knew transportation was free. And those who knew were better off—less likely to need the clinic. Ask: What does it mean for equity when better-off community members know about services that poorer community members don't? What does this pattern tell you about how to evaluate reach in any public health program?

The Communication Failure

The program was built on the assumption that people would seek care if it were available. Ask: What communication strategy would have filled the clinic? Not a billboard on the highway—the people who needed it most were less mobile, less literate, and less connected to mainstream information channels. What channels did they actually use? How would you find out? This is the first application of SOCO: the message is simple ("the clinic is free, the ride is free"), but it has to reach people through channels they trust.

The Generalization

Ask: Name a program you know or have worked in. What proportion of the target population knows the program exists? What proportion knows what it costs and how to access it? Do you know the answer? If not, what would it take to find out?

The Right Messenger: Who Would You Send?

Present two scenarios without revealing the outcome. Scenario 1: A Dominican man with multidrug-resistant tuberculosis has not been seen at the clinic for three weeks. The program has his last known address but he has moved. Who do you send to find him? Scenario 2: A Nigerian immigrant community has low tuberculosis screening rates. The health department wants to increase screening. Who delivers the message?

Students often suggest clinical staff, health department representatives, or community leaders identified through official channels. Then introduce Jorge and Nwigwe. Ask:

- What did Jorge know that a health department nurse from outside the Dominican community would not know?
- Nwigwe's effectiveness came partly from shared culture. Can this be systematized, or is it inherently individual?
- What are the tradeoffs of relying on community insiders as messengers? What happens when the community insider is not available, or is perceived as too close to the government?

Crisis Communication: Table 7.1

Present Table 7.1 without commentary. Ask students to read it and mark the two dimensions they consider most consequential for public behavior—not most dramatic, most consequential. Five minutes, then discussion.

Ask three questions in sequence. First: Both governments had the same scientific evidence. What variable most directly explains the difference in public compliance? Push students past "consistency" toward a specific claim: Was this primarily a message failure, a messenger failure, or an audience failure?

Second: When a political leader publicly contradicts a public health agency, what happens to the agency's credibility for every message that follows? This is a question about institutional trust as infrastructure—once damaged, it cannot be rebuilt quickly.

Third: The chapter argues that effective crisis communication requires a reservoir of public trust built before the crisis begins. Ask students to name the specific institutional behaviors—not sentiments—that build that reservoir. What does a government do in ordinary times that determines whether people believe it when the crisis comes?

Close by returning to SOCO. A government that speaks with one voice can deliver one clear message. A government at war with its own agencies cannot produce a SOCO—because no one agrees what the message is.

Misinformation: The Pre-Bunking Strategy

Introduce Benjamin Franklin's 1736 response to opposition to public sanitation. Before street-cleaning proposals came to a vote, Franklin wrote a letter to a newspaper laying out the opposing arguments—and then refuting them, explicitly. He pre-bunked: he anticipated the objection and addressed it before it hardened into organized resistance.

Ask students: What misinformation is circulating in a community or topic area you work in? Apply the pre-bunking framework. What is the false claim? What is the true claim? Who would be most credible in delivering the correction? What channel reaches people who already believe the false claim? Note that pre-bunking works best when the misinformation has not yet spread widely—once it has, even accurate correction rarely reverses the original belief.

Student Questions Worth Addressing

"If the message is accurate, why does it matter how it's framed?"

Because perception, not just information, drives behavior. A message about lung cancer risk stated as "1 in 3 smokers will develop a serious lung condition" and one stated as "2 in 3 smokers will not develop lung cancer" convey the same statistical fact but produce different responses. Terrie Hall's lived experience of suffering from throat cancer was not more accurate than a table of mortality rates—but it was more persuasive, because it connected the abstract risk to a specific human being whose suffering was visible. Framing determines whether people act on information they already have.

"Isn't using community insiders as messengers just a workaround for inadequate public health systems?"

The chapter argues the opposite: trusted community messengers are not a workaround—they are the system functioning as it should. The question is whether the public health system is designed to include them or to exclude them. Jorge's effectiveness was not accidental; it depended on the New York City tuberculosis program making a deliberate decision to hire, train, and trust community outreach workers with substantial autonomy. That is an institutional design choice, not a stopgap.

"How do you communicate in a community that fundamentally distrusts government?"

Start by not sending a government messenger. Find organizations and individuals who have earned trust independently: religious leaders, barbers, community health workers, community advocates. Be present before the crisis—serving, not just intervening. Acknowledge past harms honestly. Guinea's microcerclage worked because it came with services that communities had asked for. The Tuskegee legacy is not an insurmountable wall; it is a reminder that trust must be earned through sustained presence and responsiveness, not through messaging alone.

Bridge to Chapter 8: Even a well-communicated message faces resistance when powerful interests oppose change, when mandates are controversial, or when political leaders undermine public health guidance. Chapter 8 examines how to make progress despite organized opposition—the final component of the Create architecture.

Activities and Assignments

In-Class: SOCO Workshop

Each student identifies a public health message from their work, community, or the news. Working individually, they rewrite it as a SOCO—a single sentence that tells the most important person what the most important thing is. Then in pairs, they test it: Is it one idea or two? Does it tell the audience what to do or just what is wrong? Is it honest about uncertainty? Class discussion surfaces the most common failures—messages that try to communicate too much—and the most common fixes.

Out-of-Class: Communication Campaign Critique (3–4 pages)

Students select a public health communication campaign—past or present—and evaluate it on three dimensions: (1) Was the message right? (Apply SOCO.) (2) Was the messenger right? (Who delivered it, and was that person trusted by the target audience?) (3) Was the audience right? (Who was actually reached, versus who most needed to be reached?) The paper concludes with a specific recommendation for how the campaign could be improved on the weakest of the three dimensions.

Additional Resources

Required Reading

Frieden TR. The Formula for Better Health: How to Save Millions of Lives—Including Your Own. MIT Press, 2025. Chapter 7, "Communication."

Optional Readings

- **Wakefield MA, et al.** "The Use of Mass Media Campaigns to Change Health Behaviour." The Lancet. 2010;376(9748):1261–1271. — Evidence review on what makes communication campaigns effective.
- **Vraga EK, Bode L.** "Using Expert Sources to Correct Health Misinformation in Social Media." Science Communication. 2017;39(5):621–645. — On the limits of correction and the role of source credibility. Confirm reference.
- **Betsch C, et al.** "Using Narratives to Counter Misinformation: The Pre-Bunking Approach." Lancet Infectious Diseases. 2019. — Empirical evidence for Franklin's pre-bunking strategy. Confirm reference.
- **CDC.** "Tips from Former Smokers Campaign." cdc.gov/tips. — Background on the Terrie Hall campaign and its effectiveness data.
- **Reverby SM.** Examining Tuskegee: The Infamous Syphilis Study and Its Legacy. University of North Carolina Press, 2009. — Essential historical background on trust and public health.

