School Closure: A Careful Review of the Evidence

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(/custom-search-results/?post_date=02192021) Reading Time: 42 minutes

Abtract: *based on the existing reviewed evidence, the predominant finding is that children (particularly young children) are at very low risk of acquiring SARS-CoV-2 infection, and if they do become infected, are at very low risk of spreading it among themselves or to other children in the school setting, of spreading it to their teachers, or of spreading it to other adults or to their parents, or of taking it into the home setting; children typically become infected from the home setting/clusters and adults are typically the index case; children are at very low risk of severe illness or death from COVID-19 disease except in very rare circumstances; children do not drive SARS-CoV-2/COVID-19 as they do seasonal influenza; an age gradient as to susceptibility and transmission capacity exists whereby older children should not be treated the same as younger children in terms of ability to transmit e.g. a 6 year-old versus a 17 year-old (as such, public health measures would be different in an elementary school versus a high/secondary school); 'very low risk' can also be considered 'very rare' (not zero risk, but negligible, very rare); we argue that masking and social distancing for young children is unsound policy and not needed and if social distancing is to be used, that 3-feet is suitable over 6-feet and will address the space limitations in schools; we argue that we are well past the point where we must replace hysteria and fear with knowledge and fact. The schools must be immediately re-opened for in-person instruction as there is no reason to do otherwise.*

Where do we begin with the devastating school closure policies due to COVID-19? How did we get here and why would our government leaders continue and toughen these irrational policies with no good reason? We have never previously implemented policies like school closures or masking of children for seasonal influenza which is much more deadly for children. Settled science shows that children do drive influenza into the home

but do not drive COVID-19 into the home. Our policies make no sense whatsoever when we know children do not transmit (https://pubmed.ncbi.nlm.nih.gov/32371442/) COVID-19 and asymptomatic spread (https://www.nature.com/articles/s41467-020-19802-w) has been questioned. Children, if infected, just do not readily spread (https://academic.oup.com/cid/article/71/15/825/5819060) COVID-19 to others. We state at the outset that our children are suffering (https://pubmed.ncbi.nlm.nih.gov/32904951/) as a result of school closures (and lockdowns) as we shall demonstrate below. They are being (https://www.thestar.com/news/gta/2021/01/29/disturbing-trend-ottawa-hospital-sees-rise-in-number-of-babies-with-severe-head-injuries-during-second-wave-of-covid-19.html) abused (https://www.sciencedirect.com/science/article/pii/S2665910720300384?via%3Dihub) with child and domestic abuse (https://www.apa.org/topics/covid-19/domestic-violence-child-abuse) escalating as a result of these unsound societal restrictions. It is time that we as a society recognized the harms we're inflicting on our children in order to protect ourselves; the adults/parents. This could be the 1st time on record in western society where we have reversed positions with our kids and are asking them to suffer in order to protect us from an infectious disease no worse than annual influenza; we've made them into human shields in effect. Aside from the devastation it causes them, this alone is shameful, and would still be shameful even if children transmitted SARS CoV-2, which they don't. History will not look kindly upon us.

We are talking about extensive educational losses but more alarmingly, deaths of despair and suicide among our children that is already occurring, depression, and abuse of our children etc. As an example, CNN's (https://www.cnn.com/2021/02/10/health/kids-mental-health-suicide-

pandemic-wellness/index.html) Lisa Selin Davis recently put out a very informative piece on the urgent need to pay close attention to our children during this pandemic as their mental health is at stake and has taken a hit. This impacts our poorest and minority children the most who will not be able to bear the toll and it is a travesty that it has been allowed to go on for so long. We argue that top US public health agencies such as the CDC continue to fail in its needed leadership role and there seems to be no end in sight. Recent school re-open guidance by the CDC (https://www.cnbc.com/2021/02/18/cdcs-classroom-guidance-would-keep-90percent-of-schools-at-least-partially-closed.html) raises even more uncertainty as the CNBC reports that the updated guidance has "notable shortcomings" and would keep 90% of schools closed to some extent, doctors stating " schools might not fully reopen for in-person learning for months even as they could do so safely sooner… "something we know one year out in this pandemic is that you can keep schools safe even if you have high rates of community transmission".

Dr. Bill Schaffner (https://www.cnbc.com/2021/02/18/cdcs-classroom-guidance-would-keep-90percent-of-schools-at-least-partially-closed.html) weighed in on this new CDC guidance and states "CDC should have focused more on ensuring that schools know what infection-prevention measures to implement and less on the level of community spread". CNN's Keilar (https://dailycaller.com/2021/02/05/brianna-keilar-reopening-schools-dana-bash-coronavirus-pandemic-jen-psaki-rochelle-walensky-cdc/) also weighed in, referring to the Biden policy of school re-opening to be confusing. Keilar raised issue with the new CDC Director's recent statements by stating this "is why this is all very confusing for Americans, why it's confusing for parents and teachers, and certainly kids if they're paying attention." Keilar also remarked (https://www.mediaite.com/tv/cnns-keilar-calls-out-confusing-

statements-from-biden-admin-on-reopening-schools-cdc-director-wasnt-speaking-in-her-personal-capacity/) "It is the mantra of president Biden's COVID response team that science, not politics, will drive its policy in the pandemic. But is that what is leading the way when it comes to reopening schools?"

We call on the CDC to be declarative and to act, and now! Furthermore, why has the Teachers' unions (https://abcnews.go.com/US/school-districts-face-fights-city-school-officials-reopening/story?id=75682484) been allowed so much power (https://thepostmillennial.com/teachers-unions-demand-more-money-but-refuse-to-go-back-to-work) and using the power to damage the lives of our children to this extent? The AFT, which can only be described as a classic shakedown, has demanded over $120 billion dollars (https://www.aft.org/sites/default/files/wysiwyg/reopen-schools-financial-implications.pdf) before they allow public schools (where most US children attend) to re-open, holding our children's education hostage. We call on leading agencies such as the CDC to take the best interests of the children who have been held hostage needlessly for way too long when the science has been clear for near one year now as to the limited risk. They talk about following the science but actions on school re-opening and many of the pandemic issues shows not so. The liberal democrat party professes to be the party of science and if so, then it is time to act on the science. Follow the science!

Maybe the CDC and others who remain 'unsure' on what to do should call Governor DeSantis of Florida for tips, for it seems that Governor DeSantis of Florida (https://www.youtube.com/watch?v=cKo6tTHHbbw&list=TLPQMTYwMjIwMjGfxohrZYpBgg&index=3) has got it right and is now reaping the benefits of allowing children to go back to school. 33 states have more cases of COVID-19 in children while many of them do not have in-

person school instruction. Governor DeSantis stated in a recent presser in response to the release by CDC of guidance "what the CDC put out on a Friday afternoon quite frankly is a disgrace…there is no evidence to suggest that kids should do anything else but be in school…this has been clear for months and months and months…we followed the data…we looked at what happened in Europe in places like Sweden and it does not require another 100 billion dollars…the only reason, the only reason, one reason only it is not happening like in Florida…is because the Democratic party puts the interest of the unions and special interests ahead of the children…that is putting politics ahead of what's right for kids…if you follow that CDC guidance they will not go back in…it's a disgrace".

