Understanding the 'What' Before the 'Why' in Population Research

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Sometimes replicating research in different populations clarifies our understanding of a health issue and at other times it creates many more questions than answers. In their previous study of attention deficit/hyperactivity disorder (ADHD) in Milwaukee County, Baumgardner et al[1] reported patterns of the diagnosis in populations that demonstrated racial and socioeconomic differences—higher frequency of diagnosis in white than African American boys and higher in less densely urban and more affluent areas of the county. By comparison, the Dane County data from Reyes and colleagues[2] in this issue of *WMJ* showed a higher rate of diagnosis in African American boys, while showing similar higher rates in more affluent and less densely populated parts of the county. However, the most disconcerting aspect of the Dane County study is that the overall rate of the diagnosis was almost 40% lower than that of Milwaukee County and 60% lower than the state overall. The question, of course, is why?

Medical care should be embarking on an era of fundamental reconsideration of many assumptions that underlie our current system of care, not the least of which is the belief that more is better. Whether it is data-driven analyses of PSA, mammography, the "annual physical," or diabetes that show no benefit, or worse, harm from too much screening or large studies of chronic diseases such as diabetes that show negative or no effect from more intensive management in the ACCORD studies,[3] more is not better; it is simply more—and more costly in many ways.

The diagnosis of ADHD includes the promise of "more"—whether that is primarily through drugs, many of which have unknown long-term consequences in children, or more intensive educational attention, which carries its own costs. Children who are labeled with the diagnosis of ADHD are more likely to become adults who carry that diagnosis and often are committed to a lifetime of medication. Reasons for the wide variability seen in the studies from Milwaukee and Dane counties has to include the attitudes of parents, school systems, physicians, and others who deal with children.

The most challenging and controversial components of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV)—currently a bestseller on Amazon—have to do with what is and is not labeled as a mental disorder. Those controversies are unlikely to be resolved in our lifetime. Meanwhile, studies like that of Reyes and colleagues seem essential to identifying the profile of diagnoses and raising the issue of the complex relationship between social systems and health. The large health systems in the Upper Midwest offer an unusual opportunity to use the populations they care for to study and better understand the problem of what is labeled ADHD.

A report by Watkins and Watkins on the incidence of hematologic malignancies in rural and urban populations in south central North Dakota[4] also raises questions that require more research to understand and explain. They show that people who live in less densely populated areas of urban counties and those who live in rural counties both show a greater than expected rate of these malignancies, raising the question of environmental influences as one possible contributing factor. Years ago, a public health epidemiologist colleague said that attempts to show a relationship between exposure to high tension electrical lines and brain cancer ignored the reality that "we are bathed in a primal soup of electromagnetic radiation all the time." If that was true then, it is even more so now. Rural and urban populations are bathed in different "primal soups." The contribution by Watkins and Watkins calls for a more rigorous monitoring of the factors that make up our environment to understand how they affect our health. The wide open spaces have some very real risks, it appears.

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If you have cancer, are older than 60 and are involved in a clinical trial, you will have a lower level of informed consent than someone younger, without cancer. While Hoover-Regan and colleagues[5] report a high level of satisfaction by patients participating in clinical trials at an academic health center, they also confirm what many of us know both as clinicians and patients: there are physical, emotional, and social obstacles that demand that clinicians and research teams spend the time necessary to achieve truly informed consent.

Thanks to aggressive immunization of high-risk populations of young people and the military, meningococcal meningitis has become an historical footnote for many of us. While I saw it when I was first in practice 40 years ago, today it is truly a "reportable case." This issue of the *WMJ* contains an even more unusual case of the diagnosis of meningococcal meningitis in a newborn which, despite heroic measures by staff, resulted in the patient's death. The report of this case by Shah and colleagues[6] raises the concern that a now rare disease in adolescents may be less rare in younger children and infants. A 10-year review by Sotir and colleagues in the *WMJ* in 2005 confirmed the increasing trend for younger children.[7]

Finally, the case report from Kuy and colleagues[8] describes the complex surgical processes entailed by a sad case of self-inflicted injury. While the origin of the case may be unusual, the lessons learned are important for patients with combined anal and urinary injuries from whatever source.

References

1. Baumgardner D, Schreiber AL, Havlena JA, Bridgewater FD, Steber DL, Lemke MA. Geographic analysis of diagnosis of attention deficit/hyperactivity disorder in children: Eastern Wisconsin, USA. *Int J Psychiatry Med.* 2010;40(4):363-382.

2. Reyes N, Baumgardner DJ, Simmons DH, Buckingham W. The potential for sociocultural factors in the diagnosis of ADHD in children. *WMJ.* 2013;112(1):13-17.

3. O'Connor PJ, Narayan KM, Anderson, et al. Effect of intensive versus standard blood pressure control on depression and health-related quality of life in type 2 diabetes: the ACCORD trial. *Diabetes Care.* 2012;35(7):1479-81. doi: 10.2337/dc11-1868. Epub 2012 May 14.

4. Watkins PL, Watkins JM. An exploratory study of the relation of population density and agricultural activity to hematologic malignancies in North Dakota. *WMJ.* 2013;112(1):24-27.

5. Hoover-Regan M, Becker T, Williams MJ, Shenker Y. Informed consent and research subject understanding of clinical trials. *WMJ.* 2013;112(1):18-23.

6. Shah S, Gross JR, Stewart CT. A case of meningococcal disease in a neonate. *WMJ.* 2013;112(1):28-30.

7. Sotir MJ, Ahrabi-Fard S, Croft DR, et al. Meningococcal disease incidence and mortality in Wisconsin, 1993-2002. *WMJ.* 2005;104(3):38-44.

8. Kuy S, Codner PA, Guralnick M, Dua A, Paul J. Combined rectovesicular injuries from low velocity penetrating trauma in an adult. *WMJ.* 2013;112(1):33-35..

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