Videos and Multimedia

- CDC Tips from Former Smokers: "Terrie" (YouTube). — The ad that anchors the right-messenger section.
- Hans Rosling, "The Best Stats You've Ever Seen" (TED, 2006). — On making invisible data visible through compelling visual communication.
- Fear shouldn't win votes—and facts shouldn't be ignored.
- The Story of My "No Bullsh*t" Tie

Guest Speakers

Consider: a community health worker who has served as a trusted messenger in a specific community; a public health communication specialist who has designed or evaluated a campaign using SOCO principles; or a journalist who covers public health and can speak to why some stories reach the public and others do not. Ask them: Describe a message that failed to reach its intended audience. What was missing—the message, the messenger, or the audience?

CEPH Competency Crosswalk

This chapter addresses the following CEPH 2024 MPH Foundational Competencies:

No.	Competency	Where addressed in Chapter 7
C3	Design a population-based policy, program, project, or intervention	SOCO framework as communication design tool; trans fat communication strategy; community survey methodology in Douglas
C6	Discuss multiple dimensions of the policy-making process, including the roles of various actors	COVID communication and political leadership; Table 7.1 communication comparison; role of media in public health advocacy
C8	Apply awareness of cultural values and practices to the design or implementation of public health policies	Trusted community messengers (Jorge, Nwigwe); microcerclage community engagement in Guinea; Tuskegee and community trust
C13	Communicate in writing and orally with linguistic and cultural proficiency	SOCO discipline; right message/messenger/audience framework; pre-bunking misinformation strategies
C16	Apply principles of leadership, governance, and management to address population health challenges	Institutional design of community outreach programs; building trust as an organizational strategy

Part III: CREATE
Chapter 8: Progress Despite Opposition

> *"Thunder is good, thunder is impressive, but it's lightning that does the work."*
> —Mark Twain
>
> *"In public health, it's law and regulation that do the work."*
> —Mayor Michael Bloomberg

Overview

Chapter 8 examines the political and economic forces that block public health progress. The chapter opens with the New York State soda tax proposal—backed by Mayor Bloomberg and Governor Paterson in 2010, supported by community groups and scientific evidence—which the beverage industry killed before Albany voted. That defeat illustrates the chapter's central problem: concentrated losses (for Coke, Pepsi, distributors) organizing against diffuse benefits (for children, health systems, future taxpayers) will win unless advocates make those benefits visible and urgent.

> **Related case studies:** Ebola in Guinea: Mandates vs. Trust; NYC Smoke-Free Air Act: The Politics of Prevention (*The Formula* case study library)

Learning Objectives

By the end of this chapter, students should be able to:

- Be able to identify the winners and losers created by a proposed public health intervention and use that analysis to predict and counter opposition.
- Be able to identify deciders and influencers and design a strategy to reach decision-makers through their key influencers.
- Be able to apply the triad of strong government, proactive civil society, and rigorous monitoring to analyze why a specific public health program succeeded or failed politically.
- Be able to evaluate whether a public health mandate is justified using the framework of least restrictive alternative, community participation, and proportionality to risk.
- Understand the range of commercial interests and their possible influence on public health.

Concepts and Cases

Winners and Losers

In 2010, Governor Paterson proposed a one-cent-per-ounce tax on sugar-sweetened beverages in New York State. The evidence was clear and Mayor Bloomberg backed it strongly. The beverage industry's front group, the American Beverage Association, responded with lobbying, advertising, donations to politicians, and funded astroturf groups posing as grassroots organizations. Albany killed the legislation. Soda taxes save lives and generate revenue—but concentrated opposition will defeat them unless the winners organize.

The reason: Coca-Cola, PepsiCo, and distributors face concentrated, immediate losses. The winners—families spared from obesity, health systems with lower costs, children who never develop diabetes—will not know about benefits that lie years in the future and have no organizational structure to mobilize. As Bloomberg observed when told his philanthropy had saved 35 million lives: "Yeah, but not one of those people ever thanked me." When losses are concentrated and benefits are diffuse, the losers win—unless advocates make those diffuse benefits visible and urgent enough to generate countervailing pressure.

Deciders and Influencers

William Foege's encounter with India's health minister illustrates the decider/influencer distinction. At a critical moment in the 1970s smallpox eradication effort, Foege requested approval to bring in fifty additional international epidemiologists, hoping the government would approve ten. The health minister was resistant: Indian experts had more experience and didn't need foreigners telling them about smallpox. Foege could not persuade the minister directly. Instead, through his Indian counterpart, he posed a question that reframed the choice: Does the minister want smallpox eradicated on his watch or on his successor's? The minister approved all fifty international epidemiologists—and required that each be paired with an Indian counterpart. Foege had hoped for ten; he now had one hundred.

In Uruguay, President Tabaré Vázquez implemented the Western Hemisphere's strongest tobacco control policies because he was both a decider and a champion: an oncologist who understood the disease burden and had the political will to act. He made all public spaces smoke-free, raised tobacco taxes, mandated plain packaging, and defeated tobacco industry legal challenges. Uruguay's smoking rate fell by more than a third. When the decider is deeply committed, progress that would otherwise take decades can happen in months.

The New Delhi tuberculosis story captures what access to a decider can require. At 10:00 p.m., Frieden crouched on the floorboards of a car parked across from a politician who could influence Prime Minister Vajpayee—the car held a laptop and portable printer, in case the politician asked for revisions to the question-and-answer sheet they had drafted. Khatri, Frieden's Indian counterpart, had asked him to stay hidden; being seen could tip off companies opposing the procurement reform that would restart the tuberculosis program. The strategy worked. The next morning, in response to a prepared question, the prime minister made a statement in parliament that got the program back on track.

Advocacy, Partnerships, and the Triad

Charles Ahlers, a single cured tuberculosis patient, tapped out a letter on a manual typewriter and sent it as the New York Coalition to Eliminate Tuberculosis—then consisting only of him—to Mayor Giuliani. That letter produced a written response that locked in millions of dollars for clinic renovation.

The chapter identifies a critical triad for sustained public health progress: strong government, proactive civil society, and rigorous monitoring. Government alone is too slow and too susceptible to political interference. Civil society alone lacks the authority and resources to implement programs at scale. Monitoring alone cannot create change—but without it, neither government nor civil society can course-correct.

Matt Myers spent forty years fighting the tobacco industry and winning more than he lost. During Vermont's push for a statewide smoke-free law, one legislator held the swing vote. The day before the vote, Myers visited the legislator in his office and placed two full-page ads for the state's leading newspaper in front of him: one thanking him for protecting Vermont's children, one holding him responsible for their deaths. One ad would run the next morning—the legislator's vote would determine which. He voted for the measure.

Pragmatism and Timing

The New York City smoke-free bars campaign illustrates how political constraints can be met without sacrificing the law's effectiveness. The City Council speaker demanded separate smoking rooms as a condition of passing the bill. Accepting real smoking rooms would have undermined the law; refusing meant losing the vote. The solution: amend the bill to allow smoking rooms, but require that they meet engineering specifications—negative pressure, six air changes per hour, separate exhaust, no food or drink service, health department approval—that made them prohibitively difficult to build. The speaker met his commitment to a donor. The law passed intact. Two bars considered building smoking rooms; none did.

