When examining infant health in developing countries, focusing solely on breastfeeding or exclusive breastfeeding ignores the complexity of infant feeding that may play an important role. It has been shown that infants in developing countries receive a wide range of foods even when breastfed. For example, 22% of mothers in a survey of 20 developing countries feed their infants a range of solid foods before 6 months of age [1]. The health benefits of exclusive breastfeeding are well known, but the relative detrimental effects of other foods on infant health are unknown. Because of the range of infant feeding practices in developing countries, understanding the health effects of these diverse feeding practices is essential for public health.

This study is the first to systematically examine the effect of a range of infant feeding practices on infant health for a large sample. We used data from the Demographic Health Survey from 20 developing countries over multiple years to examine the effect of six types of feeding (exclusive breastfeeding, non-exclusive breastfeeding, infant formula, milk liquids, non-milk liquids, and solid foods) on five health outcomes (height-for-age z score, weight-for-height z score, diarrhea, fever, and cough) for infants in two age groups (<6 months and 6 months to 1 year). Unlike previous work, we control for most potentially confounding factors with community-year fixed effects and infant, mother, and household controls. By controlling for these confounders in regression analysis, we can more plausibly estimate the causal impact of feeding choices on infant health in developing countries.

Table 1 presents regression results for the effect of each feeding type on five measures of infant health for infants younger than 6 months. As expected, exclusive breastfeeding has a positive and statistically significant effect on height and weight and a negative and statistically significant effect on diarrhea incidence. Non-exclusive breastfeeding has similar
effects that are smaller in magnitude, but only the effect on weight is statistically significant. Solid foods have a negative and statistically significant effect on weight and a positive and statistically significant effect on diarrhea, fever, and cough incidence. Milk liquids have a statistically significant negative effect on weight, but no other health measure. Infant formula and non-milk liquids do not have statistically significant effects on infant health.

Table 2 presents results of a counterfactual analysis where regression results are used to examine the effect of switching feeding practices. We find that mothers opting for exclusive breastfeeding instead of complementary feeding with solids improve their infant’s height-for-age z score by 0.138 and weight-for-height z score by 0.174 and that diarrhea, fever, and cough incidence were reduced by 8.3, 12.4, and 10.7%, respectively. Similar results were found for opting for exclusive breastfeeding over complementary feeding with liquid milk. By comparing two options of complementary feeding, we see that some complementary feeding practices are worse than others. For example, opting for complementing breast
milk with formula instead of solids reduces the incidence of diarrhea, cough, and fever.

Consistent with previous studies, we find breastfeeding to be beneficial for infant health and provide specific micro-level estimates of breastfeeding effects. We find that while all other types of feeding are inferior to breastfeeding, some have more harmful effects on infant health than others. This underscores the importance of differentiating between feeding types for public health programs seeking to improve infant health in developing countries.

Reference