What is staggering is that the virus to which we are reacting has an infection mortality/fatality rate (IFR) roughly similar (or even lower) to seasonal influenza. Research carried out by Stanford's esteemed John P.A. Ioannidis (https://www.medrxiv.org/content/10.1101/2020.05.13.20101253v3) has shown that among persons <70 years of age across the world, IFR ranged from 0.00% to 0.57% with a median of 0.05% across the different global locations (with a corrected median of 0.04%). Ioannidis's research was followed up recently by a reported non-institutionalized IFR in the state of Indiana (persons aged > 12 years) of 0.12% (95% CI 0.09 to 0.19) when age 40-59/60 years (reported in the Annals of Internal Medicine (https://www.acpjournals.org/doi/10.7326/M20-5352)), and an IFR when < 40 years old of 0.01% (95% CI 0.01 to 0.02). Persons 60 or older had an IFR of 1.71%. Just think about this; we closed schools and devastated our children for a pathogen that has an IFR no worse than that of influenza. Indeed, as we have already pointed out, influenza can actually lead to illness and death in children while this cannot be said for COVID-19 which spares children. In

fact, perhaps one of the most powerful arguments to be made *against* the closure of schools during this pandemic is also the simplest explanation and needs no scientific referencing; merely common sense. If we do not close schools during the annual influenza season which is related to a disease that actually puts children at risk for illness and even death then why on earth would we close schools for a virus that spares children almost completely?

It is unfortunate that we were lied to in a very destructive manner when the government bureaucrats and their apparently clueless advisors and unscientific, illogical, and at times unhinged 'media' medical experts deceived the public by failing to explain in the beginning that everyone is not at 'equal risk' of severe outcome or death if infected with SARS-CoV-2. There is a distinct age-risk gradient. This is a key omission and that omission is critical to the unscientific, subversive promotion of hysteria and fear, leading those not familiar with actual data more agreeable to the notion of nationwide lockdowns and in this case, closures of schools! You do not need to look very far to see how illogical and senseless the COVID response is by the politicized medical establishment, by their reaction and admonishment of early outpatient ambulatory sequenced drug treatment (https://pubmed.ncbi.nlm.nih.gov/33387997/) for high-risk COVID infected persons (McCullough, Risch, Zalenko, Fareed etc.), when they are at risk of hospitalization and death, while we have effective, safe, cheap, and available therapeutics at hand. The principles of medicine have been discarded when it comes to COVID-19.

It is a flat lie (https://www.nationalreview.com/magazine/2021/02/22/fauci-unmasked/) and messaging by the media and their incompetent television medical experts that there are crumpling health systems (https://www.wsj.com/articles/the-universal-vaccination-chimera-

11612466130) and inevitable severe consequences if anyone is infected with the COVID-19 virus. This type of deception and the resulting unfounded fear has been driven by the media "despite a thousandfold difference (https://www.wsj.com/articles/the-universal-vaccination-chimera-11612466130) in risk between old and young". We suggest that this has always been known, and yet this disinformation was spread willfully happily by our leaders and the media. How else does one explain the omnipresence of case number and death count tables inserted into the television broadcasts from virtually every news outlet that simply fans the flames of fear? Yet, as per CBS news, under the Obama administration, "CDC abruptly advised states to stop testing (https://www.cbsnews.com/news/swine-flu-cases-overestimated/) for H1N1 flu (2009 swine flu pandemic), and stopped counting individual cases". There was no question by the media and media medical experts then. What changed to drive hysterics and mania with COVID-19? As a result of the COVID-19 mania and deceptions we have generated an atmosphere of fear in the public and gross distrust of our government officials and medical experts. It is as if the television medical experts are averse to data, do not read the data or science, do not understand the data or are intentionally blind to it. They exhibit a pedantic thinking with no glimpse of 'balance' and common sense. At a time when the public is starving for honesty, clarity, and leadership from our experts these acts are unconscionable.

Indeed, the public still does not understand this critically important distinction that we are NOT all equally at risk of illness or death if infected with COVID-19 virus. Children have nearly zero risk of severe illness or death. The vast majority of persons who are infected go on to recover with no or very minimal mild symptoms. The public is still cowering in the corner, stunned in

place and cannot move out of fear, going for runs in the forest with no one 10 miles around, in open air, with wind blowing across their faces *yet wearing masks*. The sad reality is that our governments have deceived us to the extent that we cannot think clearly anymore and are inanely moving about, unsure what is coming next or what to do. With this deception, they were able to shutter our economies, our schools, and our lives.

Perhaps our government leaderships, their respective COVID-19 Task Forces, 'television' medical experts, and agencies such as the CDC (https://www.theatlantic.com/ideas/archive/2021/01/just-open-schools-already/617849/) and NIH, were for many months ignorant of the harms of actions such as shuttering of schools, or had deluded themselves. But even way back in April/May 2020, one year ago, this information was evident. Knowing the harm rendered to our children through isolation from their peers by closing schools (https://pubmed.ncbi.nlm.nih.gov/32904951/) they acted and intentionally inflicted severe physical and emotional consequences. They must have known that there were indications that COVID-19 may be increasing child and domestic (https://www.apa.org/topics/covid-19/domestic-violence-child-abuse) abuse. They had to know that one of the most important bulwarks protecting children from abuse are the schools. Teachers are the first line observers of abuse and mistreatment of children under their protection by their mandated reporting (https://pubmed.ncbi.nlm.nih.gov/33162107/) status when they observe mistreatment and abuse (https://pubmed.ncbi.nlm.nih.gov/32863462/) of children. By closing schools our public health officials intentionally severed a key avenue for interdicting abuse of children who were homebound. We suggest that it is highly unlikely that remote teaching (online) could be a substitute defensive line for our children. It is clear that none of this mattered

to our policy makers.

We even had strong evidence (August publication) emerging from a SARS-CoV-2 positive child in a cluster in the French Alps (https://academic.oup.com/cid/article/71/15/825/5819060) who visited three (3) different schools while symptomatic and did not spread the virus to anyone, even though more than 100 people had been exposed. This was a very compelling study that was not covered by the media or medical experts. Indeed, we can see (as will be shown below) that there was robust evidence available very early on in this pandemic that children were not the drivers of transmission! Yet that knowledge did not stop our governments, their often seemingly clueless advisors and 'media hungry' medical experts (we call them team 'Armageddon') from continuing to recommend (in several cases demand) school closures regardless of the availability of readily accessible data. The body of accumulated data and evidence was intentionally disregarded with respect to recommending and implementing the closure of schools. Even the CDC reported (https://www.cdc.gov/coronavirus/2019-ncov/more/science-and-research/transmission_k_12_schools.html) in their piece on *Transmission of SARS-CoV-2 in K-12 schools*, that "Based on the data available, in-person learning in schools has not been associated with substantial community transmission".