Timing matters as much as strategy. New political administrations lose political capital the moment they are sworn in. The lesson: do the hard things first. Policy windows open and close rapidly—years of relationship-building can produce an overnight shift from unthinkable to inevitable, or from guaranteed to lost when leadership changes.

Commercial Interests

The spectrum of commercial interests ranges from inherently hostile to conditionally aligned. The tobacco, alcohol, junk food, gun, and fossil fuel industries try to sabotage each part of the See/Believe/Create formula. To prevent people from seeing, they hide the harms of their products and fund misleading research. To block belief in change, they strengthen the illusion that use of their products is a normal part of life and that the harms they cause are inevitable. To block solutions, they lobby against taxation, regulation, and restrictions on marketing, sales, and promotion—often through associations (the beverage association, the US Chamber of Commerce) that fight public health measures without exposing their members' brands.

Other industries can cause harm or contribute to health depending on how government regulates them. Health-related industries—pharmaceutical companies, hospitals, specialists—are a particularly complex case: their economic incentives can align with or diverge from public health goals, and their lobbying power is substantial. Geoffrey Rose stated the case for preventive medicine plainly: "It is better to be healthy than ill or dead. That is the beginning and the end of the only real argument for preventive medicine. It is sufficient."

Public Health Law and Mandates

Angel, a tuberculosis patient who had been admitted to and signed out of New York City hospitals more than thirty times against medical advice, embodied the tension between individual liberty and public protection. His tuberculosis strain had become resistant to nearly every medication. When finally detained—not in a jail but in a specially designed secure hospital unit, with legal representation and periodic judicial review—he received the best available care. Fewer than 2 percent of tuberculosis patients in the first two years of the program were detained.

The rest were kept on treatment through positive incentives: food, vouchers, housing, and social support.

The mandate framework the chapter proposes has three elements: start with the least restrictive alternative that can succeed, escalate only when necessary with clear communication of justification, and maintain community trust throughout. Applied to COVID, this produces a risk-alert level system analogous to ozone or hurricane warnings. At green (no COVID spread), no mandates. At yellow (some risk), guidance but no requirements. At orange (high spread), communities may mandate indoor masking. At red (health system overwhelmed), more restrictive measures become justified. Different communities will make different choices—and that is appropriate, because mandates work best when communities understand and participate in the decision.

The nanny-state critique misses the invisible forces that shape behavior. Smoking rates, obesity rates, and drug use rates vary dramatically across places and time in ways that willpower cannot explain. Price, marketing, accessibility, and social norms determine behavior. Government action to change these levers corrects market failures that individual choice cannot address.

Theme	Cases		Activities and Assignments	
	Tobacco	**TB India**	**Stakeholder Mapping**	**Political Strategy Memo**
Winners and Losers				
Deciders and Influencers				
Advocacy Triad				
Pragmatism and Timing				
Commercial Interests				

Teaching Strategies

Opening: The Soda Tax

Open with the New York State soda tax case. The evidence was strong, the mayor and governor backed it, and Albany killed it. Ask: Who organized to defeat this proposal? What made their coalition effective? Then turn to the harder question: What would it mean to organize the winners of a soda tax? Who are they? Where do they gather? Who speaks for them?

Use the winners/losers framework to structure the analysis. The beverage industry organized its losers—distributors, retailers, union workers—into a visible, funded, vocal coalition. The winners (children, health systems, future taxpayers) were diffuse, future-tense, and unorganized. This asymmetry is the core political problem the chapter addresses.

Foege and the Minister: Deciders, Influencers, and Reframing

Students know the outcome: the health minister approved all fifty international epidemiologists and required each be paired with an Indian counterpart, giving the program one hundred staff. The discussion task is to examine what made Foege's approach work.

The Constraint

Ask: What leverage did Foege actually have? He could not override the minister, offer money, or win a technical argument about expertise. Where did he find traction?

The Reframe

Foege asked one question: Does the minister want smallpox eradicated on his watch or on his successor's? Ask: Why does this work? What assumption about the minister does it require? What does it tell us about how to approach deciders in other political contexts?

The Result

The minister got Indian expertise built alongside the international team. Foege got the staff to track and stop outbreaks. Ask: Was this a compromise or a creative solution? What conditions made it possible for both parties to win?

The Generalization

Ask: Identify a decision-maker in your institution or community who controls a resource you need. What do they care about that your current approach does not address? How could you reframe your ask around what they value?

The Smoke-Free Bars Case: Legal Compliance That Does Not Undermine the Law

Present the New York City smoke-free bars dilemma. The law to ban smoking in bars had enough support to pass—but the City Council speaker required separate smoking rooms as a condition. What are the options? Accept the compromise (rooms undermine the law). Refuse and lose the vote. Or find a third path.

Walk students through the engineering solution. The rooms were permissible but required negative pressure, six air changes per hour, separate exhaust, no food or drink service, and health department approval. Ask:

- Was this ethical? Did it honor the spirit of the compromise, or circumvent it?
- The speaker's donor wanted smoking rooms. Did the speaker's constituents want them? What does this reveal about who politicians actually serve?
- What is the difference between this kind of pragmatism and compromising on the substance of public health effectiveness?

Then ask students to apply this to a current situation: Is there a regulatory or legislative requirement in your context that could be met in both a strong and a weak version? What determines which version gets implemented?

The Mandate Framework: Is This Justified?

Present three scenarios and ask students to evaluate each using the chapter's mandate framework: Is there a less restrictive alternative? Is the community involved in the decision? Is the restriction proportionate to the risk?

- A city considers requiring masks in all indoor public spaces during a period when the COVID hospitalization rate is rising steeply and ICUs are at 85 percent capacity.
- A state health department seeks to mandate COVID vaccination for all state government employees, including those who work fully remotely with no in-person contact.
- A health department seeks to detain a tuberculosis patient who has missed treatment twelve times, lives alone, and has a drug-resistant strain. The patient objects.

Student Questions Worth Addressing

"Doesn't working with politicians mean compromising public health integrity?"

The chapter argues the opposite: refusing to engage with political reality undermines effectiveness. The New York smoke-free bars case illustrates this directly. An advocate who refused the City Council speaker's political constraint would have lost the vote entirely. The engineering solution honored the constraint while protecting the law's effectiveness. Political skill is a form of competence. The distinction that matters: compromising on substance (weakening the standard, allowing the harm) versus compromising on form (meeting a political constraint without sacrificing health outcomes).

"If the triad (government + civil society + monitoring) is the answer, why does it fail so often?"

Because all three components must be strong simultaneously—and in most contexts, at least one is weak. Strong government without civil society produces programs that collapse when leadership changes. Civil society without government authority produces advocacy without implementation. Monitoring without either produces data that no one acts on. The triad describes the conditions under which sustained progress becomes possible. Identifying which leg is weakest in a given context is the first analytic task.

