Stupid Like a Fox: More amazing anti-vax math

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*Dialogue from T*he Simpsons*:*

"You're stupid."

"Stupid like a fox!"

As I write this, it has been one week since I finished systematically documenting Olmsted's apparent inability to match his latest statements about Paul Offit's Rotateq income with the calculations they are supposed to be based on. (See "Revenge of Offit Revisited".) It is also about a week until the intended publication of a work in which everything JB Handley has contributed to AoA in the last year is shown to contain a lie, error or other fallacy. In the course of work on this ambitious project, I ran across the February 18th post, Unvaccinated Children Madness, in which Handley trumpeted Generation Rescue's own attempt to solve the non-existent problem (see "Eaten Alive") of a "vaccinated vs. unvaccinated" study. I was previously familiar with this debacle through an LB/RB rebuttal which concluded that the study a) was hopelessly flawed and b) to the extent it supported anything, indicated that the unvaccinated and less vaccinated have a higher rate of autism. But, on following Handley's citations to their source, I realized that the documented errors were only the tip of the iceberg. I also realized that trying to cover these errors in the format of a paragraph or two was like trying to real in a great white shark with a $10.00 toy fishing rod. Hence, this essay...

No critique would be complete without mention of the obvious flaws in the survey. It is clear from the size of the listed groups alone that whoever designed it grossly failed to get a representative, "random" sample. The fact that they only sampled from California and Oregon was ominous enough. As it happened, GR reports that 533 out of 9,175 were wholly unvaccinated, or 5.8%. That is almost 20 times the ca. 0.3% figure reported (to Handley's contemptuous incredulity) by the CDC. Thus, the obvious conclusion is that the sample was biased by disproportionate numbers of members of the anti-vaccine movement. This could represent genuine local concentrations in the surveyed states, or it could simply be that many respondents were called because GR provided their contact information to the surveyors. And, once the bias of too many "anti-vax" respondents is allowed, further potential problems present themselves. Given the extent to which anti-vax groups rely on the issue of autism, there is an obvious possibility that there would be an inflated proportion of parents of children with autism in their ranks. There is a further possibility that, in a strongly anti-vaccine environment, parents who allowed their children to be vaccinated might prove reluctant to say so, even confidentially. Conversely, parents of unvaccinated autistic children might misreport their children as vaccinated; or, they might simply refuse to acknowledge that their child is diagnoseably autistic. One need not make to much of these confounding factors, but it would be foolhardy to deny that such things could happen. (See "Is Anti-Vaccination the New `Harper's'?")

And now to the data, as given by Handley and co.:

Wholly unvaccinated: sample size 533

>   autism: 12 (2%)

>   Asperger's: 10 (2%)

>   PDD/NOS: 7 (1%)

Number with ASDs: 21 (4%)

Partially vaccinated: sample size: 906

autism: 61 (7%)

Asperger's: 31 (3%)

PDD/NOS: 22 (2%)

ASDs: 76 (8%)

Wholly vaccinated: Sample size: 7,736

Autism: 253 (5%)

Asperger's: 184 (2%)

PDD/NOS: 82 (1%)

ASDs: 357 (5%)

Partially and wholly vaccinated: sample size 8,642

Autism: 314 (4%)

Asperger's: 215 (2%)

PDD/NOS: 104 (1%)

ASDs: 433 (5%)

I will be blunt: The given percentages are irreconcilable with the data. This came to my attention by accident: Before I noticed that GR provided figures for his sample sizes, I calculated them from the numbers and percentages given for "autism". I came up with 600 vaccinated, 871 partially vaccinated, and 8,433 fully vaccinated.   Then I noticed Handley's "totals", and I knew that something really underhanded was going on. (The problem was still more obvious when I calculated for the "fully plus partially" group and came up with 7,850!). Since it was clear that Handley and/or associates could never have come up with the numbers, I did my own calculations and came up with the following:

Wholly unvaccinated: sample size 533

autism: 12 (2.25%)

Asperger's: 10 (1.88%)

PDD/NOS: 7 (1.31%)

Number with ASDs: 29 (5.44%)

Partially vaccinated: sample size: 906

autism: 61 (6.73%)

Asperger's: 31 (3.42%)

PDD/NOS: 22 (2.42%)

ASDs: 114 (12.58%)

Wholly vaccinated: (Sample size: 7,736)

Autism: 253 (3.27%)

Asperger's: 184 (2.38%)

PDD/NOS: 82 (1.06%)

ASDs: 519 (6.71%)

Partially and wholly vaccinated: sample size 8,642

Autism: 314 (3.63%)

Asperger's: 215 (2.49%)

PDD/NOS: 104 (1.20%)

