Article

Threshold Dose Response of Aluminum Adjuvants Seen in Population Data

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Threshold Dose Response of Aluminum Adjuvants Seen in Population Data

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Abstract: Chronic disease in children has received attention in recent years. The National Survey of Childhood Health [1,2] tracks the prevalence of 6 childhood diseases (Autism, Allergies, Asthma, ADD/ADHD, Epilepsy, and Tourette's) stratified by birth year and US state which allows it to be joined with Centers for Disease Control National Immunization Survey (CDC NIS) [3] which does the same. All chronic childhood diseases had pairwise associated prevalence pointing to a common environmental cause, and it was found that the environmental cause of each of these diseases (Autism, Allergies, Asthma, ADD/ADHD, Epilepsy, and Tourette's) is aluminum adjuvants as the unique pattern of a threshold dose response and its relationship to future disease can be seen for each condition.

Keywords: aluminum adjuvants; NSCH; NIS-Child

Introduction

Chronic childhood diseases have increased in prevalence over the past 100 years. According to the NSCH 2020-2023, 37% of children have at least one of the following diseases.

Table 1. Prevalence of disease as measured in NSCH.

Disease	Prevalence
Autism	3.7%
Allergies	26.1%
ADHD	8.1%
Asthma	8.4%
Epilepsy	0.94%
Tourette's	0.21%

Associated prevalence of these diseases in the table below suggests a common environmental exposure, but it's a big mystery what that common environmental factor could be. All that we know for sure is it's definitely not that one thing, but it could be anything else: genetics? aluminum in food? who knows.

Table 2. Correlations between disease prevalence.

correlation	autism	allergies	adhd	asthma	epilepsy	tourettes

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autism	-	.28***	.35***	.28***	.26***	.19***
allergies	.28***	-	.58***	.60***	.20***	.26***
adhd	.35***	.58***	-	.62***	.19***	.41***
asthma	.28***	.60***	.62***	-	.22***	.32***
epilepsy	.26***	.20***	.19***	.22***	-	.14**
tourettes	.19***	.26***	.41***	.32***	.14**	-

Note. This table presents Pearson correlation coefficients. * p<.05, ** p<.01, *** p<.001.

Before saying ecological fallacy please consider that a direct relationship between aluminum adjuvants and asthma has already been identified in Daley et al. "Association Between Aluminum Exposure From Vaccines Before Age 24 Months and Persistent Asthma at Age 24 to 59 Months" [4]. If the association between asthma and aluminum adjuvants is direct, it would make sense that the other ones are direct as well, this should be the default view in case. What would we find if we looked at the relationship between each of these diseases and aluminum adjuvants at the individual level? Well, there was an attempt to study that very question, but according to the CDC after 1 year of careful review the response was: "the data source is over 25 years old, and at this point there would not be a scientifically valid study that could be conducted that could be generalized to todays vaccine's schedule." And with that, the CDC VSD Data Sharing Program was no more. In its place the only thing that can be done is reanalyze any VSD study done in the past 10 years.

Aluminum adjuvants are in most childhood vaccines, notably DTAP, Hib, Hep B, PCV, IPV that were looked at in this study. Non linear dose response is a known feature of aluminum adjuvants [5]. Because a constant dose is given regardless of the age of the child, the dose in mg/Kg is constantly decreasing as the child grows and we could see variable age/weight dependent effects from aluminum adjuvants.

This study finds just such age dependent effects in the relationship between aluminum adjuvants and childhood disease prevalence. The dose response function is likely to be a threshold function where the threshold is hit as early as 4 months of age by some brands and as late as 12 months for others. This study uses 4 years of data from the NSCH 2020-2023 joined with 8 years of data from CDC NIS to investigate the prevalence of Autism, Allergies, Asthma, ADHD, Epilepsy, and Tourette's across the 50 states and DC from the birth years 2011-2018.

Methods

A study was previously done with less data from the NSCH, but following the same methodology, "Aluminum Adjuvants and Childhood Disease Prevalence" [6]. Please refer to that paper for the methodology.

Results

It's possible to forecast the prevalence of chronic diseases from the summed likelihood of aluminum adjuvant vaccination from CDC NIS between ages 6-12 months.

Table 3. Future chronic childhood disease prevalence can be forecast from the summed likelihood of aluminum adjuvant vaccination from CDC NIS at ages 6-12 months.