"The tobacco industry argues that it respects individual choice. Is public health just imposing its values on others?"

The choice-argument fails when the choice itself has been manufactured. Tobacco companies spent decades marketing to children, manipulating nicotine to maximize addiction, and funding research to obscure harm. Smoking rates, obesity rates, and substance use rates vary dramatically by place, income, and time in ways that willpower cannot explain. Price, marketing, accessibility, and social norms determine behavior. Government action on those levers corrects market failures that individual choice cannot address. The nanny-state critique has force when applied to genuine individual choices; it has less force when applied to behaviors shaped by industry-engineered environments.

Activities and Assignments

In-Class: Stakeholder Mapping

Students select a real or hypothetical public health intervention (a sugary-drink tax, a helmet law, a mandatory vaccination policy, a clean-needle program). Working in small groups, they map: Who are the primary winners? Who are the primary losers? Who are the deciders? Who influences the deciders? What advocacy organizations already exist on both sides? What is the strongest argument on each side? Groups present their maps and the class identifies which interventions face the hardest political environment and why.

Out-of-Class: Political Strategy Memo (3–4 pages)

Students write a strategy memo addressed to a public health agency director outlining how to advance a specific intervention in a specific political context. The memo must identify: the winners and losers the intervention creates; the deciders who must approve it and the influencers who shape those deciders; the advocacy coalition needed and how to build it; the commercial interests that will oppose it and a strategy to neutralize or counter them; and the timing considerations that make the current moment favorable or unfavorable. The memo concludes with a specific recommendation on sequencing—which steps to take first, and why.

Additional Resources

Required Reading

Frieden TR. The Formula for Better Health: How to Save Millions of Lives—Including Your Own. MIT Press, 2025. Chapter 8, “Progress Despite Opposition.”

Optional Readings

- **Rose G.** The Strategy of Preventive Medicine. Oxford University Press, 1992. — The source of the quote on economics and prevention; essential reading for understanding population-level thinking.
- **Jacobson PD, Gostin LO.** “Overcoming Legal Barriers to Public Health Interventions.” JAMA. 2009;302(2):169–171. — On the legal authority and limits of public health mandates; directly relevant to the detention and vaccine mandate framework.
- **Glantz S, et al.** The Cigarette Papers. University of California Press, 1996. — Documents the tobacco industry’s disinformation strategy; directly relevant to the commercial interests section.

Videos and Multimedia

- Bloomberg Philanthropies: “The Bloomberg Initiative to Reduce Tobacco Use” (YouTube). — Illustrates global political strategy for tobacco control.
- Frontline: “Big Vape” (PBS, 2023). — Documents how the e-cigarette industry replicated tobacco industry political strategies.
- Uruguay v. Philip Morris International—case summary (public domain). — Documents Vázquez’s tobacco policy and the industry’s legal challenge.
- CSIS book event for The Formula for Better Health: Create

Guest Speakers

Consider: a public health advocate or lobbyist who has worked on a major state or federal policy campaign; a legal expert in public health law who can address the mandate framework; or a former elected official or senior government staffer who can speak to how public health recommendations actually reach political decision-makers. Ask them: Describe a moment when a health policy you supported was blocked by organized opposition. What would have made it possible to succeed?

CEPH Competency Crosswalk

This chapter addresses the following CEPH 2024 MPH Foundational Competencies:

No.	Competency	Where addressed in Chapter 8
C3	Design a population-based policy, program, project, or intervention	Political strategy design for public health interventions; mandate framework; commercial interest countermeasures
C6	Discuss multiple dimensions of the policy-making process, including the roles of various actors	Deciders and influencers; winners and losers framework; legislative and regulatory pathways
C8	Apply awareness of cultural values and practices to the design or implementation of public health policies	Community participation in mandate decisions; cultural context for policy compliance
C10	Explain the role of governmental and non-governmental organizations in addressing population health	Triad of government, civil society, and monitoring; advocacy organization design; tobacco control coalition strategy
C16	Apply principles of leadership, governance, and management to address population health challenges	Foege/smallpox political leadership; Bloomberg/Vázquez as political champions; Inouye advice on budget strategy

Part IV: THE FORMULA IN PRACTICE
Chapter 9: The Formula for Public Health

> *"The best way to predict the future is to create it."*
> —attributed to Peter Drucker

Overview

Chapter 9 opens Part IV: The Formula in Practice. The preceding chapters built each component of the See/Believe/Create framework and demonstrated its application to specific problems. Chapter 9 shows what the formula accomplishes when applied to the hardest problems in public health at population and global scale. The chapter traces three domains where the formula's full application is most urgently needed: preventing the next pandemic by reducing lab release risk and animal spillover; finding and stopping pandemics faster; and stopping the world's most deadly current pandemic—hypertension.

Related case studies: Multidrug-Resistant Tuberculosis, New York City; (*The Formula* case study library)

Learning Objectives

By the end of this chapter, students should be able to:

- Apply the See/Believe/Create formula to a major public health challenge, identifying where the formula was or was not implemented and what the consequences were.
- Explain the specific pathways by which the next pandemic could emerge—laboratory release and animal spillover—and describe at least two evidence-based interventions to reduce risk from each.
- Describe the political and economic barriers to pandemic preparedness funding and apply at least one strategy to overcome them.

Concepts and Cases

The Formula in Action: New York City Tuberculosis

The New York City tuberculosis turnaround demonstrates all three formula components must work together. Karen Brudney saw, then public health surveillance and genomics confirmed what others missed: drug-resistant tuberculosis spreading through hospitals (See). Karel Styblo's technical package gave the program confidence to act (Believe). Cohort accountability, outreach workers hired from communities most affected by the outbreak, legal authority used as a last resort, and advocates who protected the program from budget cuts made implementation possible (Create). In six years, multidrug-resistant tuberculosis cases fell by more than 90 percent, saving hundreds of lives and tens of millions of dollars.

Preventing the Next Pandemic: The Cassandra Curse

COVID killed 20 million people, cost more than $20 trillion, left hundreds of millions of children behind in their education, and caused widespread disability from long COVID. This was not inevitable. Table 9.1 maps each Cassandra curse driver onto the specific failure it produced in pandemic prevention: the prevention paradox (small steps do not feel urgent), economic forces (visible crises draw resources), hyperbolic discounting (future risk is underweighted), false alarms (repeated warnings dull the response), and normalcy bias (past survival creates false confidence).

Preventing the next pandemic requires reducing risk from two sources. Laboratory release: too many experiments, with too many dangerous pathogens, in too many institutions, with too many staff who have access. During Frieden's tenure leading the CDC, live Ebola samples were accidentally sent to a less safe laboratory, a new instrument created anthrax exposure risk, and a rushed technician sent out a dangerous influenza strain—no one was infected, but the incidents illustrate the baseline risk. The 1977 "Russian flu" killed thousands and too closely matched decades-old strains to be a natural occurrence; it likely came from a laboratory or botched vaccine trial. The last natural smallpox cases resulted from a UK laboratory worker's infection in 1978. Gain-of-function research—which involves modifying an organism, often a virus or bacteria, to enhance its biological functions—requires the most stringent safeguards for experiments with the greatest risk of creating organisms that are particularly deadly or could spread widely.

