

To the officials of the school board,

My name is Anthony Leonardi, Ph.D. and I am a T cell immunologist educated at Johns Hopkins '09, '12, and did my Ph.D. work at the National Cancer Institute on T-cell function, dysfunction, and immunity.

There are important updates I must share with you. The evidence of SARS-COV-2's long term effects on the brain are mounting. In a study of people who were infected, at 3 months they had structural changes in the brain like Alzheimer's, in the place responsible for memory.¹ Another study showed that infected people had proteins in the blood seen in Alzheimer's patients.² Both children and adults have underactive, or "hypometabolic" brain activity after infection.^{3,4} The virus is also causing autoimmunity to important neurological proteins.⁵ It is causing T cells to go into the brain, which doesn't even happen in lethal cases of the flu.⁶ The variant known as "Delta" is causing 1000 times more virus in infected people,⁷ and is more contagious and grows more rapidly.⁸ The kidneys are also harmed from infection. People with even light illness had kidney function decline.⁹ This decline can progress long-term.¹⁰

I am going to be very clear again- I am staunchly opposed to children catching this virus for their immunity. Why? The virus tracks into important neurological systems responsible for taste, smell, and memory.¹¹ We are seeing reports of Parkinson's-like manifestations¹² and now issues with parts of the brain responsible for memory. It is a waste for children to catch this when vaccines are available. Not only that, but there are also several reports of reinfections being worse than the first infection.¹³ Do not bring unvaccinated children into a classroom when they are unvaccinated and expose them to such risks. Children should be permitted to have remote learning and classrooms should have airborne mitigations in place like ventilation and masks. Ventilation is important for restrooms as well since cov2 has been shown to spread in bathrooms.¹⁴ Reconsider indoor classrooms before children are vaccinated. You may be setting them up for long-term neurological disease.

Children and adults need vaccination- the virus has been seen to replicate inside cells of the immune system called monocytes and macrophages, which may present an issue like chronic infection.¹⁵

¹ [https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370\(20\)30228-5/fulltext](https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370(20)30228-5/fulltext)

² <https://www.medrxiv.org/content/10.1101/2021.09.01.21262985v1>

³ <https://link.springer.com/article/10.1007/s00259-021-05528-4>

⁴ <https://link.springer.com/article/10.1007/s00259-021-05215-4>

⁵ <https://www.nature.com/articles/s41586-021-03631-y>

⁶ <https://www.nature.com/articles/s41586-021-03710-0>

⁷ <https://virological.org/t/viral-infection-and-transmission-in-a-large-well-traced-outbreak-caused-by-the-delta-sars-cov-2-variant/724>

⁸ <https://www.npr.org/sections/goatsandsoda/2021/07/08/1013794996/why-the-delta-variant-is-so-contagious-a-new-study-sheds-light>

⁹ <https://jasn.asnjournals.org/content/jnephrol/early/2021/08/25/ASN.2021060734.full.pdf?with-ds=yes>

¹⁰ [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(21\)00039-8/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(21)00039-8/fulltext)

¹¹ <https://stm.sciencemag.org/content/early/2021/04/30/scitranslmed.abf8396>

¹² [https://www.thelancet.com/journals/laneur/article/PIIS1474-4422\(20\)30442-7/fulltext](https://www.thelancet.com/journals/laneur/article/PIIS1474-4422(20)30442-7/fulltext)

¹³ <https://www.frontiersin.org/articles/10.3389/fmed.2021.737007/full>

¹⁴ <https://www.news-medical.net/news/20200830/Evidence-of-SARS-CoV-2-spreading-in-an-airplane-toilet.aspx>

¹⁵ <https://journals.asm.org/doi/10.1128/mBio.01987-21>

Do not underestimate the virus and think it is a one-time infection. A recent paper proposed time to reinfection was on average 16 months¹⁶, and another showed the majority of reinfections were worse.¹⁷

Sincerely,

Anthony Leonardi, Ph.D. 10/08/2021

¹⁶ [https://www.thelancet.com/journals/lanmic/article/PIIS2666-5247\(21\)00219-6/fulltext](https://www.thelancet.com/journals/lanmic/article/PIIS2666-5247(21)00219-6/fulltext)

¹⁷ [https://www.clinicalmicrobiologyandinfection.com/article/S1198-743X\(21\)00422-5/fulltext](https://www.clinicalmicrobiologyandinfection.com/article/S1198-743X(21)00422-5/fulltext)