



FROM THE DESK OF TED GREINER,

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Truly “new findings” : Impact of delayed breastfeeding initiation

Some research principles

The “golden standard” of research is the double blind placebo controlled trial. Something is tested on subjects who are randomly assigned to either the experimental or control groups and neither the scientists nor the subjects know which group they are in. This controls for the “placebo effect,” something found to be rather high in much research on breastfeeding.

But “blinding” and even randomization often are impossible for logistical and ethical reasons. We will never know the impact of sustained breastfeeding on human health because it is unethical to assign mothers to breastfeed for various lengths of time and when we observe the apparent impact of mothers who do so in natural settings, despite efforts at statistical manipulation, it is impossible to remove the impact of “confounders” on what we are viewing.

For example, in high-income settings, more educated mothers tend to breastfeed for longer while in low-income settings, the opposite used to be true. That can be “controlled for” statistically. But how about the fact that many mothers tend to decide when to stop breastfeeding according to some developmental milestone (say when teeth come, when the child can walk) and to prolong breastfeeding for children who seem to be sickly?

In one of the most complex and remarkable studies I have ever read, Marquis et al (Marquis GS, Habicht JP, Lanata CF, Black RE, Rasmussen KM. Association of breastfeeding and stunting in Peruvian toddlers: an example of reverse causality. *Int J Epidemiol.* 1997 Apr;26(2):349-56) figured out that in their sample the reason that more breastfeeding was associated with greater levels of nutritional stunting (a common finding in low-income settings) was exactly this. Babies who for many possible reasons happen to be sicker tend to be breastfed for longer.

Infant feeding decisions are based on complex motivations and these are difficult to obtain accurate information on. One researcher (who did publish the results) found three levels of complexity in response to the question “Why did you stop breastfeeding?” based on responses from the same women to (a) a simple questionnaire, (b) an hours long discussion and in-depth interview, and (c) weeks of visiting and getting to know each other better and discussing complex issues surrounding how infant feeding and other infant care decisions were made. The simplistic responses she got in (a) were only a very small part of the complex web of issues on which mothers actually based their decisions, as revealed in (c).

If we repeated the same study leading to a single finding or outcome 1000 times, the results would rarely always come out exactly the same. Assuming there was no bias acting over time, if we plotted the results on a graph, it would take the form of a bell curve, with the result we got most often (the mode) in the middle, identical to the mean and median if it was a so-called “normal distribution” of findings. The extent of the errors encountered (there are ALWAYS errors in research—statistics gives us a regulated and controlled way of dealing with them) would determine how widely spread the findings were, that is how large the standard deviation was.

Keeping this in mind, we need to always be careful in how we interpret the findings of a single study because we cannot know where on that bell curve it landed. Is it an “outlier,” suggesting there’s a much bigger or smaller impact than the overall bell curve would justify—if only we knew the shape of that bell curve?

Sadly, journals tend more often to accept, and authors tend more often to do the huge amount of work required to publish their findings, when a study leads to positive findings. This leads to a so-called “publication bias.” This means that the first time a study is published on a given issue it is more likely to fall on the right side of the 1000-study curve mentioned above. If it is exciting or important, others will repeat it. The more studies are done, the more the shape of the curve becomes apparent. Frustratingly, we often find that the curve centers close to zero, that is, no effect. That first published study fooled us. We who treated it as “Truth” end up with a bit of egg on our face.





That's why multiply chastened researchers—and the World Health Assembly for that matter—hesitate to shout “eureka” and promote the results of single studies. The more distant a study is from the “golden standard” in its research design, the more subject it is to a plethora of errors and the riskier it is to assume it has uncovered “the truth.”

And this is why yours truly, despite being honored with the title “Coordinator” of the WABA Research Task Force, rarely presents studies in the WABALink or anywhere else as “new findings.”

Truly “new findings”

I've been asked to make an exception with regard to a study by Edmond et al which was just published a few weeks ago when this goes to press. (Edmond KM, Zandoh C, Quigley MA, Amenga-Etego S, Owusu-Agyei S, Kirkwood BR. **Delayed breastfeeding initiation increases risk of neonatal mortality.** Pediatrics. 2006 Mar;117(3):e380-6.) Three cheers for the journal Pediatrics. You can, at least for now, download the full text PDF file for free at <http://pediatrics.aappublications.org/cgi/reprint/117/3/e380>.

This is one of those rare studies that even people like me who have been following the literature for 3 decades sit up and take notice of as something truly “new.” It is an observational study based on an analysis of secondary findings from a randomized controlled trial of weekly vitamin A supplementation on maternal mortality. That means the sample size is large (not just a plus—you can't examine the impact of anything on mortality without a huge and thus rarely obtained sample size) and it is prospective, that is, following outcomes over time (another plus). It examined the impact of delayed initiation of breastfeeding on neonatal mortality rates. But for that outcome, no randomization was done (an ethical plus but a methodological minus).

It was conducted in four adjacent rural districts in central Ghana. The mothers of nearly 11,000 newborns were visited within four weeks of giving birth and asked about the time of initiation of breastfeeding. Time of initiation of breastfeeding was compared between infants who died between 2-28 days of birth and those who survived.

When breastfeeding initiation took place later than one hour after birth but in the first day of life, neonatal death was 1.5 times more likely to occur (NS = not statistically significantly different from 0); if initiation occurred on day 2 or later, death was about three times more likely to occur and this was statistically significant. Babies who received prelacteal feeds consisting of non-milk fluids (ie were “predominantly breastfed” according to WHO definitions) were 1.4 times more likely to die (NS) and those who received milk or solids were 4 times more likely to die between 2-28 days after birth and that was significant.

Another way of looking at the findings is that a remarkable 41% of all neonatal deaths would have been avoided if all babies had been exclusively breastfed at birth, with breastfeeding initiated during the first hour of birth. But if we assume breastfeeding had no impact on deaths that occurred in the first day of life (which in many if most cases was probably the case—many of these babies had problems that breastfeeding could not impact on), that figure would drop to 22%. Most of this impact (16%) is captured by starting breastfeeding in the first day of life.

Still, where else could we find an intervention that costs nothing and that health workers or traditional birth attendants can so easily have an impact on that could reduce neonatal death rates by 22%?

How does this compare with findings of previous studies? As far as I know, only one study has previously examined this issue, based on data from Guinea Bissau, but it had too small of a sample size to examine neonatal death rates and thus looked at impact of timing of initiation of breastfeeding on postneonatal death rates at 28 days up to age 3 years. Not surprisingly, it found no impact, since so many other factors could be expected to enter in and “dilute” the impact during such a long period of follow up. (Gunnlaugsson G, da Silva MC, Smedman L. Age at breast feeding start and postneonatal growth and survival. Arch Dis Child. 1993 Jul;69(1):134-7.)

Is Edmond's finding likely to fall on the right or left side of the bell curve? We have no way of knowing. Personally, given the low cost involved and the low risk of there being any negative “side effects”, I'd rather err on the side of caution and suggest that we in the breastfeeding movement pull out all the stops and advocate to the “birthing community” that initiation of breastfeeding within the first hour of life (barring rare circumstances where this is impossible) be considered a part of standard service delivery. Anything less ought to be considered not just a breach of professional standards, but of the rights of the child.

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