

ONLY CONNECT **Nicholas A Christakis**

Indirectly doing harm

If one group must be harmed for another to benefit, what are the implications for public health?

The benefits of medical care and public health interventions, delivered to individuals and to groups, are indisputably impressive. Although there is much debate about the magnitude and accessibility of these benefits—and about whether health has improved over the past century primarily because of advances in medical care, public health measures, or socioeconomic conditions—it is clear that a significant amount of the progress has come about through the direct and intended consequences of medical and public health action.

However, medical and public health interventions also have indirect and unintended consequences for the individuals and groups who are the objects of the intervention. These unintended consequences are of substantial practical and moral importance, and they have major implications for doctors and for patients.

In the past such consequences have been construed as a problem of iatrogenesis, a term that literally means “doctor originated” and that is customarily applied to the negative side effects of doctors’ treatment of individual patients.

Such unintended harm in medicine can take many forms. For example, consider the case of a 50 year old man who contracts pulmonary tuberculosis and is treated with the recommended cocktail of drugs, including rifampicin and isoniazid, for a year. During his treatment he reports resolution of his cough and other pulmonary symptoms but also a minor side effect, headache. Towards the end of his treatment he reports feelings of weakness and nausea, and examination shows that he has suffered substantial liver damage, which occurs in approximately 2% of patients his age. Unfortunately his liver damage progresses and proves irreversible, and he dies from fulminant liver failure within a month. Rather than dying from tuberculosis, in other words, he dies as a clearly unintended

consequence of his treatment.

But the phenomenon of iatrogenesis is more complex, and its ramifications are much wider. Consider the case of another person ill with tuberculosis. This individual contracted the disease while performing humanitarian work in a developing country. His disease presented with cough, night sweats, diarrhoea, and weight loss. Despite treatment with an advanced cocktail of four drugs he died within a month. It turns out that this patient had become infected with multidrug resistant tuberculosis, a pathogen largely brought into existence by the misuse of antibiotics. It is estimated that millions of people worldwide are infected with this form of the disease and that perhaps half of them will die, even with treatment. In other words this patient, and many others like him, will die as an unintended consequence not of his own treatment but rather the treatment of others.

Hence what might be termed classic iatrogenesis entails a situation in which a doctor rendering beneficial care to an individual patient also harms that same patient in an unintended fashion. Analogously, a beneficent public health intervention and its unintended iatrogenic side effects may be experienced by the same group; for example, the application of a pesticide to eradicate mosquitoes may have positive health effects for a group, but the toxic side effects of the pesticide may also adversely effect the health of the same group.

Distinct from the foregoing, however, is the type of situation where actions directed at one individual may inadvertently harm another individual, or actions directed at one group may inadvertently harm another group. Both of these situations constitute a type of “social iatrogenesis,” because, in each instance, the risks and benefits of the actions are distributed more broadly. For example, a child may overdose on a parent’s medication; or a live organ donor may die as a consequence of



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making this “gift of life.” Similarly, at the collective level, the harm from a pesticide may accrue to a group living downstream from the group that was intended to benefit from the intervention.

This sense of social iatrogenesis is entirely different from Ivan Illich’s famous characterisation in *Medical Nemesis* (*BMJ* 2002;324:923), where he described social iatrogenesis as the corrupting influence of medical care on people’s thoughts about health. Whereas for Illich iatrogenesis becomes social by virtue of its effect on societal perceptions about the role of medicine, here iatrogenesis becomes social by affecting people beyond the initial targets.

Finally, for obvious reasons a great deal of attention has previously been focused on the incidence and avoidance of unfavourable unintended consequences. But it is certainly the case that there may be favourable unintended consequences that are incidental to the main point of the intervention. For example, if a patient is given a drug to treat his heart condition and he gets diarrhoea, this is seen as a sickening side effect of the treatment. However, if this same patient also derives a tangential benefit in the relief of his dyspepsia, this is often not even privileged as a “side effect” at all; indeed it is frequently overlooked.

These kinds of positive side effects can become especially noteworthy in cases of social iatrogenesis, because they can lead to sharp ethical conundrums. It is one thing to aggregate positive and negative effects and side effects within an individual or group, but it is quite another to aggregate them across individuals or groups. If you must be harmed for me to benefit, where does this lead public health?

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