The central role of public health in Vision Zero

If 30,000 people were killed each year in the United States by a curable illness, we would call it a public health crisis. We would deploy resources, vaccines and interventions to address the spread and bring the death toll to the only acceptable level: zero. Yet, every year 30,000+ people *are* killed in preventable traffic collisions in this country. Vision Zero asks us to see those traffic deaths like polio or cholera: epidemics that, with an urgent health framing and public response, can be eradicated. In this case study we explore how San Francisco, New York City and Chicago (Vision Zero Focus Cities) are using the tools of public health — including epidemiology, research and a focus on the root causes of health inequities — to advance their Vision Zero efforts.

SAN FRANCISCO
Expanding understanding with more complete data

When public health professionals seek to stop an epidemic, they explore beyond the direct cause of disease. They take a step back to decipher a pattern. With respect to Vision Zero and traffic fatalities, that kind of population-level analysis is equally important. By understanding where collisions occur, the factors that cause them, the parties involved and the severity of the associated injuries, cities can understand where and how to focus their interventions to prevent future deaths and severe injuries.

In that effort, data is critically important in understanding the patterns of injury— but in many cases cities don't have a complete picture of the problem because that data is incomplete. The San Francisco Department of Public Health (SFDPH) recognized that their state's database of police-recorded collision reports — which is what they were relying on for their analyses — wasn't capturing the full story: researchers from SFDPH and the San Francisco General Hospital (SFGH) Trauma Center found that almost a quarter of SFGH patients who were injured in traffic collisions while walking or bicycling were not accounted for in the state database. That under-reporting, they also found, left out significant numbers of crash victims who were African American and/or male.

These researches identified an important data gap in the surveillance system: relying only on police-reported injury collisions meant that San Francisco didn't have a full understanding of who was bearing the burden of traffic injuries, where injuries were occurring and at what frequency. To develop effective prevention strategies, cities need to be using the most accurate data to ensure that the communities at most risk for injury are the ones receiving the interventions.

That's why Leilani Schwarcz, San Francisco's Vision Zero Epidemiologist, is leading the development of a new database: a comprehensive Transportation-related Injury Surveillance System. Funded by the San Francisco Municipal Transportation Agency and in partnership with the San Francisco General Hospital, Schwarcz is gathering data collected by City and County of San Francisco agencies, as well as information from police reports, hospitalizations and trauma activations, emergency medical service, and the Medical Examiner's Office into a comprehensive centralized database that will provide a more complete and timely picture of transportation-related injuries occurring in the city.

With the addition of hospital data, Schwarcz can see detailed injury data, like what part of the body was injured, if the patient suffered from other diseases, race/ethnicity, length of hospital stay, and medical costs. She can access long-term health outcome data like if the patient suffered a traumatic brain injury and/or amputations, too. This comprehensive information vastly expands the city's capacity to understand the causes, costs, and consequences of transportation-related injuries in San Francisco.

How is Schwarcz ensuring the routine collection of data necessary to populate the surveillance system? Schwarcz emphasizes the importance of formal data-sharing agreements with the various agencies. To ensure optimized linking of the different data sources, datasets need to speak the same language; for instance, they all need to include common matching variables with standardized categories.

That's key to making sure all the information lines up in a way that can be analyzed. Schwarcz is utilizing specialized linkage software to combine these datasets so the city is using the best available data to inform policy and set priorities for traffic safety projects.