We cannot disregard the canard of 'asymptomatic spread' as it is at the heart of the COVID-19 restrictions and what got us into this disastrous mess in the first place. Take for instance that we started with '*15 days to slow the spread*' and now are one year into never-ending madness as governments continue restrictions without revisiting the data or conclusions. We were indeed scared into submission by this alleged '*asymptomatic*' transmission and were told we must close schools, that business must be shut down, we must perform mass

testing of asymptomatic people and all must wear masks even walking in the woods with no one for 10 miles around. This has continued without pause despite a seminal study (https://www.nature.com/articles/s41467-020-19802-w) published in NATURE that could not find one case of asymptomatic spread across 10 million persons (no positive tests among close contacts of the asymptomatic cases studied). You would think the media would be all over this study to help drive high-level scientific debate with 'media' medical experts demanding rescission of all restrictions on asymptomatic people. You would expect those experts to insist we be unshackled from perpetual house arrest, but alas all we hear are crickets. We can find no definitive evidence surrounding 'asymptomatic' spread by children. Was this claim of 'asymptomatic' transmission overblown? Was it a lie?

We wish to raise the issue, and this is our opinion, that face masks and social distancing for children (for example children 12 years and younger), especially young children within the school setting, is absurd and illogical when we have had evidence for nearly a year (which we will provide in more detail below) that children do not readily acquire the infection, do not readily spread it to other children, to adults or their parents, they do not take COVID-19 home, nor do they get severely ill or die if infected, except in very rare circumstances. This is not a belief, this is the actual evidence. Why would you mask children when they do not spread the virus and are very likely to be materially harmed by it? What is the value of these measures in comparison to the risks? It is clear that masks and distancing are unnecessary for children and we urge that this policy be thought through carefully, given each action carries benefits as well as harms. We can list several harms from mask use but can find very negligible, if any, benefits in masks and distancing for children in the school setting. If masking and distancing is the rule, we are not advocating that these

guidelines not be adhered to, however, we have serious concerns with the value of these mitigations in children and question these policies based on the science.

In this regards, Dr. Emily Oster (https://www.nytimes.com/2021/02/12/opinion/covid-school-open-safety.html) also raises the vexing issue of the 'arbitrarily set' 6 feet social distancing rule as it limits the ability of schools to be fully opened as they often lack the physical space to accomplish this, and thus re-opening is made much more difficult or impossible. The 6 feet rule has no scientific evidence to substantiate its use. We must remove these artificial obstacles and we must get our children — 'all' of them — back into the school setting for full-day instruction. Experts such as Harvard's Dr. Joseph G. Allen (https://www.washingtonpost.com/opinions/2020/11/12/three-feet-social-distancing-schools-coronavirus/) are arguing that 3 feet is more than enough and we firmly agree if there is to be distancing in the school. Six feet "limit the number of students attending in person due to space constraints". Though we again argue that we see no merit of any distancing for low-risk children as described above, based on the transmission risk.

What do we know about children and risk of transmission in schools? We knew quite early in 2020 that there was a lack of evidence (https://pubmed.ncbi.nlm.nih.gov/32489179/) of transmission (https://pubmed.ncbi.nlm.nih.gov/32914746/) of SARS-CoV-2 to the home or into the school settings, with accumulated evidence of no pediatric transmission (https://academic.oup.com/cid/article/71/15/825/5819060). We also knew soon after the pandemic began that children were not fueling spread and in fact were at very negligible risk for acquiring the virus or spreading it to other children or adults. Yes, government health agencies like the CDC knew for nearly a year that children are far less likely to be the key

drivers (https://pubmed.ncbi.nlm.nih.gov/32430964/) to transmit the virus (https://pubmed.ncbi.nlm.nih.gov/32371442/) to other children, or to adults, or their teachers (https://www.thesun.co.uk/news/11688223/sage-teachers-low-risk-covid/). The evidence (https://pubmed.ncbi.nlm.nih.gov/32758454/) was available that children were far less likely to spread infection to their class friends or teachers (https://dontforgetthebubbles.com/evidence-summary-paediatric-covid-19-literature/) – and was ignored.

These medical experts have continuously exhibited extreme academic sloppiness and cognitive dissonance to anything contrary to prevailing group think on COVID-19. They failed to understand that school closures are an extreme 'exceptional' measure and what we knew about COVID-19 did not support this draconian step. It appears that our government leaders, their so-called 'scientific' advisors, and team 'Armageddon' have been making decisions based on assumptions, speculation, failed models and superstition rather than science.

There are tremendous harms that come from school closures, business and societal lockdowns. These policies have been devastating and have hollowed out portions of our society. There is no other way to say this: Societal lockdowns have caused extensive and crippling economic, social, and emotional destruction. Stanford's Dr. John Ioannidis (https://fee.org/articles/modelers-were-astronomically-wrong-in-covid-19-predictions-says-leading-epidemiologist-and-the-world-is-paying-the-price/) stated "major consequences on the economy, society and mental health have already occurred. I hope they are reversible, and this depends to a large extent on whether we can avoid prolonging the draconian lockdowns and manage to deal with COVID-19 in a smart, precision-risk targeted approach, rather than blindly shutting down everything". Dr. Ioannidis has always been prescient

on COVID-19 and we are indeed experiencing some of the economic disasters, civil strife, discord, and tears at our social fabric he warned about. What a complete mess our government leaders made for us! Yet a year into this fiasco all we have heard is promises of more government-caused devastation to come.

Focusing on school closures, there never was and currently is no good reason to keep schools closed. None! Zero! Not for one more day. The CDC recently stated in a January 2021 JAMA publication "the preponderance of available evidence (https://jamanetwork.com/journals/jama/fullarticle/2775875) from the fall school semester has been reassuring insofar as the type of rapid spread that was frequently observed in congregate living facilities or high-density worksites has not been reported in education settings in schools." APPLAUSE now. Can you hear it, the roaring applause? Why did the CDC take so long to make these comments? Did the data suddenly change? While we welcome this about-face, we point out that the delay fed into the school closure hysteria, which has come at grave cost to our children. The CDC and all medical experts should be in the media today calling for immediate re-opening of all schools as the science and data is now 'clear' to them and 'available', and we 'now know' that schools should be open and in fact should have never been closed. This is not so and if this is the intent, if this is the message the CDC or any medical expert is trying to send out, then this is disingenuous to the public for we have been saying this for more than over 6 months.

Yes, we could understand that the initial knee-jerk reaction to close schools was driven by the reasonable and judicious expectation in terms of how prior respiratory viral outbreaks would be transmitted, with children playing a large role in the transmission chain. This is so for seasonal influenza as an example, whereby children drive infection home (and as we shall point out

below, there have never been school lockdowns during periods of seasonal influenza). However, it became quickly apparent soon after the COVID pandemic began in the early months of 2020 that a key role for children in the transmission chain was just not there. The evidence was conclusive on this. We who are not even part of the CDC cadre of experts knew this for many months (near one year) and we have been clamoring for the CDC to step up and provide declarative guidance on school re-openings. We now have a positive statement above (https://jamanetwork.com/journals/jama/fullarticle/2775875), albeit long overdue given the strong evidence that was publicly available since the start of the pandemic. Where were you, CDC? Why the intransigence for so long? Is this about the science or something else? Some have called this 'politicized' Lysenkoised science. Is this true? Have we served political interest on the backs of our children? I would hope not and cast no aspersions. 'We are following the science', 'we are following the science' they say, 'lets follow the science' they say, but truth and in fact, these nonsensical media medical experts are not following the science.