Disease	p-value	t value	R^2

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Autism	< .001	7.42	0.1173
Allergies	< .001	6.63	0.0955
Asthma	< .001	6.40	0.0894
ADD/ADHD	< .001	6.68	0.0969
Epilepsy	.013	2.51	0.0128
Tourette's	< .001	3.60	0.0286

Is this not concerning? The prevalence of autism can be forecast with 7 sigma significance. It's also possible to go the other way and identify which vaccines contain aluminum because every single aluminum containing vaccine has a statistically significant relationship with at least 3 of the diseases individually and in some cases with all of them (PCV).

Table 4. Vaccine likelihood from 6-12 months vs chronic diseases.

correlation	DTaP	HepB	Hib	PCV	Polio
Autism	.24***	.22***	.17***	.25***	.19***
Allergies	.26***	.22***	.07	.28***	.17***
ADHD	.30***	.15**	.20***	.32***	.17***
Asthma	.20***	.25***	.06	.22***	.11*
Epilepsy	.13**	.05	.11*	.10*	.09
Tourettes	.09	.20**	.03	.14**	.03
t-test	6.21	6.14	3.93	6.37	5.07

Note. This table presents Pearson correlation coefficients. * p<.05, ** p<.01, *** p<.001.

We can quantify exactly how unlikely you would get such a set of correlations by chance with a t test, this is an 11 sigma result. Perhaps surprisingly there is quite a bit of dispersion in likelihoods of vaccine uptake (thanks red states!). Hib and HepB likelihoods are negatively correlated in this time period at -.12. Yet we can see that Hib and HepB are both independently associated with Autism and ADHD. It's not possible to have a hidden variable here given the independence of the factors, they would necessarily be correlated from the influence of the partial information from the hidden variable. Could there be multiple hidden variables at play? Yes, I suppose we can all dream of a fantasy world where aluminum adjuvant vaccines weren't injuring millions of children per year. The only "hidden factor" that makes sense is that both vaccines contain aluminum which must be a direct causal factor.

The 4-6 month time period is interesting because of the disparate impact of the different vaccines. The meaningful difference between these vaccines is the dose of aluminum received from each one, which may be received in combination or alone with varying levels of aluminum depending on the

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exact brand. This results in extremely non random correlation coefficients with t-test results seen in the bottom of Table 5 with magnitudes between 6-10 sigma.

Table 5. Vaccine likelihood from 4-6 months vs chronic disease.

correlation	DTaP	HepB	Hib	PCV	Polio
Autism	-.22***	.23***	.21***	-.26***	.21***
Allergies	-.21***	.25***	.23***	-.24***	.27***
ADHD	-.25***	.33***	.26***	-.29***	.27***
Asthma	-.16**	.25***	.20***	-.20***	.21***
Epilepsy	-.13*	.12*	.14*	-.13*	.14**
Tourettes	-.08	.15**	.15**	-.12*	.11*
t-test	-6.75	7.14	10.5	-7.26	7.50

Note. This table presents Pearson correlation coefficients. * p<.05, ** p<.01, *** p<.001.

The 12-18 month time period is also interesting as once again different vaccines appear to have different relationships to future disease. Once again the t test shows just how non random these correlations are.

Table 6. Vaccine likelihood from 12-18 months vs chronic disease.

correlation	DTaP	HepB	Hib	PCV	Polio
Autism	.07	.11*	-.11*	.17***	-.15**
Allergies	.05	.12*	-.12*	.12*	-.08
ADHD	.10*	.14**	-.18***	.15**	-.11*
Asthma	.02	.07	-.26***	.06	-.12*
Epilepsy	.13**	.10	-.07	.18***	-.02
Tourettes	.10	.10*	-.14*	.11*	-.06
t-test	4.83	11.18	-5.42	7.25	-4.74

Note. This table presents Pearson correlation coefficients. * p<.05, ** p<.01, *** p<.001.

The table below has the summed aluminum adjuvant vaccine likelihoods for each time bucket in CDC NIS vs each disease. The most likely explanation for these results is that aluminum adjuvants have a threshold dose response function. From the table above, we can say that the threshold begins to be breached by some brands at 4 months of age, and by most brands at 6 months of age from the table below. In each time period each vaccine has a non random positive or negative relationship with the 6 diseases. When aggregated together the same pattern emerges, once again it's helpful to do a t-test of these correlation coefficients to quantify just how non random this is.