Animal spillover: HIV, Mpox, SARS-1, MERS, multiple influenza strains, Ebola, and Marburg have all spread from animals to humans. Wet markets selling live animals and deforestation that forces human-animal contact drive this risk. Brazil reduced deforestation by 70 percent from 2004 to 2012 while increasing agricultural production—then a subsequent government weakened enforcement and deforestation increased.

Progress is possible, even if complete elimination of risk is not.

Finding Pandemics Faster: The 7-1-7 Target

Chapter 9 returns to the 7-1-7 target (Chapter 6)—identify every suspected outbreak within 7 days, report to public health within 1 day, respond effectively within 7 days—as the accountability framework for faster detection and response. The investment argument is straightforward: the annual cost of achieving 7-1-7 coverage globally is $5–10 billion, less than one-tenth of 1 percent of what a single pandemic costs.

Faster detection requires strengthened surveillance: basic reporting of notifiable diseases by primary health care clinicians and investigation by public health agencies, genomic sequencing of patient specimens and wastewater, artificial intelligence analysis of messy data, and rapid-response teams that deploy within days of a detected cluster. Community strengths are essential. In the West Africa Ebola epidemic, community leaders convinced families to modify traditional burial practices that had spread infection. In New York City, the most effective tuberculosis outreach workers were recent college graduates from communities most affected by the outbreak. In India, tuberculosis patient supporters include shopkeepers, child-care providers, and community health officers. Every community has strengths; pandemic response succeeds when those strengths are identified and enlisted.

Political and Economic Barriers in the World's Deadliest Pandemic: Hypertension

Heart disease and stroke accounted for fewer than one in thirteen US deaths in 1900; they now account for nearly one in three. Hypertension deaths are invisible because they are common; the disease kills twice as many people each year as COVID did at its worst, and at a younger age. Deaths from hypertension increased from 6.8 million in 1990 to nearly 11 million by 2020. Heart disease and stroke result from modifiable risks, yet at most one in five people worldwide—and about half of Americans—have hypertension under control. Without concerted action, deaths will exceed 14 million per year by 2050. With robust blood pressure control, more than 50 million premature deaths and 100 million heart attacks and strokes could be averted over the next 25 years (Figure 9.1).

The formula was applied directly in the Million Hearts initiative: See: The initiative made the deadly trend in heart attacks and strokes visible. Believe: The initiative mobilized federal agencies, state governments, medical consortia, and more than fifty professional and community organizations. Create: The initiative implemented a targeted strategy to reduce tobacco use, decrease sodium consumption, eliminate artificial trans fat from the food supply, and improved blood pressure control protocols.

Despite this, political and economic forces stymied the program's effectiveness. Competing priorities between federal agencies, industry opposition, and court challenges impeded the program's progress. Fee-for-service models generate higher revenues for procedures to correct acute conditions than preventive treatment plans. These barriers can be overcome. Structuring incentives to make preventing heart attacks profitable for health systems aligns actors toward the same objective. Organize health care into teams; establish simple protocols; align payment incentives with prevention through capitation—payment per patient per year, with increased or decreased payment based on outcomes.

Prevention matters as much as treatment. Reducing sodium and increasing potassium intake exemplifies the prevention paradox: small changes prevent large numbers of heart attacks and strokes. Potassium-enriched salt, sodium targets in packaged food, and front-of-pack stop-sign warnings are specific, implementable tools.

Theme	**Cases**			**Activities and Assignments**	
	MDR-TB	**Million Hearts**	**COVID-19**	**Cassandra Mapping**	**Formula Application**
Applying the Formula					
Pandemic Risks					
Barriers to Pandemic Preparedness					

Teaching Strategies

Opening: The Vision and the Gap

Chapter 9 addresses the implementation gap: the distance between what science knows and continuing preventable illness, injury, disability, and death. The Formula applies that to pandemics – current and future.

The formula isn't waiting for new science. It's waiting for implementation.

The TB Turnaround as Synthesis

Walk students through the New York City tuberculosis turnaround, asking them to identify which chapter each element of the success came from.

See

Karen Brudney's alarm about drug-resistant tuberculosis and genomic epidemiology revealing hospital spread (Chapter 1). Ask: What would have happened without her alarm? How long might the epidemic have continued undetected?

Believe

Karel Styblo's technical package and New York City's own program track record (Chapters 3 and 4). Ask: What convinced the program that change was achievable? What did the program look like before that conviction existed?

Create

Cohort accountability, outreach workers from affected communities, legal authority used as last resort, and an advocacy coalition that protected the program's budget (Chapters 5–8). Ask: Which of these Create elements was most important? What would the program have looked like if only one had been in place?

The Result

More than 90 percent reduction in multidrug-resistant tuberculosis in six years. Ask: Is this a reasonable model for other diseases? What conditions made it possible in New York City in the 1990s that may not exist elsewhere? What would need to change for the same result to be achievable in a lower-income country today?

Hypertension: Apply the Full Formula

Divide students into three groups: See, Believe, and Create. Each group takes five minutes to answer: What does the formula require for hypertension control from the perspective of your component? Groups report out, then integrate.

Key points to surface:

- See: Most people with hypertension do not know they have it. The silent killer is invisible by definition. Surveillance of blood pressure control rates—by provider, community, and income level—is the analogue of the tuberculosis cohort review.

- Believe: The 67 percent reduction in cardiovascular deaths from 1960 to 2010 is the analogue of the New York City TB success story. It shows the current disease burden results from inadequate prevention and treatment, not inevitability.
- Create: The payment reform argument (capitation, prevention as profitable) is the analogue of the advocacy and political strategy from Chapter 8. Who are the winners and losers of this reform? Who would oppose it and why?

Close by asking: If you were the director of a state or national health department and had to select one intervention from each formula component for hypertension, what would you choose? What would make those choices politically feasible?

The Pandemic Prevention Argument

Present the cost-benefit case. The annual cost of achieving 7-1-7 global coverage is \$5–10 billion per year. The COVID pandemic cost more than \$20 trillion. Ask: Is this a compelling financial argument for prevention investment? Senator Inouye's advice applies here: don't tell legislators about the good things that will happen if they fund prevention—tell them about the bad things that will happen – *to them* – if they don't.

Then shift: Why does this argument keep failing? The winners of pandemic preparedness spending—future survivors of a pandemic that does not happen—are invisible and unorganized. The losers of the spending—taxpayers whose money could go to immediately visible programs—are present and organized. Ask: What would change this calculus? What organizations win when effective pandemic prevention succeeds?

Student Questions Worth Addressing

"If we know how to prevent the next pandemic, why aren't we doing it?"

