Tradeoffs between equity and efficiency at the heart of population health science
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Public health has moved squarely into an era where, correctly, we aspire to meet targets to show for our efforts. Imagine for a moment a health officer charged with improving colonoscopy screening rates in their municipality. Let us suppose that currently overall, 50% of eligible adults in the said municipality receive screening. The health officer considers the options and quickly concludes that the fastest way to improve colonoscopy screening rates is by investing in an assertive educational campaign delivered in primary-care physician offices. Therefore, over the course of the year, patients are presented with written material encouraging them to receive a colonoscopy and their doctors expressly encourage the screening. The approach works and the municipality’s colonoscopy rate increases to 60%. The rate increases, not surprisingly, among those who visit their primary care physicians, who can read English fluently, and who communicate well with their doctors. Among that group the rate, already at 70%, now rises to 90%. However, the rate among groups who do not have a regular source of care, currently at 30%, does not budge very much at all. Therefore, while the overall population colonoscopy rate has indeed increased by 10%, we have also widened the gap between health haves and health have nots, from 40%, to 60%.

This phenomenon — called the inequality paradox (1), or the efficiency/equity tradeoff (2) — is the subject of a paper by Sabbath and colleagues in this issue of AJPH (PP xxx). Sabbath and colleagues wanted to test whether a comprehensive safe patient handling intervention, which successfully reduced overall injury rates among hospital workers in a prior study, was differentially effective for higher-wage workers versus low-wage workers. Using data from a cohort study at two large Boston-area hospitals, they showed that the implementation of the intervention decreased the population-level injury rate, but most improvements were in higher-wage workers, widening the socioeconomic gap in injury. While some prior work in population health science has shown this tradeoff between improving equity and efficiency (3-5), the topic has not had hardly enough attention in population health science, and, as such, the Sabbath paper is a welcome addition to the literature.

WHEN EQUITY/EFFICIENCY TRADEOFFS HAPPEN

The use of the terms equity and efficiency in this context is borrowed from economics where efficiency is referred to as the maximization of the total economic output of a system, and equity as the extent to which there is even distribution of those outputs. There are several classical examples of this from the economics literature (6). Adapting these ideas to population health science pushes us to appreciate that there may be a fundamental tension in public health between improving the health of the overall population while widening health
gaps, or focusing on narrowing health gaps at the cost of not achieving as much population health improvement as we otherwise might. The idea matters to us in public health because it tangles with two concepts that are at the heart of our concerns: improving overall health and health equity. We may, as such, be forgiven for not particularly relishing the thought that these two concepts can be in competition. But, as shown by Sabbath and colleagues, they frequently are. Fundamentally equity/efficiency tradeoffs arise in public health when the intervention of interest is more suitable for the group that has more resources, be those resources money and assets, or more intangible resources like power and access. In that context, efforts to improve population health will inevitably differentially favor the groups that are likely to already have better health, creating further gaps between health have and health have nots.

THE EQUITY/EFFICIENCY TRADEOFFS

We suggest that any process that surfaces a tension between two core goals of population health—overall health and health equity—matters. Understanding and acknowledging that there are tradeoffs is a first step towards examining the values that inform what we do, and it is those values that ultimately—whether we are aware of them or not—result in policy and action. We suggest that once this concept is understood, it has three implications for our scholarship and practice.

First, the observation that the literature on the topic is sparse bespeaks, to some extent, willful blindness on our part about the problem. This calls for a redoubling of our empiric efforts to document the consequences of our actions. Sabbath and colleagues say this well when they note “Based on these findings, we urge other scholars to re-analyze data from successful interventions, as was done here, to test for the inequality paradox. If such disparities are detected, it will be an opportunity to revise approaches to intervention planning, implementation, and evaluation. Such revisions will ensure that we are not sacrificing health equity in the service of improving health at the population level.” We agree.

Second, an appreciation of the concept, backed up by empiric analyses such as the one by Sabbath and colleagues, stands to alert us to the challenge and help structure our thinking, helping us at the outset determine the outcomes that matter to us, that should inform our actions. Going back to our opening vignette, we suspect that most readers did not think much was remiss with a health officer being charged with improving the colonoscopy screening rates in their municipality. However, it is that very target that inadvertently creates wider health gaps suggesting that, if we are interested in minimizing inequity, a more suitable target would have combined overall and inter-group achievement as the metrics of interest.

Third, this pushes us in population health to better communicate why we do what we do, linking both the moral arguments that inform much of our work (implicitly or explicitly), to our actions. Doing so stands to clarify our thinking and also to education the populations where we do our work about the goals of population health, and of a better world.
REFERENCES