POPULATION HEALTH DIVISION
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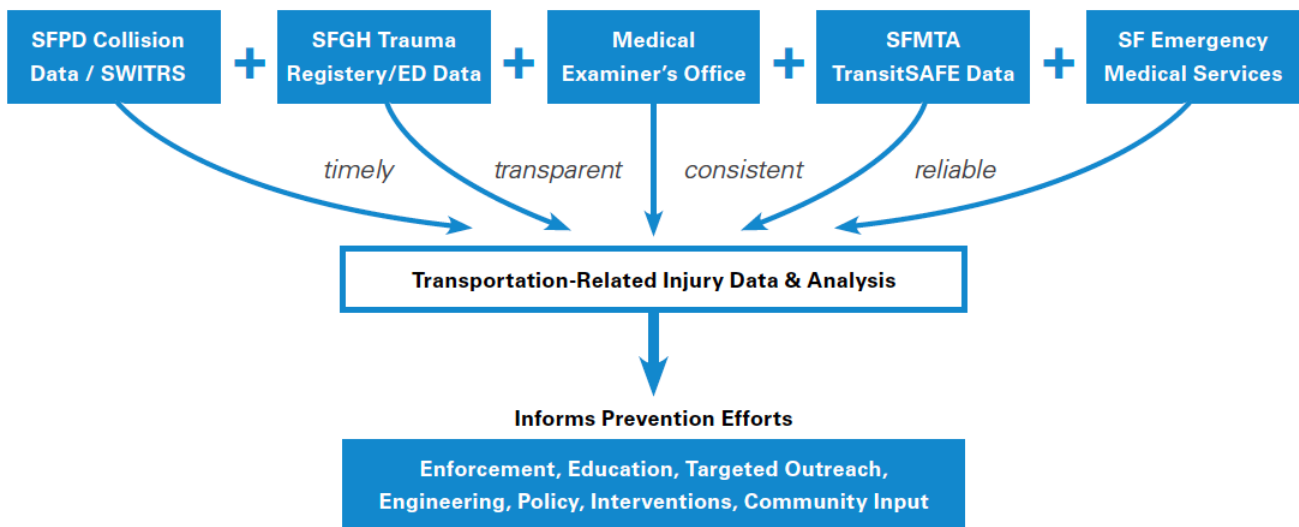
VZ SF 2024

VISION ZERO SF

San Francisco is unique because it has only one Level 1 Trauma Center. That means the most serious injuries from traffic collisions are transported to one hospital and captured by the trauma registry. This makes developing that database less challenging, but Schwarcz stresses that this work is possible even in a city with multiple trauma centers. Her advice: prioritize data-sharing agreements with the trauma centers that capture injuries in the neighborhoods with the highest rates of injuries or fatalities.

All this data adds up to something big: A population-level approach to analyzing injury collision data. When Schwarcz and her colleagues look at the data they collect, they aren't looking at the individual cases. They're considering injuries as a group — from the population level — to identify the patterns, understand the distribution of injury and the risk factors, and determine the extent of the problem. In public health parlance, that's an epidemiological approach to traffic collisions. Just as the DPH would examine the spread of a food borne illness or the flu by looking at who is affected, tracking trends, and identifying root causes or risk factors, they're now seeking to understand the prevalence and progression of traffic injuries and fatalities at that population level.

To Schwarcz, the public health mandate in Vision Zero goes beyond developing the database. First, it displays the power of having health at the table providing a population-level approach to analyzing injury collision data.

Second, she likens public health's role in Vision Zero to the field's work developing treatments for infectious disease, including the moral perspective that guides that effort. "In the same way that results from randomized clinical trials can be stopped if a drug treatment is deemed so effective that it becomes immoral not to share it with the control group (placebo group)," Schwarcz offered, "we should place the same moral standard on safety improvements and countermeasures that are proven to save lives. The example that comes to mind is the use of ASE, which has been shown to reduce injury better than the flu vaccine is at preventing the flu!" To Schwarcz, we need to be as aggressive at achieving Vision Zero as we are with preventing the spread of infectious disease.

Expanded data collection in San Francisco

SFPD Collision Data / SWITRS **+** SFGH Trauma Registry/ED Data **+** Medical Examiner's Office **+** SFMTA TransitSAFE Data **+** SF Emergency Medical Services

timely *transparent* *consistent* *reliable*

Transportation-Related Injury Data & Analysis

Informs Prevention Efforts

Enforcement, Education, Targeted Outreach, Engineering, Policy, Interventions, Community Input

CHICAGO:
Aligning goals with health initiatives

A growing number of public health leaders recognize the role of safe streets in giving residents the opportunity to engage in healthy lifestyles. In Chicago, that thinking isn't just a shared understanding — it's written into city plans.

More than 130 local organizations across a broad range of sectors helped to create Healthy Chicago 2.0, a four year plan that outlines goals and strategies to guide the Chicago Department of Public Health (CDPH) and its partners in addressing health inequities. The plan is grounded in the understanding that health is influenced by factors a medical doctor can't address, including the degree to which we feel safe and connected in our neighborhoods.

In writing its strategy, the CDPH worked with the Chicago Department of Transportation to ensure the city's evolving Vision Zero effort aligned with the goals, objectives, and strategies in Healthy Chicago 2.0. The result? The official public health strategy includes eliminating serious traffic injuries and fatalities as central to achieving health for all Chicagoans. And, with that goal in writing, CDPH is playing a key role in the development of the city's Vision Zero strategy.