A recent interview between the new CDC Director, Dr. Walensky and Jake Tapper of CNN (https://www.youtube.com/watch?v=387bsWsk9_A) was very enlightening with regards to school re-openings and the confusion at hand. It revealed governing and leadership within a political environment and highlights the challenges the prior CDC Director Redfield faced under the Trump administration. There is no simple answer when the players around you ensconce each issue in a political 'gotcha' shroud. The CDC Directors mean well, but dark forces pull at them. In the interview there was a clear inability to explain how schools can be re-opened by using the science, given that prevailing politics forces you often to take positions that do not accord with the science. Tapper's key intimation was that we have taken the safety

steps yet we are still not opening the schools. I applaud him in this exchange and it was a difficult exchange for the CDC Director, who by the looks and sounds of it, wants to do the right thing but is caught up now in the politics of school re-opening. We cannot fault the new Director for she is now swimming in the murky DC swamp infested with politicized medical experts. This is no easy position for her given the unreasonableness and seeming rabidity of the Teachers' unions. We are counting on the Director to stand up to the unions and all negative 'nefarious' forces tugging at her, and fight ONLY for the best outcome for children.

In a similar light to underscore the politics of COVID-19 and schools, the CDC's new Director Rochelle Walensky (https://www.washingtontimes.com/news/2021/feb/3/rochelle-walensky-cdc-director-teacher-vaccination/) stated in early February 2021 that teacher vaccinations are not a pre-requisite for schools to re-open. She seems to signal recognition and urgency for school re-openings and this is indeed very positive. The Trump administration's prior CDC Director Redfield (https://www.foxnews.com/health/cdc-director-schools-among-safest-places-kids) also called for schools to remain open despite confusing messaging from the reporting agency and the good news is that the new Director appears to be leading on this point as well. However, the Biden administration followed this up by asserting that the goal was to re-open schools one day per week (https://townhall.com/tipsheet/katiepavlich/2021/02/10/white-house-doubles-down-on-goal-of-opening-forone-day-per-week-n2584534). The reasoning behind opening schools only one day per week is completely opaque to the writers. If this is proven true and if it was not confusing enough on its own, the White House's press secretary Ms. Psaki (https://1010wcsi.com/fox-politics/live-updates-psaki-admits-parents-shouldnt-be-satisfied-with-in-person-school-one-day-a-week/) followed the

President with her own assertion that, as a parent, she would find a one day per week school re-opening unacceptable. Ms. Psaki also indicated that there are as yet no clear plans yet for when the Biden administration will re-open high schools (https://www.thegatewaypundit.com/2021/02/psaki-concedes-biden-administration-no-current-goal-open-high-schools-video/). President Biden on February 16th then responded that there was "a mistake in the communication" as to school re-opening within the first 100 days. Understanding the logic and where the current administration is regarding school re-opening is akin to asking Sisyphus to take his boulder and scale Hadrian's wall.

Having said that children do not transmit SARS-CoV-2, we recognize and appreciate that this might represent somewhat of an overstatement since the transmission and infection risks are not zero. But the risks are so low as to be virtually negligible, while the damage caused on our children is potentially immense when it comes to closure of schools! We feel that we must reiterate that the CDC and NIH knew about this evidence very early on. Yet if you turned on the daily news you would be completely ignorant of this information because the only messages being sent out on a 24/7 basis by often hysterical, frenetic, and we would say nonsensical medical experts is one that calls for closure of all schools in order to protect us against spread (particularly to the teachers we presume). Surely the media and medical experts know that what they are stating is factually incorrect based on the fact-based knowledge that there is at most an extremely low risk that children will become seriously ill from SARS-CoV-2 or spread the virus to others.

Do those espousing school closures not see or understand the data reported in the scientific literature? Our governments appear to have colluded with unions to close schools and keep them closed based on irrational, unthinking,

nonsensical, unscientific policies similar to societal lockdowns (that even work to increase transmission risk in families and households (https://science.sciencemag.org/content/371/6526/eabe2424)). These actions have caused known (not theoretical) and almost immeasurable harms to our children given the losses that accrue. Let us not forget that these harms are not limited to current negative effects but long-term damage that is yet to be realized although it can be predicted and is nearly-certain to occur. School closures will cause our children to suffer education deficits (https://www.wsj.com/articles/student-test-scores-drop-in-math-since-covid-19-pandemic-11605974400#:~:text=American%20children%20started%20school%20this,pandemic%20shut%20schools%20in%2 and huge loses in future income (https://www.upi.com/Top_News/World-News/2021/02/01/Study-says-COVID-19-school-closures-will-cost-children-future-income/7531612190182/). Charities for children have already warned that the devastation caused by the societal restrictions and in this case, school closures (as well as the associated business/societal closures and lockdowns) will last for years (https://www.independent.co.uk/news/uk/home-news/coronavirus-child-abuse-domestic-violence-family-charity-a9519186.html), and some believe the impact will continue for decades. It has been projected that for some children, the devastating COVID closure impacts (https://data.unicef.org/covid-19-and-children/) will be lifelong, and especially on our minority children (https://www.aier.org/article/the-catastrophic-impact-of-covid-forced-societal-lockdowns/).

What exactly did the government health agencies know for some time now? The government health agencies knew or ought to have known for some time now that children are far less likely to be the key drivers (https://pubmed.ncbi.nlm.nih.gov/32430964/) to transmit the virus

(https://pubmed.ncbi.nlm.nih.gov/32371442/) to other children, or to adults, or their teachers (https://www.thesun.co.uk/news/11688223/sage-teachers-low-risk-covid/). Yes, the evidence (https://pubmed.ncbi.nlm.nih.gov/32758454/) was available that children were far less likely to spread infection to their classroom friends or to their teachers (https://dontforgetthebubbles.com/evidence-summary-paediatric-covid-19-literature/) – and intentionally ignored. The CDC's own published data showed just how low the risk of hospitalization and death was for children 0 to 4 years old (https://www.cdc.gov/coronavirus/2019-ncov/covid-data/investigations-discovery/hospitalization-death-by-age.html) and also those 5 to as old as 17 years. Children are far less likely to take the virus home compared to seasonal influenza (and to repeat ourselves, schools are not locked down every year during the annual influenza season). The CDC and in fact all government health agencies knew this. We know this near conclusively based on evidence that accumulated since last year within the public domain, scientific research, and medical/clinical domains. But how did the US's top health agencies handle the evidence that severe illness and deaths are extremely rare (https://pubmed.ncbi.nlm.nih.gov/32202343/) in children? Were they declarative in their guidance? No; they instead treated our children as little *Typhoid Marys* who would inevitably kill their teachers, mothers and grandmothers if not confined to their homes. Why have our children been locked out of school for nearly one year despite the overwhelming evidence (https://www.washingtonpost.com/education/feared-covid-outbreaks-in-schools-yet-to-arrive-early-data-shows/2020/09/23/0509bb84-fd22-11ea-b555-4d71a9254f4b_story.html) of little to no risk of spread or illness to them, or teachers? The facts are that transmission in schools is extremely rare (https://www.washingtonpost.com/education/feared-covid-outbreaks-in-schools-yet-to-arrive-early-data-shows/2020/09/23/0509bb84-fd22-11ea-

b555-4d71a9254f4b_story.html). Simply put school environments cannot be considered super-spreaders (https://www.theatlantic.com/ideas/archive/2020/10/schools-arent-superspreaders/616669/).

