

## TOXPOINT

# ToxPoint: Health Disparities, COVID-19, and Owning Our Share

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The COVID-19 pandemic has left many frightened, saddened, and angered at its impact on our lives and the world around us. The disease has laid bare failures to protect our citizens generally but our vulnerable and underserved most of all. Growing evidence reveals that minority and low-income populations are experiencing disproportionate morbidity and mortality from COVID-19—sometimes with 2 or 3 times the mortality rate of their peers in the same age bracket (Abrams and Szeffler, 2020; Moore et al., 2020; Tai et al., 2020). The interplay of preexisting and chronic conditions such as obesity, diabetes, and hypertension (many of which themselves have complex genetic as well as environmental etiologies) along with socioeconomic factors such as high-density living conditions, jobs requiring on-site attendance, under/un-insured status, environmental exposures, and/or insufficient access to quality healthcare has created catastrophic outcomes for many populations.

Although a mighty catalyst—COVID-19 is not the root cause of these inequitable distributions of health outcomes. The pandemic has simply reinforced an array of long-established systemic failings and spotlighted the reality that only isolated segments of the health and science community are actively engaged in protecting these populations. Toxicology—the science of safety—should be well positioned to help. But are we fulfilling this potential?

On first blush, we might answer in the affirmative. Toxicology is a foundational scientific approach underlying the “Environmental Justice” field—eg, generating studies on exposures to industrial or vehicular particulates in poor, urban environments and their potentiation of asthma and accelerated cardiovascular risks in those populations. Toxicological science also underlies the mechanistic characterizations of response in “sensitive subpopulations” who may experience more

significant adverse effects than others at the same exposure level and thus merit additional “safety factors” in a risk assessment.

But the seemingly never-ending cycle of health inequity mandates that we work harder to honestly answer this question about our potential. Yes, toxicology does support some aspects of health disparities related research—but how often does the field of toxicology identify itself as a critical stakeholder with ongoing accountability for greater health equity? Here is some food for thought. An online text search of the many hundreds of presentations and posters 2019 and 2020 Society Toxicology Annual Meeting program reveals “0” hits for the term “equity” and only “3” for the term “disparity” in health outcome (1 in 2019, and 2 by a single investigator in 2020).

So, we must ask, why is the science on disparate health outcomes viewed as a niche subset of toxicology instead of a mission central one? Why don’t we question the subtle gaslighting of terms like “sensitive populations” and focus more on the reasons why we have been unable to provide the science, resources, or interventions to adequately protect those groups? To be blunt, a far broader and deeper cross-section of those of us in the toxicology field (and its adjacent fields in regulatory science, medicine, health policy, and environmental protection) needs to show up for this issue.

As the leader of a nonprofit that facilitates international, public-private partnerships in the human and environmental sciences (largely in the toxicology and risk assessment arenas), I have heard the anxiety and confusion this assertion can cause. “Do we have the right expertise to contribute meaningfully? Are ‘health disparities’ topics really in our wheelhouse? Isn’t that primarily a health policy and economics problem? Aren’t these topics covered by specialty groups?” The answers are neither simple nor static—but the option to stand a reassuring distance

away cannot hold. We must begin routinely challenging our teams and ourselves to inhabit a position within—not outside—of this persistent public health crisis. Enough with the passive acceptance of insufficiency and its murky cocktail of complex study designs, funding deficiencies, and structural racism.

But how then do we move forward? Clearly, we have opportunities to expand the scope and awareness of salient toxicological work in areas such as gene-environment interactions, environmental exposures and disease, genetically variant models of disease and response, etc. But we must also reframe our view of what is “in scope” for the field of toxicology. We must undertake the critical act of bringing the topic of health disparities into the conversation as we go about our daily work and future planning. If a greater segment of the toxicology community proactively brings a health disparities lens to the way we frame our research questions, identify our study endpoints and inputs, select speakers or readings for a training curriculum, measure a program’s impact, identify research partners, or evaluate the efficacy of an intervention, etc.—we can begin to move the needle. We can choose to more actively engage in conversation and self-education with the goal of diminishing the artificial lines separating the impacts of chemical toxicity from other toxicities such as malnutrition, inadequate healthcare, or lack of viable access to interventions. We can augment our workplace empathy and insight by expanding our personal and professional commitments to community volunteerism. There are few more rewarding or pragmatic ways to gain meaningful understanding of the real-world manifestations of inequitable health outcomes.

After 25 years in interdisciplinary science management, I have learned that transformative change cannot be purchased

or mandated. Transformative change evolves when widespread expectations and attitudes actively migrate from the status quo. The toxicology community is faced a critical opportunity to demonstrate its accountability and leadership role in this transition. I am committed to doing all within my reach to support this goal. Will you join me?

## DECLARATION OF CONFLICTING INTERESTS

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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