



Trade-offs and Policy Options — Using Insights from Economics to Inform Public Health Policy

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In May 2020, Mr. B., a 45-year-old Black American man with a history of insulin-dependent type 2 diabetes, was hospitalized for SARS-CoV-2 pneumonia. He was a home health care worker who

traveled to his clients' homes using public transportation. Mr. B. lived with his wife and two children. His children were attending school remotely because of the Covid-19 pandemic. Prior to his hospitalization, Mr. B. had been having difficulty breathing and had a mild fever, but he continued to work because he was the sole source of support for his family and needed money to pay for his insulin. Eventually, his symptoms worsened, necessitating admission to the hospital.

Mr. B's case reflects the difficulties many people have faced during the global pandemic, which have starkly illuminated the importance of public health inter-

ventions. Despite the development of effective SARS-CoV-2 vaccines, many experts have argued that preventive behaviors such as masking, frequent testing, and physical distancing continue to be critical for reducing disease spread. But adoption of these behaviors has been far from universal, and the burden of disease has fallen disproportionately on marginalized populations such as racial and ethnic minorities, low-income adults, and disabled persons.

We believe that economics can critically inform public health efforts to address such challenges. Alfred Marshall, writing in 1890, defined economics as “a study of mankind in the ordinary business

of life . . . [that] examines that part of individual and social action which is most closely connected with the attainment and with the use of material requisites of well-being.” Put simply, economics is the study of trade-offs that individuals, institutions, or countries face when making decisions under resource and time constraints. Although public health practitioners and researchers understandably focus primarily on improving health, economists view health as but one, albeit an important, component of what people may value.¹ This insight is a key aspect of economics' utility for informing public health policy.

Economic modeling can be complex, but the key concepts that can guide decision making are intuitive and accessible to non-economists. Mr. B.'s case provides a useful starting point for understanding how we can use

Key Components of Economic Models in Public Health.		
Factors Informing Trade-off	Description	Example from Covid-19 Pandemic
Benefits		
Real or perceived value of action	Beliefs regarding protective benefits of health-related behaviors vary.	Some people perceive strong benefits of wearing a mask, but others may not.
Relative priority of taking action	Avoiding disease may be at top of mind or just one of many life priorities.	Getting vaccinated is important to people, but so is managing other health needs and life challenges.
Benefits to others (externalities)	Adoption of a behavior may have positive or negative effects on other people.	Hand washing or masking reduces disease spread to others. Conversely, failing to practice physical distancing can increase disease risk to others.
Costs and constraints		
Monetary	A financial investment may be required to adopt a health-related behavior.	Masks and rapid test kits need to be purchased.
Physical	Taking an action may result in physical discomfort.	Vaccination may cause pain at the injection site.
Opportunity	Activities may need to be forgone as a result of adopting a health-related behavior.	Wages or caregiving time may be lost as a result of the travel, wait, and encounter time needed to obtain a test or vaccine for SARS-CoV-2.
Cognitive	Mental energy or “bandwidth” may be required to adopt a health-related behavior.	People must assess constantly changing information about the most effective mask types to prevent disease spread or the efficacy of vaccines.
Psychological	Mental discomfort or stigma may be a factor when undertaking a health-related behavior.	Some people have fears of vaccine side effects or feel judged in a health care setting.
Structural	Historical and contemporary macrolevel systems and institutional forces reinforce inequities by creating barriers to adopting health-related behaviors for some groups but not others.	Structural discrimination has led to a disproportionate share of people of color working in low-wage industries that provide fewer workplace protections.

economic insights to increase population-level adoption of preventive behaviors and reduce inequalities in health outcomes (see table).

The first step in building an economic model is to identify the relevant actors (i.e., the parties whose health, and adoption of health behaviors, we wish to maximize). In this case, Mr. B. is the main actor. Next, we must identify the benefits these actors accrue from adopting a health-related behavior. Is adopting this behavior a priority? If so, how does it rank relative to competing priorities? People may overlook the benefits of a particular behavior, including how it improves their health. Conversely, they may not fully account for the true costs of their behavior to others or society (especially when

that behavior increases the risk of making others ill) or the costs to public health departments (i.e., negative externalities). Mr. B., for his part, believed that physical distancing was important for avoiding infection for himself and his family, neighbors, and clients.

In addition, we need to understand the individual and structural costs and constraints that make adopting health-related behaviors more difficult for some people than for others. For Mr. B., practicing physical distancing came with a significant opportunity cost: his job could not be done from home. Thus, physical distancing would mean losing much-needed wages. Structural constraints also played a large role in Mr. B.'s decisions. People of color are disproportionately employed in low-wage industries

in which occupational exposures to SARS-CoV-2 have been elevated, yet which provide relatively few worker protections such as health insurance and sick leave.² For example, the home health care industry successfully argued that their workers should be exempt from the 2020 Coronavirus Aid, Relief, and Economic Security (CARES) Act, lest its provisions for paid family and sick leave result in worker shortages. In addition, Black men like Mr. B. are often compelled to weigh the competing risks of going mask-free and being more likely to contract SARS-CoV-2 or wearing a mask and potentially being subject to racial profiling. Economic analyses must also consider cognitive or psychological costs.³ Changing recommendations and politicized messaging regarding

preventive behaviors (e.g., the benefits of masking, what kinds of masks provide sufficient protection, and when masks can be removed) put the burden on individuals to analyze competing messaging. Such analysis may be difficult for people who face numerous cognitive burdens imposed by challenges such as precarious employment.