Why does this substantially reduced risk in children exist? We are not yet entirely sure at the moment but preliminary research points to less concentration or expression of ACE2 receptor proteins (https://jamanetwork.com/journals/jama/fullarticle/2766522) on the surface of the nasal epithelium in children (4-9 years old). Some also suggest that the immune system of children may be more trained (https://pubmed.ncbi.nlm.nih.gov/32241833/) and 'tuned' up from regular viral infections (lymphocyte count) as well as may have a more heightened innate immune system/response. Some also suggest fewer underlying medical conditions (https://pubmed.ncbi.nlm.nih.gov/32147409/). This is good news as COVID-19 spares our children unlike seasonal influenza or other pathogens but this knowledge seems to have evaded the scrutiny of our leaders!

To appreciate the challenges we face by being dependent on guidance from health officials, just look at the repeated sparring between Senator Rand Paul (https://twitter.com/i/status/1260233522478006272) and Dr. Anthony Fauci of the NIAID whereby the senator has been ongoingly pilloried by the media (https://www.cnbc.com/2020/05/12/dr-anthony-fauci-sen-rand-paul-spar-over-safety-and-death-rates-among-children-with-coronavirus.html) for challenging Dr. Fauci who has seemingly changed statements (https://abc7ny.com/anthony-fauci-dr-covid-schools/6378279/) on numerous COVID (https://www.nationalreview.com/magazine/2021/02/22/fauci-unmasked/) issues. Dr. Fauci has repeatedly changed positions (https://dailycitizen.focusonthefamily.com/fauci-backtracks-says-theres-no-

data-to-support-wearing-two-masks/) on a range of COVID-19 related points and particularly on the issue of school closures (https://twitter.com/i/status/1260233522478006272). This being said, we understand that as scientific information evolves (and it should never be static!) some recommendations from various advisors would have to be changed in order to represent newer revelations. However, insofar as school closings are concerned, we do not believe that changes in advice related to this issue have occurred due to changes in relevant data, which as we note above were quite available for all to see very early on in this pandemic. In any event, Senator Paul is on record as saying the following to Dr. Fauci: "I don't think you are the end all on school closures …" Dr. Fauci replied: "We don't know everything about this virus, and we really ought to be very careful, particularly when it comes to children." We reiterate that Dr. Fauci was aware or ought to have been aware of the clear and extensive global COVID data relating to the very low risk in children and the school setting. The discourse with Dr. Fauci on COVID has become strained and Senator Marco Rubio recently stated that Dr. Fauci has lied about mask use and level of vaccination needed for herd immunity. The recent piece by Ponnuru (https://www.nationalreview.com/magazine/2021/02/22/fauci-unmasked/) perhaps captures the landscape best "The question Fauci's record raises is not just whether he is a truth-teller or a liar. It is whether something in the field of public health militates against blunt honesty: whether, that is, it conditions its experts to think of most people as objects of manipulation rather than fellow adults".

Consider the utter devastation and chaos the Teachers unions (https://abcnews.go.com/US/school-districts-face-fights-city-school-officials-reopening/story?id=75682484) in the US (https://www.cnn.com/2021/01/27/us/chicago-reopening-schools-teacher-unions/index.html) are visiting

upon our children. After months of discourse the Teachers Union continue to demand more money (https://thepostmillennial.com/teachers-unions-demand-more-money-but-refuse-to-go-back-to-work) yet remain resistant to opening the in-person schooling. Meanwhile, parents are struggling (https://www.vox.com/22060380/covid-parents-burnout-schools-closed-kids-pandemic) with the pandemic, home schooling and children are failing (https://www.discovery.org/a/we-are-failing-our-children/) while these unions and their members just do not seem to care, placing good teachers in an untenable position. Similar events are taking place in Canada (https://torontosun.com/news/provincial/science-table-member-paid-by-teacher-union-for-arguing-against-school-re-openings), where there are more than troublesome and questionable relationships between teachers' unions and COVID Task Force/advisory members which would appear to most rational observers to represent serious conflicts of interest on both sides. In this case there is evidence that a teachers' union retained a task force member purely so that the member could argue in favour of ongoing school lockdowns despite evidence showing that this was not appropriate. Recognizing this, one must conclude that the unions seem to have little to no regard for the lives and well-being of our children and are seeking to exact a toll on the backs of our children for political and financial gain. The reality is that the teachers in the US are a young (median age of approximately 41 years (https://nces.ed.gov/surveys/sass/tables/sass1112_2013314_t1s_002.asp)) population and thus are generally at very low risk of severe illness of death from COVID, based on evidence to date on the at-risk groups. There is low in-person (https://pediatrics.aappublications.org/content/early/2021/01/06/peds.2020-048090) risk (https://www.foxnews.com/us/early-data-suggests-low-risk-of-potential-coronavirus-transmission-in-schools). Teachers are very low risk of severe illness and those who have underlying conditions

or are elderly have the option of the remote model. The UK experience/data (https://www.bbc.com/news/health-55795608) bears (https://www.bbc.com/news/health-52003804) this out, as well as Ontario (https://toronto.ctvnews.ca/teachers-face-low-risk-of-covid-19-if-there-s-proper-prevention-ontario-s-top-doctor-says-1.5081923). School mitigation and safety procedures are in order but children should not be prejudiced and used as political pawns as they have been since the start of this pandemic.

Sadly it's the poorer, impoverished children and those of limited means who lack the infrastructure and resources (WIFI, internet, tablets, home tutors, pod learning etc.) of the affluent who lose the most due to these ill-conceived actions by all players in this school re-opening crisis. Some experts believe that losses due to closed schools may be life-long (https://www.thesun.co.uk/news/11683469/shock-sage-lives-kids/?editorialView=yes). Reports from the UK (https://www.suttontrust.com/our-research/remote-learning-the-digital-divide/) suggest that "just 10% of teachers report that all their students have adequate access to a device for remote learning". Schools are supposed to be standards of excellence in education, breeding critical thinking in our children. What does this demand for conformity to unscientific data teach our children: to be mediocre and automatons to serve rather than think and reason?

The stark reality is that many children – and particularly those less advantaged – have their main needs met in the school setting, including vaccines, nutrition, eye tests, glasses and hearing tests. There has already been a dramatic decline in childhood vaccines (https://www.cdc.gov/mmwr/volumes/69/wr/mm6919e2.htm?s_cid=mm6919e2_w) for vaccine-preventable illnesses. Importantly, schools often function as a protective system or watchguard for children who are sexually or physically abused and

this visibility declines with school closures. "In addition, children are being denied opportunities for social and emotional development (https://thehill.com/opinion/education/500349-science-says-open-the-schools) that come with play, exercise, sports and socialization" and as the Virginia State School Superintendent (https://www.wvpublic.org/2020-04-24/9-ways-schools-will-look-different-when-and-if-they-reopen#stream/0) aptly stated, "*This situation is going to be like what is often called the summer slide [in student achievement], but on steroids.*"