ASDs: 633 (7.32%)

It appears that the main source of the differences is a penchant for rounding to the nearest percentile: definitely not a good idea for phenomenon whose recorded prevalence is less than 1%! Here are the resulting disparities:

Wholly unvaccinated: sample size 533 v. 600= 12.6% exaggeration

autism: 2% v. 2.25%= 11% underestimate

Asperger's: 2% v. 1.88%= 6.4% exaggeration

PDD/NOS: 1% v. 1.31%= 24% underestimate

Number with ASDs: 21 vs. 29= 26% underestimate

Partially vaccinated: sample size: 906 v. 871= 4% exaggeration

autism: 7% v. 6.73%= 4% exaggeration

Asperger's: 3% v. 3.43%= 12.5% underestimate

PDD/NOS: 2% v. 2.42%= 17% underestimate

ASDs: 76 v. 114= 33% underestimate

Fully vaccinated: Sample size 7,736 v. 8433= 9% exaggeration

Autism: 5% v. 3.27%= 53% exaggeration (!!!)

Asperger's: 2% v. 2.38%= 26% underestimate

PDD/NOS: 1% v. 1.06= 5.7% underestimate

ASDs: 357 v. 519= 31% underestimate

Partially and wholly vaccinated: sample size 8,642 v. 7,850= 9.2% underestimate

Autism: 4% v. 3.63%= 10.2% exaggeration

Asperger's: 2% v. 2.49%= 20% underestimate

PDD/NOS: 1% v. 1.2%= 16% underestimate

ASDs: 433 v. 633= 31% underestimate

In summary, the "miscalculations" show not *just* incompetence, but significant patterns serving specific purposes:

1. Total numbers of ASD cases are always undercounted, by more than 30% except in the wholly

unvaccinated group. (I suppose this could be accounted for benignly as a result of parents giving more than one diagnosis for a single child. Whether GR made their own, probably idiosyncratic definitions for ASDs sufficiently clear to the surveyors, and whether the surveyors passed on what understanding they had to respondents, is an especially murky issue.) At face value, this is entirely counterproductive to GR's purposes, but serves to inflate the apparent prevalence of what they consider "autism" compared to other autism spectrum disorders.

2. The statistical value of the sample size is exaggerated, except in the partially and fully vaccinated group. This would serve to hide differences between the two (sub) groups. Value is exaggerated most for the "wholly unvaccinated" group.

3. "Autism" (however defined) is underestimated in the wholly unvaccinated group, and exaggerated in all others, especially the fully vaccinated group.

4. Asperger's is always underestimated, except in the wholly unvaccinated group. The rate of "autism" might be raised or lowered for a given group simply by selective distinctions between it and "Asperger's".

5. PDD-NOS is always underestimated. For the fully vaccinated and wholly unvaccinated groups, the frequency of PDD-NOS is made to appear the same when in fact it is about 25% greater in the latter.

The full "strategic" significance of these patterns is most apparent when the alleged differences between the unvaccinated and fully vaccinated groups are considered. Their "autism" rates are shown as 2% and 5%, which indicates that the latter has 150% more "autism". But the vast majority can be accounted for by distortions alone. While "statistical value is exaggerated in both, it is exaggerated 40% more in the unvaccinated group. Autism rates are underestimated by 11% in the unvaccinated, and exaggerated by 53% in the fully vaccinated. "Asperger's" is exaggerated by (at least) 6.4% in the unvaccinated and underestimated by 26% in the fully vaccinated. The potential cumulative effect is (crudely speaking) an apparent difference of +136.4% where there may in fact be none. Factor in that the fully vaccinated group is 14.5 times the size of the unvaccinated one, and there is is nothing left worth discussing: 10% more or less could plausibly be accounted for by differences in error and uncertainty between such differently sized samples.

I have little to add in the way of conclusions, except to say that those who have merely dismissed this study as either wholly worthless or actually detrimental to GR have underestimated the group's skill at manipulating numbers to their own advantage. If Handley and co. come across as fools who cannot even *lie* competently, it must not be forgotten that even the most ludicrous misrepresentation of fact may, for the right person, be all that is needed to misdirect the intelligent but unwary to exactly the wrong conclusion. In the words of Homer Simpson, even the biggest idiot may prove to be "stupid like a fox".

David N. Brown is a semipro author, diagnosed with Asperger's Syndrome as an adult. Previous works include the novels *The Worlds of Naughtenny Moore, Walking Dead* and *Aliens Vs Exotroopers*, and the nonfiction ebook *The Urban Legend of Vaccine-Caused Autism*. This and other articles related to autism are available free of charge at evilpossum.weebly.com.