

SPEAKER'S CORNER

Persistent toxic substances: exposed individuals and exposed populations

On the lintel of his classic *The strategy of preventive medicine*,¹ Geoffrey Rose (1926–1993) inscribed these words of Fyodor Dostoyevsky (1821–1881): “We are all responsible for all”. The idea that as citizens and societies we have shared, common responsibilities in front of threats to health is central to epidemiology, public health, even to clinical medicine... and to virtually all other professions and scientific disciplines. Why should it not also be relevant to urbanism, pedagogy, biology, or chemistry? It is of course also central to literature and most other forms of artistic expression.

In the following fragment of his poem *Palabras para Julia*² (*Words for Julia*), the Spanish writer José Agustín Goytisolo (Barcelona, 1928–1999) wrote:

Un hombre solo una mujer
así tomados de uno en uno
son como polvo no son nada.
Tu destino está en los demás
tu futuro es tu propia vida
tu dignidad es la de todos.

A man alone, a woman,
taken like that, one by one,
are like dust, they are nothing.
Your destiny is in the others
your future is your own life,
your dignity that of everyone.

The poem has been part of the Spanish collective imagery for decades,³ largely thanks to the singer Paco Ibáñez (1934–), who put music to the poems of Goytisolo and many other ancient and contemporary Spanish poets.

Today the contamination by persistent toxic substances (PTS) of the general population^{4–8} gives a wide range of new meanings to Dostoyevsky's words and to Rose's work. For, although there is barely anything on PTS in Rose's book—not to mention Dostoyevsky's...—, it is easy to imagine that Rose too would frown and give careful thought to the multi-dimensional, “glocal” reality⁹ of PTS, as he did to other environmental problems. Inherited from the most widely accepted socioeconomic models of the 20th century, the low dose, virtually universal presence of PTS in the environment, the food chain, and most human populations is a direct, very real result of the way we all live.^{4–5} A consequence of how private and public policies—food, agricultural, industrial, and environmental policies—shape our internal and external milieus.

We are all responsible for all, we need collective mechanisms of protection, there's little you—alone, as an individual—can do to escape exposure, there is no place to hide.⁸ *Nowhere to hide* is precisely the title of a report by Kristin Schafer and colleagues on persistent toxic chemicals in the US food supply.¹¹ The study stimulated an intense debate in the *JECH* not long ago^{12–20}; it is ever lively, according to the many visits that such papers receive.

We find new facets of—and potential solutions to—the PTS problem in recent developments in the European Union (EU). The presence of PTS in the human body and their potential harmful effects is among the problems addressed by the European Commission's recent proposal for a new regulatory framework for chemicals, named REACH (Registration, Evaluation, Authorisation and Restrictions of Chemicals).²¹ To illustrate pedagogically the problem of PTS and one way to address it, Margot Wallström, EU Commissioner for Environment, participated in a bio-monitoring survey conducted by the World Wildlife Fund (WWF) and the Department of Environmental Sciences of Lancaster University. The results of the tests gave an image of the chemicals to which Wallström has been exposed throughout her life, and which have accumulated in her body.²¹ Of the 77 chemicals analysed, 28 chemicals were detected in Mrs Wallström's blood (to the best of my knowledge, the actual concentrations were not publicised by the EU Commission). While these findings should not leave us indifferent, they are not particularly alarming. Mainly, because similar results would be obtained in most of us. But, would it not be more coherent to say that similar results would be obtained “in our populations”,^{1,22} should we have the appropriate surveillance systems in place? Do we not know that there's no effective individual escape from PTS? Then the path to follow is not to perform individual measurements of PTS, but population surveillance and control of PTS. Indeed, “Geoffrey Rose's big idea”²³ (changing the population distribution of a risk factor prevents more burden of disease than targeting people at high risk) is perfectly relevant to PTS—perhaps even more than to classic risk factors for chronic diseases.^{4–8} The only way forward is to shift the population distribution of PTS.

Commissioner Wallström knows too that her own individual concentrations of PTS are not that important; rather, the message is that the presence of PTS in her blood “shows that nobody can escape contamination by chemicals” alone, as an individual.²¹ That only collective mechanisms of protection will shift the population distribution of PTS. This is a main epidemiological reason to support REACH, as well as population surveys on PTS concentrations,⁶ such as the US National Report on Human Exposure to Environmental Chemicals.²⁴

Furthermore, if REACH is not watered down, if it does reach significant implementation throughout Europe over the next decade, the system has the potential to pedagogically show one way that “we can all care for all”. It could thus join the Stockholm treaty on persistent organic pollutants and other “glocal” mechanisms in fostering changes in food, industrial, and environmental policies.

Persistent toxic substances offer both old and new challenges to epidemiology and public health. Not least among them is the need to explain findings on PTS exposure and effects in a way that is culturally acceptable to wide sectors of our societies. Otherwise PTS will only cause more fear.^{4–25} Because we aim at societies as free from fear as possible, we should also develop a scientific pedagogy that is more culturally sustainable.

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