As if the impact of school closures on our children is not enough, we also state that the lockdowns are acting in negative synergy as regards their well-being. Lockdowns have cost jobs (in some cases leading to complete loss of family income). Parents who are forced to stay at home due to lockdowns and as a direct outcome of the attendant financial stressors are very angry and bitter, leading to tangible escalations in the stress and pressure in the home. This, along with ineffective and dysfunctional remote learning programs, has led to a situation where even if parents were able to help their children with online education they are emotionally incapable of so doing. Tragically these circumstances have caused parents to react by lashing out at each other and in relation to the issues being discussed here, their children (https://www.thestar.com/news/gta/2021/01/29/disturbing-trend-ottawa-hospital-sees-rise-in-number-of-babies-with-severe-head-injuries-during-second-wave-of-covid-19.html). "Children's Aid workers in Ottawa (https://www.thestar.com/news/gta/2021/01/29/disturbing-trend-ottawa-hospital-sees-rise-in-number-of-babies-with-severe-head-injuries-during-second-wave-of-covid-19.html) are sounding the alarm over an increase in infants being treated in hospital for head injuries in the last year — a worrying trend that has also been observed in other parts of the country." It has been

estimated that approximately 30% of the US workforce (https://www.mckinsey.com/industries/public-and-social-sector/our-insights/safely-back-to-school-after-coronavirus-closures) depends on preschools and schools in order to resume their jobs, and this underscores the tremendous strain school closures have on the overall economy and careers (principally for women who should not have to retard or lose their careers in this situation when the evidence is and has been declarative on the safety of school re-opening).

There are even reports that children are being taken to the ER with parents stating that they think they may have killed their child who is unresponsive, exhibiting broken bones. The avoidance of hospital ERs (https://www.england.nhs.uk/statistics/statistical-work-areas/ae-waiting-times-and-activity/) during these lockdown periods likely results in heavy under-reporting of the true burden of abuse to children (and adults, particularly females). These policies have had crushing consequences thereby leading to terrific impact on the family unit itself! The sheltering-in-place and the closure of vital family foundations combined with a lack of social support are driving escalations of family domestic violence (https://www.sciencedirect.com/science/article/pii/S2665910720300384?via%3Dihub). In fact, since the COVID lockdowns were initiated in Great Britain as an example, it has been reported that incidence of abusive head trauma in children has risen by *almost 1500%*! (https://adc.bmj.com/content/early/2020/06/30/archdischild-2020-319872) Similar child abuse (https://jamanetwork.com/journals/jama/fullarticle/2769482) and catastrophic head trauma in babies that is linked to the COVID pandemic has been reported in Canada (https://www.thestar.com/news/gta/2021/01/29/disturbing-trend-ottawa-hospital-sees-rise-in-number-of-babies-

with-severe-head-injuries-during-second-wave-of-covid-19.html).

The costs (https://www.aier.org/article/cost-of-us-lockdowns-a-preliminary-report/) of school closures and lockdowns in the US and worldwide are staggering and children n bear a disproportionate burden. There is no simple way to put this other than that these COVID restrictions result in crushing harms on our societies. BROOKINGS (https://www.brookings.edu/blog/education-plus-development/2020/04/29/the-covid-19-cost-of-school-closures/) estimates are that there will be a 3% loss in lifetime earnings for those whose schooling is sidelined. "Some modeling suggests that the loss of learning during the extraordinary systemic crisis of World War II still had negative impact on former students' lives some 40 years later". We affirm, based on the historical facts referenced above, that similar negative impacts (https://www.brookings.edu/blog/education-plus-development/2020/04/29/the-covid-19-cost-of-school-closures/) will result due to our inexplicable reactions to COVID-19 in the future lives of our children.

The fact is that 1 in 5 children living in the US do so in poverty. Poverty disproportionately impacts (https://www.nccp.org/publication/young-children-in-deep-poverty-racial-ethnic-disparities-and-child-well-being-compared-to-other-income-groups/) African American, Latino, and American Indian/Alaska Native children. The sad reality is that the US educational system has often reinforced inequities by their provision of insufficient and inequitable funding systems. "School districts serving low-income children (https://s3-us-east-2.amazonaws.com/edtrustmain/wp-content/uploads/2014/09/20180601/Funding-Gaps-2018-Report-UPDATED.pdf) have more run-down school facilities, fewer curricular offerings, and less-experienced teachers". We argue that the constraints imposed because of COVID cause these already existing hurdles to become even more formidable and

insurmountable. The evidence shows that as schools engage in distance learning (https://www.nytimes.com/2020/04/06/us/coronavirus-schools-attendance-absent.html) there is "wide variability in access to quality educational instruction, digital technology, and internet access".

What data do we have about risk of severe illness or death? We know that children 0-10 years or so have a near zero risk of severe illness of death from COVID-19 (with a very small risk of spreading COVID virus in schools (https://abc11.com/covid-19-in-schools-study-duke-unc/9568849/), spreading to adults, or taking it home). The CDC (https://www.cdc.gov/nchs/nvss/vsrr/covid_weekly/index.htm) gave us a glimpse into just how low the risk of death was in children when they reported that of the first 68,998 U.S. deaths from COVID-19, only 12 (0.017%) were in children under age 14. At that time (May 2020), the death total among children less than 18 and *without* an underlying medical condition was one (https://www1.nyc.gov/assets/doh/downloads/pdf/imm/covid-19-daily-data-summary-deaths-05162020-1.pdf). Ten of the 16,469 confirmed deaths in New York City occurred in persons less than 18 years old. To put this into perspective, CDC data suggested that approximately 600 children (https://www.cdc.gov/flu/highrisk/children.htm) died of seasonal influenza in the 2017 to 2018 season. A pediatric study published in JAMA (https://jamanetwork.com/journals/jamapediatrics/fullarticle/2766037) reported that "Our data indicate that children are at far greater risk of critical illness from influenza than from COVID-19." To put COVID deaths into further perspective, "on average, 12,175 children (https://www.cdc.gov/safechild/child_injury_data.html) 0 to 19 years of age died each year in the United States from an unintentional injury". If we looked only at accidental drowning, approximately 400 children aged 1-4 years (https://www.msn.com

/en-us/news/us/drowning-is-the-leading-accidental-cause-of-death-for-kids-1-to-4/ar-BB15d5R1) old die each year from drowning… From 2005-2014, there were an average of 3,536 fatal unintentional drownings (https://www.cdc.gov/homeandrecreationalsafety/water-safety/waterinjuries-factsheet.html) (non-boating related)".

We also knew that persons 0-19 years of age have an approximate 99.997 percent likelihood of survival from COVID-19, those 20-49 have roughly a 99.98 percent probability of survival, and those 50-69/70 years an approximate 99.5 percent risk of survival. These were the CDC's own findings! COVID is far less deadly for younger people/children than the annual flu and more deadly for older people than the flu; we must not make light of the devastation this disease can visit upon elderly and frail persons. CDC (https://www.cdc.gov/coronavirus/2019-ncov/hcp/planning-scenarios.html#table-1) also reports that their current best estimates of infection fatality ratios are 0-19 years 0.00003, 20-49 years 0.0002, 50-69 years 0.005, and 70+ years 0.054.

