A 40-Year Controversy: Baby Formula Does Not Increase Infant Mortality

By Chuck Dinerstein, MD, MBA — March 20, 2018

Paul Gertler is an economist and expert on the impact of interventions on public issues, most recently in a working paper on his website looking at the effect of introducing baby formula on infant mortality. Paul Gertler is not a scientist, nor apparently are any of his co-authors. The paper is more screed than science.

There has been significant controversy about the introduction of baby formula in place of or to supplement breastfeeding in lower and middle-income countries, a controversy that peaked 40 years ago. To use baby formula, mother’s mix the powder with water so that using untreated, unsanitary water results in an unsanitary formula. Gertler “found,” in the sense that he calculated, that the combination of the introduction of formula and the “use” of surface water, the least clean source of water, increased infant mortality.

Gertler’s current work applies his real expertise, teasing out the effects of an intervention, at how infant mortality changed with the introduction of baby formula in these countries. I can’t fault his economic technique, but the data is flawed – garbage in, garbage out, no matter how refined and sophisticated the processing. The first flaw, there is no data regarding the use of baby formula by the mothers who only had access to surface water. The second flaw, no data on how these mothers prepared the formula – did they treat the water with chlorine tablets before using it to make the formula? Instead, the introduction of formula into the country was a “proxy” for its use. In this case proxy is the economics term for an assumption, and when all your calculations are based on an assumption, the results, even with p values and confidence intervals is scientism [1], not science.
The analysis showed that the introduction of baby formula had an “insignificant effects on infant mortality for the population as a whole.” Infant mortality was higher only for those mothers who just had access to groundwater – but there is no data to support that they did or did not use formula. And even if formula’s introduction played a role, either good [2] or bad, these effects were being lost over time as their graph demonstrates.

![Infant Mortality Graph](image)

**Even a blind squirrel finds a nut**

The study did uncover some salient variables. Both the lack of an uneducated mother, defined as failing to complete primary education and a lack of post-natal care were independently associated with greater infant mortality than the introduction of formula. And the introduction of baby formula resulted in infant mortality “somewhat greater than the effect of unclean water itself.” (Emphasis added) The authors never state the additive effect of formula’s introduction to the impact of unclean water by itself.

The authors did calculate what they perceived to be the increase in infant mortality associated with the introduction of formula in these countries, about 68,000 deaths. A large number by itself, but compared to the infant mortality in their study it represents 1.5% of the total. Is this indicative of an effect or is it random? But more importantly is this statement, “this figure is clearly lower than the estimates of one million or more in the literature.” Nearly a 15 fold lower estimate.

This paper attempts to quantify a 40-year-old controversy. While it uses sophisticated econometric techniques, it is based on assumptions that make its conclusions questionable at best. It is advocacy disguised as science, and it sheds more shadow than light. Advocates will tug our hearts
with the 68,000 infants estimated to have died; they will fail to mention that the estimates have fallen quite a bit from the initial 1 to 10 million infants lost. They will point to the sophistication of the methodology; they will ignore unwarranted assumptions that play havoc with results.

Source: Mortality from Nestlé’s Marketing of Infant Formula in Low and Middle-Income Countries

[1] The use of the style, assumptions, techniques, and other attributes typically displayed by scientists Source: Random House Dictionary

[2] There was declining infant mortality in homes that had access to “higher quality water.”