The Cassandra curse. Each of its drivers applies directly. The prevention paradox (small steps do not feel urgent), hyperbolic discounting (future risk is underweighted), normalcy bias (we survived past pandemics), economic forces (visible current crises absorb funding), and false alarms (past warnings that did not materialize dull the response). Knowing the diagnosis does not produce the cure—but it shows where the work is. The political playbook from Chapter 8 applies: find champions who win when prevention succeeds, mobilize them, and make the cost of inaction concrete.

"Is controlling hypertension really public health's job, or is it clinical medicine's?"

The distinction matters less than the question of who is accountable for the population outcome. Kaiser Permanente is a clinical system, but it achieves population-level blood pressure control by organizing care systematically, measuring outcomes for every patient, and paying for prevention. The formula does not distinguish between public health departments and health systems—it requires that someone be accountable for the outcome of every patient. Whether that accountability is housed in a health department, a health system, or a payment structure is a secondary question.

"Is the book's optimism realistic given the current state of global politics?"

Sir John Crofton's reminder (in the Epilogue) grounds the book's optimism in realism. Progress requires sustained effort, correct analysis, political will, and often a degree of luck. During World War II, FDR's entry was not predetermined; Hitler winning was a real possibility. The book does not claim the formula guarantees success. It claims that without the formula, failure is certain—and with it, success is possible. That is a meaningful difference.

Activities and Assignments

In-Class: Cassandra Mapping

Each student selects a current public health threat—an emerging infectious disease, a chronic disease epidemic, an environmental health hazard—and maps it against Table 9.1's Cassandra curse drivers. Which drivers are most active for this threat? What specific evidence shows each driver's effect? What would the formula require to overcome each driver? Groups share their maps and the class identifies patterns across threats.

Out-of-Class: Formula Application (4–5 pages)

Students select a major public health challenge not covered in depth in the book—examples include maternal mortality in the United States, antibiotic resistance, childhood lead exposure, the mental health crisis, or gun violence. They apply the full See/Believe/Create formula: What is invisible about this problem, and why? What would make progress believable? What organizational, communication, and political strategies does the Create part of the formula require? The paper concludes with one specific recommendation for the most impactful next step.

Additional Resources

Required Reading

Frieden TR. The Formula for Better Health: How to Save Millions of Lives—Including Your Own. MIT Press, 2025. Chapter 9, "The Formula for Public Health."

Optional Readings

- **Frieden TR.** "A Framework for Public Health Action: The Health Impact Pyramid." American Journal of Public Health. 2010;100(4):590–595. — The hierarchical framework underlying the Burden × Amenability approach; essential context for this chapter's synthesis.
- **Pickersgill S, et al.** "Modeling Global 80-80-80 Blood Pressure Targets and Cardiovascular Outcomes." Nature Medicine. 2022;28(8):1693–1699. — Source for Figure 9.1; documents the projected impact of robust hypertension control.

- **The Lancet COVID-19 Commission.** "The Lancet COVID-19 Commission Final Report." 2022. — Comprehensive analysis of COVID failures and lessons for pandemic preparedness.
- **Frieden TR, Varghese CV.** "Saving an Additional 100 Million Lives." The Lancet. 2018. — The political and technical strategy for global hypertension control.

Videos and Multimedia

- Resolve to Save Lives: "Hypertension Control" overview (resolvetosavelives.org). — Documents the global blood pressure control strategy referenced in this chapter.
- Frieden TR. "Six Components Necessary for Effective Public Health Program Implementation." American Journal of Public Health, 2014. — The organizational framework synthesized in this chapter.
- About The Formula for Better Health
- Dr. Chelsea Clinton and Dr. Tom Frieden | On writing The Formula for Better Health
- PBS NewsHour: Former CDC director offers an insider's 'Formula for Better Health' in new book

Guest Speakers

Consider: a global health official who has worked on pandemic preparedness financing; a hypertension control specialist with experience implementing a technical package in a resource-limited setting; or a policymaker who has worked on primary care payment reform. Ask them: Where in the See/Believe/Create formula does your program's biggest challenge lie? What would it take to overcome it?

Bridge to Chapter 10: Chapter 9 applied the formula to public health at population and global scale. Chapter 10 asks the same question at the personal scale: What does the formula imply for you, for your own health? The logic that applies to pandemic preparedness applies equally to whether you will die of a preventable heart attack or live, cognitively intact, to ninety-five.

CEPH Competency Crosswalk

This chapter addresses the following CEPH 2024 MPH Foundational Competencies:

No.	Competency	Where addressed in Chapter 9
C1	Apply epidemiological methods to the breadth of settings and situations in public health practice	COVID pandemic analysis; cholera as ongoing pandemic; hypertension mortality projections (Figure 9.1); 7-1-7 target as epidemiological accountability framework
C3	Design a population-based policy, program, project, or intervention	Technical package approach to hypertension control; pandemic preparedness financing strategy; cholera elimination pathway
C5	Compare the organization, structure, and function of health care, public health, and regulatory systems	Capitation payment reform for hypertension; primary vs. specialty care incentives; global pandemic preparedness architecture
C6	Discuss multiple dimensions of the policy-making process, including the roles of various actors	Pandemic preparedness funding politics; Inouye's budget advice; winners and losers of hypertension payment reform; inverse care law and accountability
C11	Select methods to evaluate public health programs	7-1-7 target as performance benchmark; hypertension control rates as outcome indicators; COVID response comparative evaluation

Part IV: THE FORMULA IN PRACTICE

Chapter 10: The Formula for Your Health

> *"Nothing will work unless you do."*
> —attributed to Maya Angelou

Overview

Chapter 10 closes Part IV: The Formula in Practice. Chapter 9 applied the formula to population and global health challenges; Chapter 10 applies it to personal health. The chapter shows that personal health outcomes—whether someone ends up like Uncle Dan, who retired at ninety-five and still wrote cutting-edge legal articles at ninety-nine, or like Grandmother Evelyn, who feared dementia her whole life and spent her last years in a nursing home, unable to communicate—are shaped by social determinants and by personal choice.

The chapter adapts the formula through personal health: See the forces killing us, including the pathway to healthy longevity; believe that the infirmities of aging are not inevitable; create a healthier future through organized, evidence-based action. Six factors—blood pressure, lipids, physical activity, nutrition, sleep, and avoidance of harmful substances—account for the great majority of preventable disease and death. Table 10.1 provides an evidence hierarchy for personal health interventions, stratified by degree of scientific certainty. The chapter closes with personal politics: advocating for structural change is an act of self-interest, not altruism.

Learning Objectives

By the end of this chapter, students should be able to:

- Understand the six leading determinants of personal health—blood pressure, lipids, physical activity, nutrition, sleep, and avoidance of harmful substances—and explain how Burden × Amenability applies at the individual level.
- Apply the three-tier evidence hierarchy in Table 10.1 to evaluate a specific personal health recommendation and distinguish virtually certain interventions from those with weaker evidence.
- Be able to explain personal politics as evidence-based self-interest and connect at least one personal health goal to a policy intervention that would improve outcomes at scale.

