

My Perception
NPR Coverage of Stanford's
“Are Organic Foods Safer or Healthier Than
Conventional Alternatives?: A Systematic Review“
September 2012

by
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Executive Summary: *I believe that the Stanford researchers presented only a portion of the conclusions to the press from their poorly performed meta-analysis paper. Press releases with a definite anti-organic spin were pounced upon by the unprepared mass media, which then multiplied the anti-organic slant. I expected NPR to do a better job of investigative reporting, instead of rushing to follow the flock to propagate poor performance in reporting.*

My perception of problems in original (4 September 2012, Morning Edition) reporting of this study by NPR

1. The study authors' language with the media does not project objectivity in conduct of the study and in interpretation of study results.
 - a. “Consumption of organic foods may reduce exposure to pesticide residues and antibiotic resistant bacteria.”
 - b. Not very enthusiastic... or did their invented new metric called “risk difference” confuse even the authors?
 - c. Risk difference is defined as the simple math difference between the incidence of pesticide residues in organic food minus the incidence of residues in conventional food.
 - i. Example from the paper's Figure 2: conventional = 1354 of 4069 samples had detectable pesticide residue for $1354/4069 = 33\%$ incidence.
 - ii. Organic foods had 4 of 81 samples positive for pesticide residue for $4/81 = 5\%$ incidence.
 - iii. Conventional math and conventional investigative procedure would compare the difference in the incidences of pesticide residues by comparing the difference of exposure to residue by this method: 33 divided by 5 is 6.6. Therefore the risk of pesticide residue ingestion with organic food is 6.6 times less than the chances with conventional food, OR, eating organic food will decrease your exposure to pesticide residues by 85% (28/33) compared to eating conventional food.

- iv. An 85% reduction in the chances of exposure to pesticide residues is more than a “may reduce exposure to pesticide residues” conclusion. The Stanford group’s risk difference of 33-5=28 is far from fairly representing the 85% reduction to pesticide exposure by eating organic foods!
 - v. “Probably not.” This is the study authors’ answer to the question,” While the organic produce had less pesticide residues, does this level of difference matter?” Really? Did their study address this issue properly or do they know something that they have not researched and published?
- 2. NPR reporter Allison Aubrey’s language does not project objectivity, preparedness, nor attention to detail.
 - a. Original NPR report said that “organic veggies... are grown without synthetic pesticides or fertilizers.” While in 2nd report Aubrey says “USDA actually has a uniform set of standards... and organic produce is produced without most conventional synthetic pesticides or fertilizers” ...and “ in organic animal farming, animals are “generally not given antibiotics or growth hormones”
 - b. Pesticides, antibiotics, and growth hormones are not allowed to be used in organic production.
- 3. What about genetically modified food?” – listener question after original NPR report.
 - a. No mention in Stanford publication, no mention in NPR report.
 - b. No mention in the NPR follow-up report other than the above listener question.....WHY?
 - c. Organic production does not allow the use of any GMO seed or feed. Organic food production is free of GMOs.
- 4. “But this is one study of one vegetable in one field.” Aubrey’s comment referring to the fact that organic tomatoes have more antioxidants than conventional tomatoes grown in the same field across 10 years of study! One vegetable in one field replicated across 10 years is not worthy of consideration in the discussion? Really!
 - a. All research must start with one vegetable in one field in attempt to control the effects of the macro-environment on the outcome!
 - b. Please see another meta-analysis published recently for the opposite conclusions on nutrient differences (“Agroecosystem Management and Nutritional Quality of Plant Foods: The Case

of Organic Fruits and Vegetables.” *Critical Reviews in Plant Sciences*. 2011. Vol. 30: 177–197).