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Table 7. Aggregated vaccine likelihood vs chronic disease for each time bucket.

correlation	0m-2m	2m-4m	4m-6m	6m-12m	12m-18m	18m-24m	24m-36m
Autism	-.20***	-.23***	-.13*	.31***	-.09	.16***	.11*
Allergies	-.14**	-.22***	-.07	.28***	-.08	.15**	.14**
ADHD	-.22***	-.27***	-.11*	.31***	-.14**	.20***	.10*
Asthma	-.16***	-.21***	-.04	.25***	-.25***	.14**	.02
Epilepsy	-10*.	-.16**	-.05	.13**	-.01	.03	.09
Tourettes	-.10	-.11*	-.02	.17***	-.10	.02	.09
t-test	-7.50	-8.66	-4.04	7.84	-3.42	3.86	5.65

Note. This table presents Pearson correlation coefficients. * p<.05, ** p<.01, *** p<.001.

One potential criticism of this study worth addressing is the variable follow up time when looking at 8 birth years of data sampled in 2020-2023. Some children may be diagnosed with one of these conditions in later years and there is uneven follow up time depending on birth year and when they were sampled by the NSCH. We have the age of diagnosis for autism and by limiting the study to children with autism diagnosed at less than 3 years old, missing data is no longer an issue. The p-value of this relationship is still highly significant at 0.007 despite the loss of ⅔ of the autism cases as most cases are diagnosed at 3 and older.

Discussion

We're looking at the biggest medical disaster in human history, 37% of children in the 2020-2023 NSCH are afflicted with at least one of the 6 conditions. With 100 million live births per year in the world, aluminum adjuvants would be injuring about 100,000 kids *per day* if vaccination rates worldwide were similar to the US, but given that's not the case, it's more like 100,000 kids per *business* day, still quite horrific.

It's sad that this has to be pointed out explicitly, but saying that aluminum adjuvants from vaccines cause disease does not mean it is the sole cause or that there can't be other contributing risk factors like genetics or aluminum from other sources. Of course these diseases existed prior to aluminum adjuvants, but it should be noted that we've seen at least an order of magnitude increase in each disease over the last 50 years or so. It can also be true that these conditions, whether some or all of them, are diagnosed more often because of better screening or awareness, none of that negates what was found in this study.

"There's nothing that can be learned from observational studies". This might be one of the dumbest statements I've ever heard. Yet everyone in medicine seems to believe this. In quant trading, the only tool you have is retrospective observational studies, there is no way to do a controlled study. And yes you can learn a lot from them. That's why at age 45 I never have to work another day in my life and can work on interesting problems like why in 100 years of use no one seems to have figured out that aluminum adjuvants are causing massive amounts of chronic disease. In particular, when paired with logical inference, you can rule out all common confounders of observational studies. Hidden variables? As shown above it's not possible to have a hidden variable if 2 uncorrelated exposures are both associated with an outcome. A hidden variable would cause each exposure to have partial information from the hidden variable and must necessarily be correlated. The only logical conclusion is that each exposure has a direct causal relationship with the outcome in question.

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Ecological Fallacy? The Daley paper [4] shows that the relationship is direct for Asthma, and there's no data for the other diseases which all have the same distinct pattern of relationships to aluminum adjuvant vaccines as asthma in this study. It's safe to say that if anyone ever gets a chance to do a similar study with Allergies, Autism, ADHD, Epilepsy, and Tourette's they would also find that those are direct relationships.

The Daley paper [4] is worth discussing in more detail. It is very important to the argument presented here, so long as it's possible to show that any of the 6 diseases has a direct association with aluminum adjuvants it's safe to assume they all do, as they all have a very distinct pattern of relationships to aluminum adjuvants by age of vaccination matching that of Asthma. There are 2 big problems with the paper. The first is that the hazard ratio found in the paper of 1.19 per mg was described as "small". Yet this is only the case because the hazard ratio was presented as per mg, which I'm sure had to be done to get his paper published. The mean dose was ~4mg, which means that the overall hazard ratio between a fully vaccinated child and unvaccinated child is 1.19^4 = 2. A hazard ratio of 2 is not "small" [7] as noted by Andrew Racine. The second problem is that there was a complete failure to do proper linearity testing prior to regression. Aluminum adjuvants are already known to have a non linear dose response [5] and even if that wasn't known it should still be tested for. In the Daley study aluminum adjuvant dose was aggregated prior to doing any linearity testing, thus losing any information about the non linearity of dose response. Such a transgression would get you escorted out of the building in the field of quant trading. Watching doctors do math is like watching Filipino karaoke singers covering american songs, they know all the words, but you can tell they have no clue what the words mean.