According to Jaime Dircksen, Managing Deputy Commissioner at the Chicago Department of Public Health, and Rosanne Ferruggia, Vision Zero Coordinator with the Chicago Department of Transportation, Healthy Chicago 2.0 is influencing Vision Zero in two primary ways:

1) The plan identifies the many factors that make streets unsafe: violence, street designs that do not accommodate all roadway users, poorly maintained sidewalks and streets, etc. For city staff working on Vision Zero, this holistic understanding of street safety provided context and direction to achieving safer streets in Chicago. Because the goals, objectives and strategies laid out in Healthy Chicago 2.0 provided data-driven examples of the many varied ways Chicago residents experience unsafe safe streets, Ferruggia says, it made the goal

of safe streets feel "less esoteric" to city staff. That was crucial in encouraging them to consider all these elements in developing their Vision Zero strategy.

2) The Vision Zero Steering Committee is also considering the goals of Healthy Chicago 2.0 as they set their own Vision Zero goals. In particular, Ferruggia notes, the Task Force has taken up the strong emphasis on equity and increasing active transportation in Healthy Chicago 2.0 into their articulation and implementation of Vision Zero.

HEALTHY CHICAGO 2.0 VISION

A city with strong communities and collaborative stakeholders, where all residents enjoy equitable access to resources, opportunities and environments that maximize their health and well-being.

Too often, city staff are on different pages because their department plans are developed in siloes. In Chicago, public health leaders are showcasing the importance of integrating Vision Zero into their planning documents in a strategic and tangible way. And, the influence runs both ways: Thanks to the insight of public health, the broader Vision Zero effort is being framed with a deeper understanding of the root causes of health inequities.

NEW YORK CITY:
Creating a research and evaluation agenda

Vision Zero is pushing cities to think and act in different ways, a process that, not surprisingly, is producing a lot of questions. For instance, what engineering treatments are most effective in decreasing collisions? What factors are most common in crashes involving people walking or biking? New York City was grappling with these questions and more and needed to figure out how to bring these questions together in in a systematic way. They needed a way to identify and prioritize Vision Zero research and evaluation efforts both within the city itself and with external partners. So they set in motion a process to do just that.

As part of the NYC's Vision Zero Data Working Group, Anna Caffarelli, Special Projects Coordinator for the Injury and Violence Prevention Program at the New York City Department of Health and Mental Hygiene (DOHMH), led the effort to develop their Vision Zero research and evaluation agenda which articulates the most pressing questions for their Vision Zero initiative. The working group, which includes a number of city departments including police and transportation, started with a broad brainstorm, identifying more than 100 questions related to traffic safety that could merit research.

By articulating their needs, they can be confident that their work — as well the work they promote with external researchers — is in line with their goals.

Next, the group pared down the list by scoring each question as high, medium or low priority depending on the urgency and potential applicability of the resulting research. They also shared the agenda with their broader, city-led Vision Zero Task Force for feedback and suggestions. Through the process, Caffarelli says, the group realized that, despite a good grasp of the big picture, there were a wealth of crucial "devil in the details" questions that required answers.

The resulting agenda includes both research and evaluation topics that city agency partners are analyzing or will analyze, as well as questions the group will encourage external researchers to examine. And this isn't just research for research's sake — these are questions and evaluation topics that the City team identified as central to understanding how to best implement Vision Zero. The list has been shared with health, transportation, and other external researchers through a variety of channels to solicit external assistance.

For New York City's Vision Zero team, creating the research and evaluation agenda was important because it pushed the city to identify its research and evaluation priorities. And now, when approached by researchers or when opportunities arise, they don't have to rely on institutional memory, the passing ebb and flow of different interests, or a hunch. By articulating their needs, they can be confident that their work — as well the work they promote with external researchers — is in line with their goals. Overall, the effort showcases an area where public health can contribute as a research focused discipline to bring a population surveillance lens to evaluation and research efforts.

Top Take-Aways

Public health plays a key role in Vision Zero. The discipline's commitment to research, evaluation and equity, and its population-level approach to analyzing traffic collisions, brings an important and necessary perspective to Vision Zero efforts. To integrate these principles into your work, consider the following:

Take steps to understand who is bearing the burden of traffic injuries, where injuries are occurring and at what frequency.

Recognize that databases of police-recorded collision reports might not provide the full picture. Consider working with Level 1 Trauma centers to develop a more comprehensive injury surveillance system.

Embrace public health strategies to provide information and framing for your Vision Zero plans and efforts — and identify research and evaluation needs through a systematic process to ensure research efforts align with Vision Zero goals.

Learn more and find additional case studies at www.visionzeronetwork.org