5. “The problem is, farmers still get paid by the pound, not by the vitamin.” From NPR original report. This has nothing to do with the problem of Organic versus conventional nutrients.....what really is your point?
 - a. No, the problem is that you did not do your homework. If you had, you would have had something significant to say.
 - b. Poorly done study by Stanford, and poorly reported study by the mass media, including NPR. Everyone followed blindly the negative headlines provided by Stanford in press releases!
 - c. NPR has been, and should continue to be, a CUT ABOVE the masses in the media!.
 - d. Does NPR have a qualified scientific reviewer on staff or on retainer? May be a good idea if you want to report fairly and accurately on the topics of integrating true science into everyday life for your listeners...
 - i. Did anyone actually read the Stanford published report and notice that the title did not include any good news or bad news for organic produce? All the bad news came from the incomplete and biased press releases from Stanford, and then from the feeding frenzy of mass media with really bad news for the public!
 - ii. The two conclusions in the abstract that were pushed on the media were;
 1. “The published literature lacks strong evidence that organic foods are significantly more nutritious than conventional foods.”
 2. “Consumption of organic foods may reduce exposure to pesticide residues and antibiotic resistant bacteria.”
 3. This leaves a very negative tone for the entire study presentation AND leaves out the important conclusions they list in their discussion section of the paper.
 - iii. Why are the remaining five scientifically valid positive conclusions listed in the Stanford research publication not discussed by the authors or discovered by the press? Valid conclusions are the meat of an investigative study, not the “we could not answer this at this time type of news”....So much of non-conclusive news is no news – but there is a lot that we really do not know. Charles said

it well: "This study did not prove that organic food has no benefit, it proved that it can not be shown at this time, in this study."

- iv. Will Rogers said "A lot of what we know ain't necessarily so." We did not know a lot about the long-term effects of DDT in the early sixties, but we thought we did! We know a lot more today about DDT. But even today, we know way too little about pesticide effects on our health.
6. What about the massive reduction in antibiotic resistant bacteria with organic food?
 - a. Same contrived new metric usage confusing the investigators, readers, and reporters, I think.
 - b. Perhaps the invented risk reduction metric was used purposely to fool the public into believing that the reduction in both pesticide exposure and antibiotic resistant bacteria is less than it really is? Was this purposeful, intentional?
 - c. It certainly appears that the Stanford authors intended the spin to be negative towards organic, but WHY?
 - d. Some have suggested that the reason is the upcoming California vote on Proposition 37 in November that will require every GMO containing food to be labeled.....
 7. Why did NPR allow themselves to be swayed by the authors and not report on the fantastic reduction in antibiotic resistant bacteria in organic poultry and pork?
 - a. Appendix Figure 3 shows summary of antibiotic resistant bacteria.
 - b. Risk of organic = 57 of 358 samples =16% incidence.
 - c. Risk conventional 166 of 343 samples = 48% incidence.
 - d. Risk of organic = 33% of conventional or a decreased risk over conventional food by 67%. Conventional food is 300% more likely to contain antibiotic resistant bacteria.
 - e. Does the paper's reported reduced risk of 33% compare to the real reduction of 67%?
 - f. Maybe just another *maybe reduction* ?

Problems in lack of in-depth investigation by NPR

1. No investigation into authors' real motivation for this study.
 - a. If one reads the paper and compares the content to the negative spin, one needs to ask -Why?

- b. Two conclusions listed in the abstract versus 5 more unlisted but included in the paper?
 - c. Two promoted conclusions that were significantly understated from the actual study results?
- 2. No questions, discussion into the authors' weird metric inventions in the study report (risk difference). Do not explain them, just quote them...really?
- 3. No questioning of authors' language in conclusions of the study.
- 4. Why no really tough questions for the authors from the press?
 - a. Why negative slant?
 - b. What is your real interest?
 - c. Why not publicize the other side, instead of only the negative?
 - d. Why did the authors list the positives in the paper, yet not talk about them?
 - e. Why the wishy-washy language describing statistically valid conclusions in your study?
 - f. Why invent another metric, when risk is discussed in many, many health research publications all the time in typical risk calculations?
- 5. It is my opinion that this paper would not have passed peer review in any number of professional veterinary or animal science journals.
 - a. Research does not support tenor of advertised conclusions.
 - b. Study methodology is extremely poorly presented.
 - c. Scientific publication is done to promote understanding of the procedures so that true knowledge can be advanced, and that another study could duplicate these research results.