We continue to argue that this remains a largely geriatric pandemic and there is absolutely no reason to quarantine those up to 70 years old, meaning that there are no rational arguments that can possibly be made to close schools. Readily accessible data show there is near 100% probability of survival from COVID for those 70 and under. This is why children, the youngest and healthiest among us should be 'allowed' to become infected naturally and harmlessly, as part of normal day-to-day living, and spread the virus among themselves just as is done every year for annual influenza. The Authors in this study published in Nature (https://www.nature.com/articles/s41577-020-00460-4) state: *"key potential impacts of cross-reactive T cell memory are already incorporated into epidemiological models based on data of transmission*

dynamics, particularly with regard to their implications for herd immunity." As part of natural living a spread within the youth creates the level of herd immunity. *This is not heresy; it merely represents normal life*. To reiterate the concepts underlying the development of natural infection and herd immunity is *not heresy*. In fact this represents classic biology and modern public health medicine! Yet for reasons that are beyond logic the notions underpinning herd immunity are being touted as a dangerous policy despite the fact that herd immunity has protected us from millions of viruses for tens of thousands of years. We have always intended for those at lowest risk in a society, the younger, healthy, 'well', infants, children, teenagers, young adults, middle-aged and older who are healthy and with no medical conditions, whether in good health or reasonably healthy, to take reasonable precautions, to live life and be exposed 'naturally and 'harmlessly'.

Those in the low to no risk categories must live reasonably normal lives with sensible common-sense precautions (while doubling and tripling down with strong protections of the high-risk persons and vulnerable elderly); they can become a case 'naturally' as they are at almost zero risk of subsequent illness or death. With personal responsibility, sensible mitigation, hand-washing and staying at home if unwell, along with prepared hospitals, this approach could have helped bring the pandemic to an end much more rapidly as noted above. We also hold that immunity developed from a natural infection is likely much more robust and stable than anything that could be developed from a vaccine. In following this optimal approach, we will actually protect the high risk amongst us.

There are strategies to minimize risk even more. For instance, instead of having children sit at school desks, isolated from one another by plexiglass, we need to take into account the actual science underlying the spread of

COVID virus (and probably other viral diseases). In this regard the orofecal spread (https://jamanetwork.com/journals/jamanetworkopen/article-abstract/2774463) of COVID has been clearly elucidated as a major contributor (https://pubmed.ncbi.nlm.nih.gov/32199469/) to non-respiratory transmission (https://pubmed.ncbi.nlm.nih.gov/32159775/) of COVID. Indeed, a recent open-evidence review brief by Oxford research (Jefferson, Brassey, Heneghan) and its publication in CEBM (https://www.cebm.net/covid-19/sars-cov-2-orofecal-transmission/), reveals the growing acknowledgement that COVID's SARS-CoV-2 virus can infect and be shed from the gastrointestinal (GI) tract of humans (https://market-ticker.org/akcs-www?post=241569). This may impact mitigation strategies in the school setting beyond those for respiratory transmission and warrants urgent study. We submit that insuring that people, including of course students, wash their hands after visiting the washroom could have far greater benefits insofar as prevention of disease spread than masking, social distancing, and physical isolation of children by enclosing them in plexiglass desk surrounds.

Where are we?

Where are we really at present? What are the troubling components of how we got here to these devastating and unscientific, baseless school lockdowns? The reality is as Atlas states "never have schools subjected children to such an unhealthy, uncomfortable and anti-educational environment (https://thehill.com/opinion/education/500349-science-says-open-the-schools), so science cannot precisely define the total harm it will cause". To reiterate the current pandemic reaction is not merely a reflection of an issue that can or should rely solely on 'the science'; the latter being completely undefined. What areas of science do we limit our examination to? Cell biology? Physiology? Virology? Socioeconomics? Public Health? Psychosocial

studies? In this regard we suggest that the science must include all and more than the fields noted above. Yet it would appear that the sole focus of the current mitigating efforts rely on science that seems to be restricted largely to virology with some focus on pathophysiology of SARS-CoV-2 infection without considering the wide array of fields of scientific thought and inquiry that are available. This is what has led us to the current disastrous situation in which we find ourselves.

The argument made above fits perfectly with the sage words of Dr. DA Henderson and Dr. Thomas Inglesby (https://www.aier.org/article/how-a-free-society-deals-with-pandemics-according-to-legendary-epidemiologist-and-smallpox-eradicator-donald-henderson/) who helped eradicate small-pox "Experience has shown that communities faced with epidemics or other adverse events respond best and with the least anxiety when the normal social functioning of the community is least disrupted. Strong political and public health leadership to provide reassurance and to ensure that needed medical care services are provided are critical elements. If either is seen to be less than optimal, a manageable epidemic could move toward catastrophe".

Sadly this omen has come to pass and we in 2020-2021 are well into one year of the pandemic and, by all accounts, our government leaders have been catastrophic failures with crushing lockdown and school closure policies. They in fact continue to harden restrictions despite evidence that doing so has destroyed businesses and lives. There is no good reason for this.

Evidence on children risk and school closures?

After nearly one year why did they do this to our children? Why have governments kept schools closed for so long? We argue there was no basis in science or fact. In fact, there is substantial evidence and indications that the

school closures had absolutely no merit based on the science that has existed since April/May/June of 2020. What is going on here? Probably one of the smartest people waxing lucidly on the tragedies of the COVID societal restrictions is Alex Berenson (author of 'Unreported Truths About COVID-19 and Lockdowns'). At much risk to his personal and professional existence he has gone on record time and again showing how the science (https://www.kusi.com/author-alex-berenson-explains-the-science-proves-opening-schools-is-safe/) underpins re-opening of schools (https://gonet.info/2020/04/20/ex-nyt-reporter-alex-berenson-calls-on-governors-to-reopen-schools-questions-coronavirus-lockdowns/) for many months now, with a rightful excoriation (https://www.foxnews.com/media/alex-berenson-teachers-unions-reopening-schools-hate-trump) of Teachers unions (https://www.foxnews.com/media/alex-berenson-arizona-teachers-hesitant-reopen-schools).

This brings us to the actual evidence. Do we have any? Is there any on risk to children and COVID spread in schools, to adults, to the home? Well, it turns out we have tons of evidence and while limited here by space, we will provide just a sample using roughly 50 studies/reports (actual reports, systematic reviews, and research studies) to help support our core thesis of why schools must be re-opened immediately. This op-ed is littered throughout with additional supporting evidence and citations.

We shall now focus more closely on the scientific evidence as it relates to school closure for those who wish to actually read the research that has been done in this area. This review of evidence is not exhaustive but we feel strongly that we have included the main studies and reporting in this area that could provide an overall but clearer understanding of the risk of transmission as it relates to children. It will shed light importantly on the fact that there was

and continues to be no need for school closures.

We have evidence from Switzerland (https://www.rts.ch/info/sciences-tech/medecine/11255942-en-suisse-104-enfants-de-moins-de-10-ans-ont-ete-testes-positifs-au-covid-19.html), Canada (http://www.bccdc.ca/Health-Professionals-Site/Documents/Caring-for-children.pdf), the Netherlands (https://www.rivm.nl/en/novel-coronavirus-covid-19/children-and-covid-19), France (https://www.bfmtv.com/sante/peu-porteurs-peu-transmetteurs-une-etude-confirme-le-role-minime-des-enfants-dans-l-epidemie-de-covid-19_AV-202005120233.html), Iceland (https://www.sciencemuseumgroup.org.uk/blog/hunting-down-covid-19/), UK (https://www.telegraph.co.uk/news/2020/04/29/no-case-child-passing-coronavirus-adult-exists-evidence-review/), Australia (https://www.health.gov.au/news/australian-health-protection-principal-committee-ahppc-coronavirus-covid-19-statements-on-24-april-2020#updated-advice-regarding-schools), Germany (https://pubmed.ncbi.nlm.nih.gov/32914746/), Singapore (https://dontforgetthebubbles.com/evidence-summary-paediatric-covid-19-literature/), Greece (https://onlinelibrary.wiley.com/doi/full/10.1002/jmv.26394), and Ireland (https://www.eurosurveillance.org/content/10.2807/1560-7917.ES.2020.25.21.2000903) that the infection rate in children is very low, that spread from child to child is uncommon, that spread from child to adult/parent is uncommon, that cases in children typically comes from a household transmission/cluster by droplet spread, and if infected, children have no to mild symptoms with the risk for hospitalization (https://www.cdc.gov/coronavirus/2019-ncov/covid-data/investigations-discovery/hospitalization-death-by-age.html), severe illness, or death being very low (https://www.cdc.gov/coronavirus/2019-ncov/covid-

data/investigations-discovery/hospitalization-death-by-age.html).

