Life, liberty—and access to microbes?

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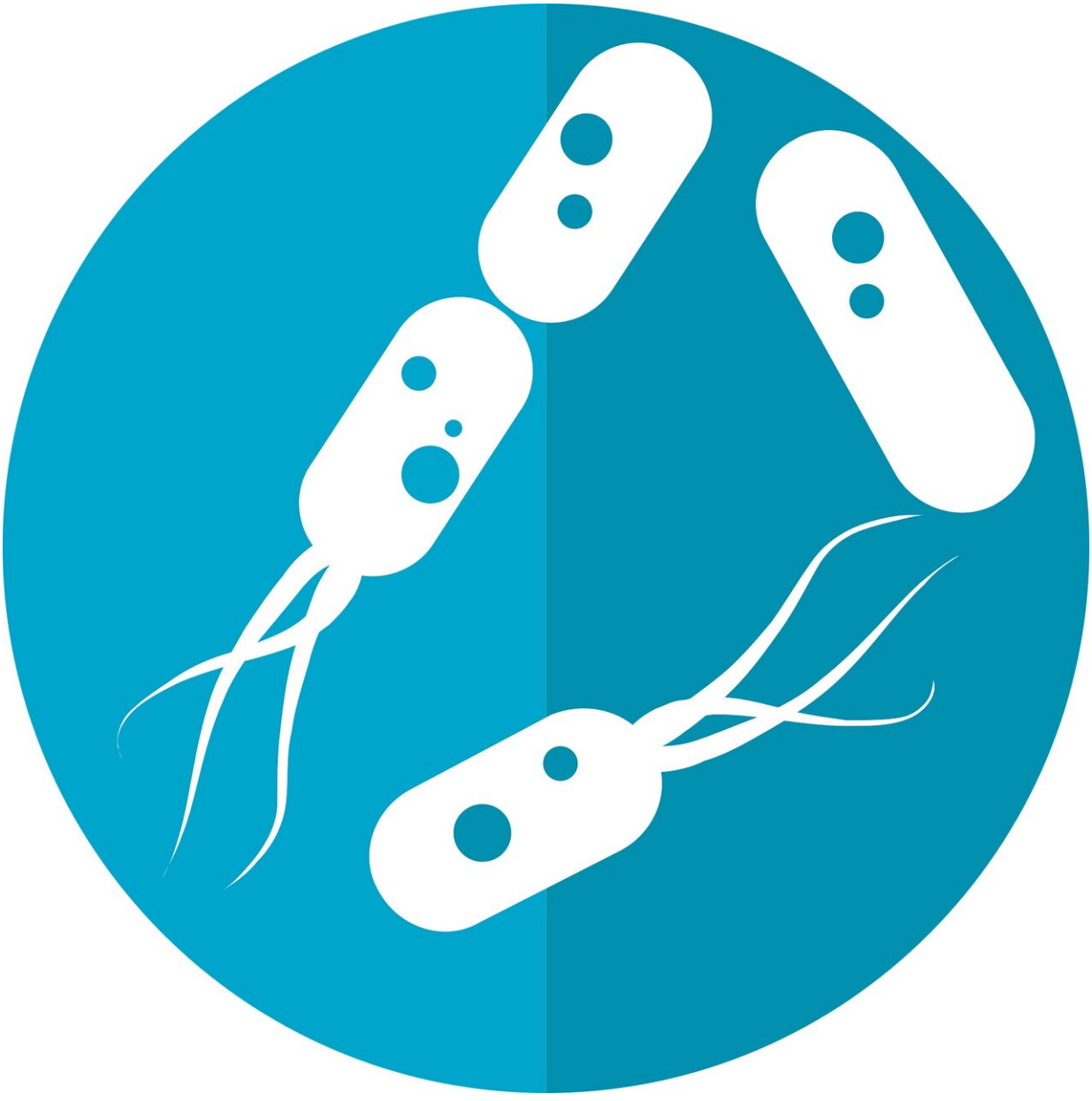

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Poverty increases the risk for numerous diseases by limiting people's access to healthy food, environments and stress-free conditions. In a new essay published November 26 in the open-access journal *PLOS Biology*, Suzanne Ishaq and colleagues at the University of Oregon, argue that poverty also compromises health by creating unequal access to beneficial microorganisms. The essay is part of the "Microbiomes Across Systems" special issue.

People living in low-income communities lack many of the factors that help promote healthy microbiomes, such as access to fresh food, clean air and water, adequate pre- and postnatal care, and healthy indoor environments. Scientists have linked low microbial diversity to poor health, including obesity and associated metabolic problems and multiple mental health and psychiatric disorders. These problems may disproportionally affect poorer individuals and compound existing health disparities.

Ishaq and her colleagues outline efforts to address these disparities by boosting microbial health. Adequate maternity leave and prenatal care, for example, will help ensure that babies receive a beneficial community of microorganisms from their mothers during delivery, and that the community is nourished through breastfeeding. Eliminating food deserts and improving access to healthy school lunches will help provide the fiber-rich diet necessary for maintaining diverse microbes. And changes in zoning and neighborhood development can reduce the abundance and transmission of potentially dangerous microbes that thrive in industrial areas with inadequate greenspace and unhygienic, poorly maintained buildings.

Microorganisms play such an integral role in our health and wellbeing, the authors argue, that access to them is a human right. As a result,

governments have an obligation to dismantle social barriers that prevent people from maintaining a healthy microbial community as an issue of social equity.

"It seems like a stretch to think that microbes are involved in social equity," said Ishaq, "until you realize that so many social equity issues affect your exposure to microorganisms in some way, and your ability to recruit and maintain a beneficial microbial community."

More information: Ishaq SL, Rapp M, Byerly R, McClellan LS, O'Boyle MR, Nykanen A, et al. (2019) Framing the discussion of microorganisms as a facet of social equity in human health. *PLoS Biol* 17(11): e3000536. doi.org/10.1371/journal.pbio.3000536

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