Problems in NPR follow-up report (7 September 2012, Aubrey & Charles)

- 1. Could there be any truth in the "Is NPR shilling for Monsanto" suggestion"?
- 2. What influence could Monsanto possibly have over NPR with 85% privately raised funding?
- 3. Science has not answered that the buildup of pesticides is harmful to human body? Aubrey-"Studies are only short term and have no statistically significant conclusions?" Did Aubrey look at any other studies on this subject?

4. "Food levels of pesticides are well within the standards that have been worked out"? Does NPR know how acceptable tolerance levels of pesticides in food are set?
 - a. By the manufacturers! - based on "good agronomic practices".
 - b. The current tolerance levels have nothing to do with health of human consumers, because we know so little about this important and mostly un-researched area of foods' influence on human health.
 - c. Pesticides in the Diets of Infants and Children, a 1993 book commissioned by the NRC, has had no effect whatsoever in stimulating any action by our government toward finding answers to all the unknown questions regarding a child's exposure to pesticides in our food.
 - d. Nearly all of the increased regulatory pressure has been on reduced availability of organophosphate pesticides for home usage.
 - e. Not one new rule, not one new study has been undertaken by our government to fill in the blanks in our knowledge.
 - f. But it has only been 20 years, our government moves slowly on some things.
 - g. Why is the feeding of pesticides to our kids at every meal important anyway?
5. Why does NPR reporter Aubrey sound like a conventional food pusher that believes the unexpressed great fears that the organic food market growth is somehow harming conventional food markets? Why is the conventional food system so defensive/aggressive towards the organic food alternative?
 - a. If organic can not feed the world, why pick on organic? Organic should be inconsequential...
 - b. If organic food is marketed with smoke and mirrors, the public will find out. Why continually scream about it?
 - c. Why attack organic believers for their zealous, religious-like beliefs anyway? Organic zealots are just a mis-informed bunch of aging hippies...of no concern to someone who seriously, really needs to feed the world!
6. Has the independent whole truth become the influenced partial truth in any way?
7. Could it be insulting to listeners with legitimate reasons for buying organic foods to suggest that they have emotion ruling their lives with no science or reason behind their life altering food decisions? Examples: less pesticide ingestion, less

environmental soiling, better taste, better animal welfare, less GMO ingestion, higher CLA, more omega-3, less omega-6....

8. "Studies so far have not identified a health benefit to eating organic food" –Charles. Charles needs to investigate more!
9. "If I spend the money, am I reducing the cancer or disease 10 or 20 yrs down the line –Aubrey:"Studies simply have never been done". Aubrey needs to investigate.
10. "Mostly short term narrow studies = body of evidence" Aubrey states this like she has investigated the body of evidence and understands it! Whose words are these? Aubrey needs to read more.
11. "Pests and funguses (really "funguses") ruining your organic crop" "Whole list of natural pesticides that you can use" in organic. Really a whole list? Aubrey needs to investigate more. Please tell us how many items are on this list, and compare to conventional food production.

Science with alternative conclusions

1. See Dr. Charles Benbrook's rebuttal article to the Stanford publication found here: http://www.organicconsumers.org/benbrook_annals_response2012.pdf
2. See our windsordairy.com slide presentation on "Children and the Pesticides We Feed Them". It contains a peek at the peer-reviewed research into what we know and do not know regarding pesticides in our food.
3. See windsordairy.com, for a brief summary of the research that showed the association between increased autism spectrum disorders and maternal exposure to pesticides during pregnancy.
4. See windsordairy.com for study summary that shows association between ADHD and pesticide exposure.
5. See windsordairy.com for our two articles on organic milk versus conventional milk differences entitled The Organic Advantage: Part 1 and Part 2.
6. See windsordairy.com for our review of research on Differences between Conventional and Organic Milk Fatty Acids.

- a. This published research is an excellent example of study authors stating conclusions that did not originate from the research on which they reported!
- b. Outside influences affect author's ability to state the truth and the reviewer's ability to approve or to disapprove the science that is published! Sad, but true.

