and socioeconomic conditions and are witnessing the emergence of a variety of diseases associated with increasingly Western lifestyles (globalization) is a timely challenge. Birth cohort studies (including studies of twins) initiated every 10 years in these countries may be able to capture the impact of globalization, including changing diets, on human microbial ecology.

Although microbiome-associated diagnostics and therapeutics provide new and exciting dimensions for personalized medicine, attention must be paid to the potentially broad societal impact of this work. For example, studies of the human gut microbiome are likely to have a disruptive effect on current views of human nutrition, enhancing appreciation of how food and the metabolic output of interactions of dietary components with the microbiota are intimately connected to myriad features of human biology. Underlying the efforts to elucidate the relations among food, the microbiome, and human nutrition is a need to proactively develop materials for educational outreach with a narrative and vocabulary that is understandable to broad and varied consumer populations representing different cultural traditions and widely ranging degrees of scientific literacy. The results have the potential to catalyze efforts to integrate agricultural policies and practice, food production, and nutritional recommendations for consumer populations representing different ages, geographic locales, and states of health.

Defining our *metagenome* (the genes embedded in our *H. sapiens* genome plus those in our microbiome) will likely lead to an entirely new level of refinement in our description of self, our genetic evolution, our postnatal development, the microbial legacy of our connection to family, and the consequences of personal lifestyle choices. While this information can help us understand the origins of certain yet unexplained health disparities, care must be taken to avoid stigmatization of individuals or groups of individuals having different cultural norms, belief systems, or behaviors. In partnership with human microbiome researchers, anthropologists need to examine the impact of studies of the human microbiome on the participants, assessing how this field and participants' cultural traditions interact to affect these individuals' perceptions about the natural world, the forces that affect their lives, and their connections to one another within the context of family and community.

SUMMARY

Studies of human microbial ecology are an important manifestation of progress in the genome sciences, represent a timely step in our quest to achieve a better understanding of our place in the natural world, and reflect the evolving focus of twenty-first-century medicine on disease prevention, new definitions of health, new ways to determine the origins of individual biologic differences, and new approaches to evaluating the impact of changes in our lifestyles and biosphere on our biology. As microbiome-directed diagnostics and therapeutics emerge, we must be sensitive to the societal impact of this work.