Reviewer's report

Title: How do we sell the hygiene message? With Dollars, Dong or Excreta?

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Reviewer: Laura Orlando

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Major Compulsory Revisions

The article made several assumptions that the authors should consider addressing before publication. First and foremost, the assumption that “composting” for three to four months rather than six months in a Vietnamese Double Vault toilet significantly contributes to the burden of disease, particularly helminth infection in Vietnam. Which populations are most affected (young, old, women, urban, rural, etc.)? Where does the lack of access to any excreta containment technology come into the discussion? Do the poorest farmers (the 20 % cited in the report) use double vaults and the fertilizers from them? If 20 % of the total population is using double vaults, how does excreta management breakdown for the other 80%? Is excreta from traditional latrines used on fields? Wastewater? Or is only material from double vaults used as a fertilizer? Are both urine and dehydrated feces used for crop production? What kinds of crops in Vietnam are receiving the excreta from the double vaults? Where is the evidence that shows that the “official Vietnamese health guidelines” of “composting” for 6 months reduces the number of helminth eggs per gram of feces? Does the addition of ash impact helminth egg survival (some say it does, because of changes in pH in the pile)? Heat (and if so, then has solar pasteurization been considered)? These questions are relevant because an assumption is being made that the 14% of households that use excreta that has been composted for 3 to 4 months instead of 6 months are a significant factor in the country’s disease burden (especially from parasitic worms).

Numerous studies have shown that morbidity from intestinal helminths is not only associated with the number of worms infecting the host, but also age, household density, and genetics. Young people, for instance, have higher infection and transmission rates. It is generally understood that adults have a gradual acquired protective immunity. How does this play into prevention strategies in Vietnam?

Helminths infect an estimated 3 billion people. Current major global helminthic disease control initiatives use drugs as control tools with minor – if any – emphasis on the disposition of excreta. Granted, containing and reducing or eliminating intestinal helminthes in feces is desirable, but at the cost of importing fertilizers in Vietnam? Reducing household income? Growing less food? Or substituting one kind of polluting toilet for another? Perhaps the hygiene message is lost because it is not convincing to the Vietnamese farmer that changing the storage time of excreta to 6 months in 20% of household toilets –
30% of which do already compost for the allotted 6 months -- will make a measurable difference in health outcomes.

In the authors’ conclusion, they note the “public health need for composted excreta that is hygienic and non-contaminated.” This sets the hygiene bar higher than any other method of excreta management. What should public health targets in Vietnam be, for, say, helminthes in processed excreta? And how do we achieve them in a “holistic” manner?

The point of a holistic approach is a smart one, but first the reasons to pull the “hygiene promotion” lever must be better understood and explained, to the Vietnamese farmer and this Journal’s readers.

Minor Essential Revisions

Please distinguish between conventional latrines and double vaults when referring to excreta management technologies in the paper (try to avoid using the word “latrine” by itself).

Discretionary Revisions

A good deal of research has been done on pathogen survival in double vaults. It would be good to see other references, besides the authors’ own.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**Declaration of competing interests:**

I declare that I have no competing interests.