Sanitation access linked to children's growth and health

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Simple latrines like this one in rural Zambia greatly improve health. Credit: Andy Prinsen, Akros

An estimated 1 billion people in the world live without access to any type of sanitation facility, such as a toilet or latrine. Sanitation access is known to be associated with the risk of transmitting certain diseases, including parasitic worms. But the impacts don't stop there. For children, living in a community with poor levels of sanitation access increases their odds of stunted growth, anemia, and diarrhea, even if their household has access to a sanitation facility researchers report in *PLOS Neglected Tropical Diseases*.

Without sanitation facilities, human feces aren't contained, and diseases are often spread when feces contaminate water, dirt, or food. Diarrheal diseases spread this way kill millions of children a year, and can cause malnutrition, developmental delays, and stunted growth in those who survive them. Infections with certain worms are also known to be associated with anemia.

In the new work, David Larsen, of Syracuse University, and colleagues collated data from 301 health surveys—covering more than a million children—conducted between 1990 and 2015. Community-level sanitation access was quantified as the proportion of households in the sampled area that had access to a toilet or latrine. The outcomes of child growth stunting among children aged 12-59 months, anemia among children under 5 years of age, and diarrhea in the previous two weeks were analyzed.

For households with sanitation access, living in a community with 100

percent sanitation access lowered odds of stunting, anemia, and diarrhea. For households with out sanitation access, increasing community-level access to sanitation decreased the odds of stunting and anemia. The greatest gains in child health were made when communities achieved universal sanitation access.

"These results suggest that the greatest gains in health from sanitation are made when communities achieve universal access to sanitation," the researchers say. "The number of children living in communities where any households lack sanitation access is alarmingly high throughout the world, and efforts must be made to achieve the Sustainable Development Goal of eliminating open defecation by 2030."

More information: Larsen DA, Grisham T, Slawsky E, Narine L (2017) An individual-level meta-analysis assessing the impact of community-level sanitation access on child stunting, anemia, and diarrhea: Evidence from DHS and MICS surveys. *PLoS Negl Trop Dis* 11(6): e0005591. doi.org/10.1371/journal.pntd.0005591