Please compare for yourself the verbatim paragraphs of conclusions presented in the Stanford paper and the authors' conclusions for the media

Conclusions below are quoted directly from the Discussion section of the paper:

“Are Organic Foods Safer or Healthier than Conventional Alternatives: A Systematic Review”

“Consumers purchase organic foods for many reasons. Despite the widespread perception that organically produced foods are more nutritious than conventional alternatives, we did not find robust evidence supporting this perception. Of the nutrients evaluated, only 1 comparison, the phosphorus content of produce, demonstrated the superiority of organic foods (differences were statistically significant and homogenous), although removal of 1 study rendered this result statistically insignificant. Higher levels of phosphorus in organic produce compared with conventional is consistent with previous reviews (19, 20), although it is unlikely to be clinically significant because near-total starvation is needed to produce dietary phosphorus deficiency (287).

We also found statistically higher levels of total phenols in organic produce, omega-3 fatty acids in organic milk and chicken, and vaccenic acid in chicken compared with conventional products, although these results were highly heterogeneous and the number of studies examining fatty acids was small (5). Our finding of higher levels of these beneficial fatty acids in organic compared with conventional milk is consistent with another recent metaanalysis of these outcomes (288). One study examining the breast milk of mothers consuming strictly organic diets found higher levels of trans-vaccenic acid (58), similar to our findings among organic dairy products. Otherwise, studies measuring nutrient levels among humans consuming organic and conventional diets did not find consistent differences.

Our study has 3 additional key findings. First, conventional produce has a 32% higher risk for pesticide contamination than organic produce. However, the clinical significance

of this finding is unclear because the difference in risk for contamination with pesticide residues exceeding maximum allowed limits may be small. One study found that children switched to an organic diet for 5 days had significantly lower levels of pesticide residues in their urine (55), consistent with our findings among the food studies.

Second, we found no difference in the risk for contamination of produce or animal products with pathogenic bacteria. Both organic and conventional animal products were commonly contaminated with *Salmonella* and *Campylobacter* species. The reported rates of contamination are consistent with published contamination rates of U.S. retail meat samples (289–291). However, with removal of 1 study, results suggested that organic produce has a higher risk for contamination with *E. coli*, a finding that was both homogeneous and statistically significant. Similarly, an exploratory case–control study suggested that human consumption of organic meat in the winter is associated with symptomatic *Campylobacter* infection (70). These preliminary findings need to be confirmed with additional research. A recent U.S. study found that produce from organic farms using manure for fertilization was a significantly higher risk for contamination with *E. coli* compared with produce from organic farms not using animal wastes (OR, 13.2 [CI, 2.6 to 61.2]) (292).

Third, we found that conventional chicken and pork have a higher risk for contamination with bacteria resistant to 3 or more antibiotics compared with organic alternatives. This increased prevalence of antibiotic resistance may be related to the routine use of antibiotics in conventional animal husbandry. However, the extent to which antibiotic use for livestock contributes to antibiotic-resistant pathogens in humans continues to be debated (293) because inappropriate use of antibiotics in humans is the major cause of antibiotic-resistant infections in humans.

Finally, there have been no long-term studies of health outcomes of populations consuming predominantly organic versus conventionally produced food controlling for socioeconomic factors; such studies would be expensive to conduct. Only 3 short observational studies examined a very limited set of clinical outcomes: 2 studies examining allergic outcomes of a cohort of children consuming organic versus conventional diets in Europe found no association between diet and allergic outcomes (61, 64).

Below, please see my personal alternative press release for presentation of the Stanford Study Results to the Media.....

!!!! NEWS FLASH !!!!
For immediate release

**Stanford Meta-analysis study finds Organic Foods Differ
From Conventional Foods**

Finding #1. Organic produce has higher levels of phosphorus.

Finding #2. Organic produce has higher levels of phenols.

Finding #3. Organic chicken has higher levels of vaccenic acid.

Finding #4. Organic milk has higher beneficial fatty acids (Vaccenic acid and CLA)

Finding #5. Higher TVA in breast milk of mothers eating organic food.

Finding #6. Organic produce has 81% lower risk of pesticide contamination.

Finding #7. Organic poultry and pork have 67% lower risk of being contaminated with bacteria that are resistant to 3 or more antibiotics.

Reported by Arden J. Nelson, DVM

*"I never was a hippie, but I am very biased.
I am a zealous and fanatical fan of transparent organic food production methods
that result in the
continuing improvement of our sad American human diet."*