Concepts and Cases

Six Leading Determinants of Personal Health

1. **High blood pressure:** High blood pressure kills more people than any other single cause—more than all infectious diseases combined. Scipione Riva-Rocci invented the sphygmomanometer in 1896 using the inner tube of a bicycle tire; before that, no one had measured blood pressure accurately. Elegant epidemiologic studies later proved that every twenty-point increase in systolic pressure starting at 115 doubles the risk of dying from a heart attack or stroke before age seventy. Two thirds of Americans—and more than 90 percent of those age sixty-five and over—have unhealthy blood pressure. A blood pressure goal of 120/80 reduces death rates by an additional 27 percent compared to the usual goal of 140/90 (SPRINT trial).
2. **Lipids:** The next most powerful way to protect your health is with healthy cholesterol levels. LDL-C and ApoB levels below 70 mg/dL are associated with lower risk of heart attacks and strokes, and some evidence suggests that even lower levels may be even healthier.

3. **Physical activity:** Physical activity is "the closest thing to a miracle drug"—it reduces cancer, depression, insomnia, dementia, diabetes, hypertension, and arthritis, and increases healthy longevity. Four brisk walks of at least thirty minutes per week, ideally outdoors, produce substantial benefit.
4. **Nutrition:** The strongest single dietary predictor of cardiovascular health is the potassium-to-sodium ratio. A ratio of at least 1—at least as much potassium as sodium—is the target; most people now consume many times more sodium than potassium.
5. **Sleep:** 7-9 hours per night preserves memory, problem-solving ability, and heart, brain, hormonal, and immune functions. Chronic sleep deprivation increases the risk of cardiovascular disease, diabetes, and obesity.
6. **Avoidance of harmful substances:** Tobacco is the single leading cause of preventable death worldwide; smokers die about ten years younger than nonsmokers and feel ten years older while alive. The purported J-curve showing health benefits from small amounts of alcohol was a methodological artifact discussed in Chapter 3; analyzed accurately, the health risks of alcohol are linear. The opiate epidemic has lasted a quarter of a century and killed more than a million Americans; its initial catalyst was pharmaceutical companies' fraudulent marketing that led to massive overprescription.

A summary pattern: we overmedicate conditions that have symptoms and under-medicate conditions that do not. Medicines for pain, anxiety, and hyperactivity are overprescribed; medications for silent conditions such as high blood pressure, high cholesterol, and hepatitis C are under-prescribed. Tracking personal baselines is the individual analogue of the public health superpower of surveillance. Blood pressure, lipid and blood sugar levels, visual and auditory acuity, and physical fitness can be within the "normal" range but on trajectories toward early disability and death. Working with a medical provider to track these numbers and adjust based on real-time results is the personal version of the feedback loop that can drive program improvement at the population level.

Hierarchy of Evidence

Technical rigor—discussed in Chapter 3—goes beyond randomized controlled trials to make conclusions from imperfect data sufficient to guide behavior. Table 10.1 organizes personal health interventions into three evidence tiers: "virtually certain" (strong theoretical basis, strong evidence across multiple study types, intervention trial confirmation); "strong scientific evidence" (theoretical basis, well-conducted studies, some ecological evidence); and "some scientific evidence" (theoretical support, at least one well-conducted study). A fourth category—not in the table—covers interventions with little or no rigorous supporting evidence despite convincing-sounding rationales: paleo diets, fish-oil supplements for everyone, resveratrol, etc.

The personal cost-benefit ratio adds a third dimension. A recommended vaccination is a no-brainer: low cost, high amenability, virtually certain benefit. Oral vitamin B12 supplementation is worth considering despite uncertain benefit: it is water-soluble, has essentially no potential harms, and measurement may miss low levels that impair cognition.

Personal Politics

The Cassandra curse drivers operate at the personal as well as the population level. The prevention paradox: small changes in physical activity and diet may make no perceptible health difference in the short term but hold the key to a longer, healthier life. Economic factors: healthy food can be more expensive, less accessible, and less convenient. Social norms push toward smoking, alcohol, addictive drugs, and sedentary behavior. The book notes that a generation or two ago it seemed – and was – normal for a family to drive to a beach, not wearing seatbelts, sunbath with tanning oil, not sunblock, drink a few beers, drive to a restaurant, smoke in the restaurant, have a few more drinks, and drive home. Although cancer, drunk driving, and second-hand smoke remain threats, they are no longer socially acceptable; social and legal changes are mutually reinforcing, and led to this progress.

Hyperbolic discounting is another reason we don't always do what's in our best long-term interest. The chapter offers a practical counter-strategy: for any event or commitment, ask whether you would go if it were tomorrow. If not, decline. The same logic applies to health behaviors: find healthy activities and foods with immediate as well as long-term benefits, so that the distant benefit does not compete against present convenience.

Shakespeare's "*sans teeth, sans eyes, sans taste, sans everything*" captures the assumption of inevitable decline. But we can now preserve teeth for most people. People who grow up with ample sunlight seldom need corrective lenses. In quieter societies, age-related hearing loss was probably rare. Some preindustrial societies that consumed one-tenth the sodium we consume had no age-related increase in blood pressure.

Appreciating past progress motivates change and strengthens resolve. Incremental, step-by-step changes in a healthier direction are more likely to produce lasting habits than dramatic interventions. Optimists live longer. The belief that a longer and healthier life is possible is itself a health intervention.

Only 3 percent of US adults have the four most important basic healthy habits: not smoking, regular physical activity, eating at least five servings of vegetables and fruits a day, and maintaining a healthy weight. The odds against having all four are more than 30:1. This is a structural failure, not a personal one. Advocating for healthy policies is an act of self-interest. Streets that make walking and bicycling easier improve health and the local economy. Taxes on tobacco, alcohol, and sugary drinks reduce use, especially by young people. Comprehensive primary care—funded and held accountable for preventing disability and disease—could transform the current disease-care system into a true health care system.

Theme	**Activities and Assignments**		
	Table 10.1 Workshop	**Cassandra Audit**	**Personal Formula**
Six Determinants of Personal Health			
Hierarchy of Evidence			
Personal Politics			

Teaching Strategies

Opening: Two Contrasting Cases

Present two contrasting cases: a person who reaches ninety-five cognitively intact; and a person who feared cognitive decline her whole life and ends her years unable to communicate in a nursing home. Ask: What accounts for the difference?

Take student responses, then press on the framing: how much of the difference reflects personal choices, and how much reflects the environments, economic conditions, and social forces that shaped those choices? Neither personal choice nor social determinants alone explains the gap. The chapter addresses both levels simultaneously. Table 10.1 covers what individuals can do. The formula applies to both. That leads directly to the Cassandra audit.

Table 10.1 Workshop

Students examine Table 10.1's three-tier evidence hierarchy. For each tier, ask: What type of evidence would move an intervention from "some scientific evidence" to "virtually certain"? Then ask students to place three of their own health behaviors on the table: Where does each fall in the evidence hierarchy? Where does each fall on the personal cost-benefit dimension?