The dose response function of aluminum adjuvants is very obviously a threshold function where paradoxically the doses just below the threshold are the most dangerous. The threshold appears to be breached by some vaccines earlier than others, by 4-6 months HepB, Hib, and Polio are positively correlated with each disease, but it's not until 6-12 months that all vaccines are positively correlated with each disease. This is easily explainable by the fact that different vaccines contain different amounts of aluminum. What's harder to explain is why there are significant negative correlations at various ages. Given that most children are fully vaccinated, there exists a fixed number of vaccines where each must land in one of 7 time buckets captured in CDC NIS. A priori there is a pdf describing the probability of a particular vaccine being realized in each of the 7 buckets, we don't know this pdf, but can safely assume it is non zero in all buckets. We can also reason qualitatively that this pdf peaks in one bucket and progressively declines in adjacent buckets as most parents and doctors will try to follow the CDC vaccine schedule, it's not totally random where vaccines will be given. There is also an expectation for each bucket in terms of its contribution to future disease for any particular vaccines (which we also don't know exactly, but logically must alway be positive or negative everywhere, in this case it is positive everywhere). When we have a realization of a vaccine in a particular time bucket, not only does that probability become 1, but it becomes 0 everywhere else. Therefore for any realization of a vaccine in a bucket, the contribution to the resulting correlation is related to (1-p) * expectation for that bucket but also adding -p * expectation for each of the 6 other buckets which did not get the realization where p is the a priori probability of that vaccine being in that bucket. This effect causes vaccines to appear to be protective in some buckets from the subtraction of the expectation of the other 6 buckets where no or little risk was added from the (1-p) * expectation term for that bucket. We can see this in the (0,2) and (2,4) month buckets where there is evidently little risk of disease from the particular doses of aluminum received at those ages. What takes a little more thought is why the (12,18) month bucket is also negatively correlated when it's claimed that this is obviously a threshold function and certainly the threshold has been breached for all vaccines by that age. It's the same principle at work, just below the threshold is the most dangerous dose, later buckets are less dangerous as the dose is further below the threshold, therefore if you were most likely to receive a dose in the highest risk bucket (6,12) months, but actually received it later at (12,18) months, you are subtracting the a priori expectation from the (6,12) month bucket and can cause the correlation with future disease to appear to be negative. The fact that statistically significant

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correlations exist both on the positive and negative side should not be confusing, it is the expected result of an underlying non linear process.

Going back to the Daley paper, given the fact that most of the aluminum dose received by a child occurs in the low risk (0,4) set of buckets, we can say that his result is a dramatic underestimate of the true hazard ratio as the untested linearity assumption in that study oversamples where the dose response is small and undersamples periods where the dose response is higher. One thing to note here is that delaying vaccination is very dangerous as that increases the dose response of aluminum adjuvants, and that may be partially responsible for the large number of anecdotal reports of parents convinced that their children were injured by vaccines as the people most likely to delay vaccination were the people who were already suspicious of vaccine safety and from the results of this study also most likely to have vaccine injured children. They weren't wrong, just very unlucky.

The next task is to visit the CDC VSD to reanalyze the data in the Daley paper to prove that indeed aluminum adjuvants have a non linear relationship with Asthma to the extent people lack the mathematical intuition to see what's plainly obvious from this study. That study should be completed in calendar year 2025.

Conclusions

Autism, Allergies, Asthma, ADHD, Epilepsy, and Tourette's all have a common environmental cause. That common cause is aluminum adjuvants from vaccines. The non linear dose response of aluminum adjuvants has confounded prior studies of aluminum adjuvants and its relationship to chronic disease.

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Appendix A

Code and data used: https://github.com/kmokeddem/nsch_nis

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