Applying economic analysis to Mr. B.'s case clarifies the benefits and costs of adopting preventive health behaviors in populations facing high morbidity and mortality from Covid-19. It thereby offers some useful insights that public health policymakers can apply to many different diseases.

First, information campaigns may be only minimally effective, since, alone, they would do little to alleviate the fundamental trade-offs people face when adopting physical distancing or masking. Moreover, one-size-fits-all messaging and implicit or explicit blaming of individuals for not engaging in preventive health behaviors may undermine trust, since this type of messaging may lead people to question whether policymakers empathize with them as they grapple with complex decision making during the current pandemic. This disconnect could further undermine other disease-prevention efforts, such as contact tracing and vaccination campaigns.

Second, though the presence of externalities can motivate the use of policies such as physical distancing mandates (as well as incentives and penalties), economic analyses suggest that the burden of such policies may affect groups unequally. Mandatory business closures, for example, may

have some infection-control benefits, but the resultant loss of income may harm some populations (e.g., low-income workers such as Mr. B.) more than others.

Third, an economic analysis of Mr. B.'s case illuminates the importance of social and economic policies that can alleviate financial hardship. Policies such as paid sick leave, eviction moratoria, cash transfers, and enhanced unemployment benefits can help reduce the costs of practicing physical distancing, while also bolstering overall well-being during times of crisis. These policies need to be implemented in a way

personal and community circumstances that shape the trade-offs involved in engaging in preventive behaviors. Though national studies and data are helpful guides, public health approaches informed by economic models that account for local context are essential for creating effective policies for a given area or group.

The insights gained from applying economics to Mr. B.'s case can also be applied to the broader, macrolevel trade-offs in public health investments. At a national level, public health spending in 2018 was \$93 billion, as compared with health care spending

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that is mindful of cognitive and opportunity costs, since burdensome processes for applying for public benefits may make it difficult for people with challenging life circumstances to access them.


Fourth, an economic analysis highlights the importance of intervening to reduce structural constraints. Policies aimed at improving access to personal protective equipment for home health care workers, providing them with their own health care, and including them in federal relief packages can help reduce disease transmission among essential workers like Mr. B. who would not otherwise be able to take time away from work.

Fifth, viewing Mr. B.'s case through an economic lens illuminates the variability of the

of \$3.6 trillion (in 2018 dollars) — or 2.5 cents for every health care dollar. Public health spending remained flat or declined between 2008 and 2018, with the most dramatic reductions in state spending occurring in the areas of maternal, child, and family health and environmental health. Mean per capita state spending decreased from \$80.40 to \$75.83 during that period.⁴

Meanwhile, local health care systems are increasingly intervening to influence social determinants of health, such as housing. The increasing centrality of health care systems in the provision of health care and social services may come with trade-offs. For example, whereas health care organizations have more financial resources than public health and

social service agencies, they may be less effective or less efficient in addressing social determinants of health than those agencies, which may have more knowledge and practical expertise in upstream drivers of health.⁵ Understanding how these trade-offs inform optimal allocation of scarce societal resources will be critical to improving population health, particularly in marginalized populations. Discussions of trade-offs must recognize the fact that policymakers may assign widely

 **An audio interview with Dr. Green is available at NEJM.org**

varying weights to specific benefits and harms in their decision making (e.g., ongoing debates over school closures during the pandemic). Many economists would argue that the people who stand to be most affected by a given policy or health condition should be the ones to determine how to weigh various benefits and harms.

Public health practitioners come from a wide range of disciplines that reflects the multifaceted range of problems they must tackle. Economics meaningfully adds to these perspectives by clarifying key trade-offs and illuminating new policy options — including those that go beyond the delivery of public health services. A key contribution of economics to public health is the elucidation of complex trade-offs that may affect health-related behaviors, which include nonmonetary costs and benefits that are often ignored by policymakers. Economic models can help public health policymakers craft more equitable policies that more fully account for the lived experiences and realities of various populations.

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Automatic Insurance Policies — Important Tools for Preventing Coverage Loss

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The Affordable Care Act (ACA) is more than a decade old, but universal health care coverage in the United States remains elusive. An underappreciated fact about the roughly 28 million uninsured Americans is how many of them already qualify for subsidized coverage. It has been estimated that 57% of uninsured people in 2019 qualified for Medicaid or subsidized marketplace coverage, and 40% qualified for insurance plans with no premiums — either Medicaid or state

health insurance marketplace plans (typically plans in the least-generous “bronze” tier).¹ To reduce the proportion of uninsured Americans, policymakers have focused on increasing marketplace subsidies and persuading hold-out states to expand Medicaid. But policies that broaden eligibility for affordable coverage, though necessary, are unlikely to completely close the coverage gap.

Affordability-based policies do little to address the administrative burdens involved in securing

and maintaining health coverage. People must navigate complicated and onerous systems to apply for, enroll in, and retain insurance. There is growing evidence that even minor hassles substantially reduce take-up. Conversely, policies that remove barriers and make it easier to stay insured can help shrink the ranks of the uninsured.

The American Rescue Plan Act (ARPA), enacted in March 2021, improved insurance affordability, at least temporarily. ARPA allowed