The goal is to shift the frame from "what should I do?" to "what do I know and why do I know it?" Most health advice students have received will not survive scrutiny at the "virtually certain" level.

The Cassandra Audit: Personal

Students apply a Cassandra audit to their own health behavior. For each of the six habits, which Cassandra curse driver most actively shapes their behavior. The prevention paradox (a brisk walk today changes nothing I can feel)? Hyperbolic discounting (the donut now versus the heart attack in thirty years)? Social norms (many people in my environment drink alcohol)? Economic forces (healthy food is more expensive where I live)?

The audit produces a personalized diagnosis. Ask: Is this a failure of individual willpower, or a structural outcome? What personal change would make the most difference in your odds of a long and healthy life so you can do what you choose to do for longer? Then ask: What structural change—in your environment, your schedule, your social network, or public policy—would most reduce the power of that driver? This moves the conversation from blame to design. The chapter's answer—streets, taxes, primary care funding, default choices—is a political answer. Advocating for those changes protects your own health, your children's health, and the people who cannot afford to opt out of an unhealthy environment.

Student Questions Worth Addressing

"Isn't this just telling people to exercise and eat right? What's new here?"

The newness is in the framework, not the advice. Most health guidance presents a list of recommendations without a principle for prioritizing them, evaluating the evidence behind them, or designing an environment that makes them achievable. Burden × Amenability at the personal level tells you which changes matter most and are most feasible. The three-tier evidence hierarchy tells you how confident to be. The Cassandra audit tells you which forces are most likely to prevent you from acting. And personal politics tells you that individual willpower, operating alone in an environment engineered to undermine it, isn't the best way to stay healthy.

"Can personal choice really matter if social determinants are so powerful?"

The chapter does not argue that social determinants are irrelevant—it shows that neither social determinants nor personal choice alone determine the outcome. The 3 percent figure reflects structural failure, not individual failure. But people still make choices within their constraints. The goal is not to choose between individual agency and structural change; it is to understand that the formula applies at both levels and to pursue both simultaneously.

"Is the formula's optimism realistic for people with limited resources?"

The formula is most powerful when applied to structural change—which is precisely what makes healthy behaviors more accessible to people with fewer resources. A brisk walk costs nothing. Potassium-rich foods (sweet potatoes, beans, spinach) are among the least expensive foods available. The chapter does not pretend that resource constraints are irrelevant; it argues that there are ways to increase health within constant resources, and that the most powerful response to resource constraints is to change the environment for everyone.

Activities and Assignments

Note: All sharing of personal information must be completely voluntary. Consider having two groups, one that is less potentially uncomfortable to students, and allow students to choose which group to join.

In-Class: Personal Formula

Each student identifies their top three personal health risks using the Burden × Amenability framework: What conditions are most likely to kill or disable them, and which are most modifiable? Students place each risk on Table 10.1's evidence hierarchy and identify the single most impactful action for each. Small groups compare results and discuss: What surprised you? Where did students' risk profiles diverge most? What environmental or structural factor most shapes the risk you ranked highest?

Out-of-Class: Your Personal Formula (3–4 pages)

Students write an essay applying the full formula to their own health. The essay covers: the two or three health risks with the highest Burden × Amenability scores for them personally; the evidence supporting the most important interventions for each; the Cassandra curse drivers most likely to prevent action; one environmental or structural change that would reduce the power of each driver; and one policy advocacy position they would take based on the analysis. The memo concludes with a specific, time-bound commitment—not a general aspiration, but a concrete action with a date.

Course Synthesis Essay

This essay—due at the course's end—asks students to apply the complete See/Believe/Create formula to a public health challenge of their choice, at both population and personal scale. The essay should demonstrate synthesis across all ten chapters: identifying what is invisible, what evidence supports belief in change, what organizational and political architecture Create requires, and what personal actions and policy positions flow from the analysis.

Additional Resources

Required Reading

Frieden TR. The Formula for Better Health: How to Save Millions of Lives—Including Your Own. MIT Press, 2025. Chapter 10, "The Formula for Your Health."

Optional Readings

- **SPRINT Research Group.** "A Randomized Trial of Intensive versus Standard Blood-Pressure Control." New England Journal of Medicine. 2015;373(22):2103–2116. — The trial supporting the 120/80 blood pressure goal and the 27 percent additional mortality reduction cited in the chapter.
- **Lee IM, et al.** "Effect of Physical Inactivity on Major Non-Communicable Diseases Worldwide." The Lancet. 2012;380:219–229. — Quantifies the global burden attributable to physical inactivity; supports the "closest thing to a miracle drug" claim.
- **Livingston G, et al.** "Dementia Prevention, Intervention, and Care: 2020 Report of the Lancet Commission." The Lancet. 2020;396:413–446. — Evidence base for dementia prevention; covers the modifiable factors discussed in the Prevent Dementia section.

Videos and Multimedia

- Resolve to Save Lives: "Blood Pressure" overview (resolvetosavelives.org). — Practical application of the hypertension control framework to individual and system-level action.
- CDC: "Only 1 in 10 Adults Get Enough Fruits or Vegetables." (cdc.gov). — Documents the structural basis of the 3 percent figure.
- Dr. Chelsea Clinton and Dr. Tom Frieden | The six keys to healthy living

Guest Speakers

Consider: a primary care physician who has implemented a team-based care model; a public health advocate who has worked on structural changes to support healthy behavior (street design, food access, tobacco taxes); or a patient who has made substantial health improvements and can speak to what structural conditions made the change possible or difficult. Ask them: What was the biggest obstacle to change—knowledge, environment, or motivation? What changed that made the difference?

Bridge to the Epilogue: Chapter 10 closes the formula's application to personal health. The Epilogue begins with a warning: progress is not inevitable. Neither the world's health nor your own health will improve automatically. The formula works. The question is whether we will implement it.

CEPH Competency Crosswalk

This chapter addresses the following CEPH 2024 MPH Foundational Competencies:

No.	Competency	Where addressed in Chapter 10
C1	Apply epidemiological methods to the breadth of settings and situations in public health practice	BP risk quantification (every 20-point systolic increase from 115 doubles risk); SPRINT trial as RCT application; J-curve as methodological artifact; Table 10.1 evidence hierarchy
C3	Design a population-based policy, program, project, or intervention	Personal politics as policy advocacy; structural changes enabling healthy default choices; primary care team design
C4	Interpret results of data analysis for public health research, policy or practice	Three-tier evidence framework; B12 cost-benefit example; potassium/sodium ratio as dietary predictor; SPRINT trial interpretation
C5	Compare the organization, structure, and function of health care, public health, and regulatory systems	Primary care team model (Kaiser, Intermountain, Geisinger); capitation and incentive alignment; FDA authority over nutritional supplements
C8	Apply awareness of cultural values and practices to the design or implementation of public health policies	Social norms shaping health behavior; 3% figure as structural not individual failure; economic factors in food access and physical activity