

From rags to genes: mixing research paradigms

Claire Infante-Rivard MD, PhD, James McGill Professor, McGill University, Associate Scientific Editor, Chronic Diseases in Canada

The journal is publishing two papers^{1,2} in this issue that underscore the contribution of social and economic determinants to outcomes such as hospitalization and the use of health services among children with injuries and asthma. Both papers show that greater use of health services is generally associated with lower economic status and, though not as markedly, with social status as well. These observations are taking place in Canada where there is universal access to health care. Other findings are also of interest; for example, the To et al. study¹ reports that, whereas children from low-income families were at higher risk of hospitalization regardless of severity of asthma status, they had lower utilization of physicians' services. On the other hand, children with persistent asthma were less likely to come from low-income families or to be born to immigrant mothers. In addition, children of immigrant mothers were less likely to be hospitalized. The Gagné and Hamel study² may have used a finer definition of social and economic status, captured by two, distinct ecological variables. This study shows that both material and social status influence not only hospitalizations in children with injuries, but also the occurrence of injuries.

From a research perspective, a number of issues lend themselves to discussion based on these papers: (1) the sustained importance of accounting for social and economic status (hereafter referred to as SES) when studying determinants of health and the utilization of health services; (2) the methods used to measure SES; (3) the use of administrative or research databases for research; and (4) the way that SES influences health outcomes.

We are without a doubt in an era in which "gene-talk" has powerfully come to dominate biomedical research. The technology used to study population genetics is evolving so rapidly, is so complex, and the arguments

in favour of a major role for genetic risk factors in complex outcomes are so powerful that the role of SES may be seen as remote and insignificant by comparison. However, arguments could easily be made that (a) once genetic variants are found to be associated with diseases or conditions, it does not necessarily mean that we understand how they work; and (b) the role of these genetic variants is most likely influenced by and linked with a number of environmental factors. Given the picture obtained from the studies discussed above, the same conclusions about SES factors could be reached. Thus, the complexity of SES as a determinant of health and the utilization of health services is such that, as with genetic research, SES research deserves resources. It should also involve outstanding methodological advances and remain among public health research priorities. However, prudence is warranted when advocating more and better research in this area based mainly on the assumption that SES can be acted upon, in comparison with other determinants. Changing SES may be as difficult or even more so than developing gene therapy!

What direction should research in this area possibly take? Given the assumption that genes and related physiological mechanisms are turned on and off by our environment, SES factors included, and that researchers in one area may be less than highly competent in the other, initiation of a dialogue between the biological and public health/sociological research communities would be a very useful approach to better understand both types of determinants. It could potentially lead to outstanding findings, such that the results are also better understood. Whereas it is probably relatively easy to agree that the pathways to injuries and asthma are both genetic and environmental, it may be more difficult to become convinced that similar pathways influence the use of

health services. However, it does remain plausible, although possibly even more complex, and with different weights for different determinants.

The authors of both papers in question efficiently used available databases (administrative or research-oriented) to pursue their analyses, as well as measures of social and economic determinants that, although useful and acceptable, were likely limited, due in part to the constraints of database research. As a result, the reported findings may give an impression of "déjà vu," and definitely leave many questions from apparently contradictory findings, either within the studies themselves or between these and previously published ones. However, the authors had descriptive goals, which they properly pursued. Such results are of high interest to this journal and they are welcome; it seems particularly opportune for the public health community to use available databases of good quality. However, we would also like to encourage other innovative and bold approaches, the use of more refined methods to measure SES, and alliances with the biology community to better understand the factors at play in health and the utilization of health services.

References

1. To T, Dell S, Tassoudji M, Wang C. Health outcomes in low-income children with current asthma in Canada. *Chronic Dis Can.* 2009;29(2):49-55.
2. Gagné M, Hamel D. Deprivation and unintentional injury hospitalization in Quebec children. *Chronic Dis Can.* 2009; 29(2):56-69.