For example, Heavey out of Ireland (https://www.eurosurveillance.org/content/10.2807/1560-7917.ES.2020.25.21.2000903) looked at secondary transmission of COVID in children (March 2020). Researchers looked at children and adults in a school setting and identified 6 cases (3 children, 3 adults of which 2 were teachers) and their 1,155 contacts (924 child contacts and 101 adult contacts identified). Researchers reported no evidence of secondary transmission in the school environment. Specifically, they stated there is "no case of onward transmission to other children or adults within the school…In the case of children, no onward transmission was detected at all. Furthermore, no onward transmission from the three identified adult cases to children was identified".

Additionally, *The Atlantic's* (https://www.theatlantic.com/ideas/archive/2021/01/just-open-schools-already/617849/) Thompson on January 28th 2021 pointed to a study out of Singapore (https://dontforgetthebubbles.com/evidence-summary-paediatric-covid-19-literature/) involving 3 COVID-19 clusters, finding that "children are not the primary drivers" of COVID outbreaks and that "the risk of SARS-CoV-2 transmission among children in schools, especially preschools, is likely to be low."

A Norwegian study (https://www.eurosurveillance.org/content/10.2807/1560-7917.ES.2020.26.1.2002011) looked at 200 primary-school children aged 5 to 13 and who had COVID-19 (testing all contacts twice within their quarantine), found that there were no instances of secondary spread, further dispelling the notion that children play a primary role in spreading within the school setting.

A very comprehensive systematic review by Ludvigsson

(https://pubmed.ncbi.nlm.nih.gov/32430964/) published in Acta Pediatrica, studied 47 full-texts and reported "children accounted for a small fraction of COVID-19 cases…children may have lower levels than adults, partly because they often have fewer symptoms, and this should decrease the transmission risk…household transmission studies showed that children were rarely the index case and case studies suggested that children with COVID-19 seldom caused outbreaks…children are unlikely to be the main drivers of the pandemic".

A very comprehensive review out of Canada on the role of daycare and schools in transmission of COVID-19, conducted by the National Collaborating Centre for Methods and Tools out of McMaster University by Dobbins et al., found that i) Children are not a major source of transmission of COVID-19 ii) Analyses of infection clusters revealed that for children who were infected, transmission was traced back to community and home settings or adults, rather than amongst children within daycares or schools; children did not spread among themselves iii) Within household clusters, adults were much more likely to be the index case than children iv) Prevalence of COVID-19 infection in children in daycare and school settings was lower than the prevalence of COVID-19 in adults working in daycare and school settings.

Duke University (https://www.cidrap.umn.edu/news-perspective/2021/01/three-studies-highlight-low-covid-risk-person-school) researchers (CIDRAP) examined 35 North Carolina school districts with in-person teaching and found that there were *no instances* of child-to-adult spread in schools.

A recent CDC (https://www.cdc.gov/coronavirus/2019-ncov/more/science-and-research/transmission_k_12_schools.html) report on *Transmission of SARS-CoV-2 in K-12 schools*, found that "Based on the data available, in-person

learning in schools has not been associated with substantial community transmission".

Based on a high-quality McMaster University (Brighter World) review, researchers found that in children under 10 years of age "Transmission was traced back to community and home settings or adults (https://brighterworld.mcmaster.ca/articles/reviews-find-children-not-major-source-of-covid-19-but-family-stress-is-high/), rather than among children within daycares or schools, even in jurisdictions where schools remained open or have since reopened…The bottom line thus far is that children under 10 years of age are unlikely to drive outbreaks of COVID-19 in daycares and schools and that, to date, adults were much more likely to be the transmitter of infection than children,"

A BMJ scoping review study (https://pubmed.ncbi.nlm.nih.gov/32596514/) evaluated the role of children in the transmission of COVID-19 virus and included 14 studies. It was found that children are not transmitters to a greater extent than adults. Nonetheless it does appear that in this study it was concluded that children can spread disease. We do not argue with this, but point the reader to the rarity of this type of spread.

The British Columbia Center for Disease Control (http://www.bccdc.ca/Health-Info-Site/Documents/Public_health_COVID-19_reports/Impact_School_Closures_COVID-19.pdf) (BCCDC) issued a full report in September 2020 on the impact of school closures on children and found that i) children comprise a small proportion of diagnosed COVID-19 cases, have less severe illness, and mortality is rare ii) children do not appear to be a major source of SARS-CoV-2 transmission in households or schools, a finding which has been consistent globally iii) there are important differences between how

influenza and SARS-CoV-2 are transmitted. School closures may be less effective as a prevention measure for COVID-19 iv) school closures can have severe and unintended consequences for children and youth v) school closures contributes to greater family stress, especially for female caregivers, while families balance child care and home learning with employment demands vi) family violence may be on the rise during the COVID pandemic, while the closure of schools and childcare centres may create a gap in the safety net for children who are at risk of abuse and neglect.

A NEJM publication by Lu looked at SARS-CoV-2 transmission in children in China and found that of 171 with confirmed infection (February/March 2020), when compared to infected adults "most infected children appear to have a milder clinical course".

A LANCET prospective cohort study (https://pubmed.ncbi.nlm.nih.gov/32758454/) looking at transmission in the Australian education setting (15 schools and ten ECEC settings had children (n=12) or adults (n=15) attend while infectious, with 1448 contacts monitored), found that SARS-CoV-2 transmission rates were low in NSW educational settings during the first COVID-19 epidemic wave, and that children and teachers did not contribute significantly to COVID-19 transmission when attending educational settings in person.

An Irish study (https://pubmed.ncbi.nlm.nih.gov/32489179/) examined secondary transmission from children in school and found no paediatric transmission. This supported the understanding that children do not drive transmission of COVID-19 virus.

A Journal of Medical Virology (https://onlinelibrary.wiley.com/doi/full/10.1002/jmv.26394) publication of a Greek study of the transmission

dynamics of SARS-CoV-2 within families with children (n=23 clusters, 109 household members, 66 adults, 43 children), found that "transmission of infection occurred from an adult to a child in 19 clusters and/or from an adult to another adult in 12 clusters. There was no evidence of child-to-adult or child-to-child transmission". Children "do not appear to transmit infection to others".

Research out of Germany (https://pubmed.ncbi.nlm.nih.gov/32914746/) looking at spread of SARS-CoV-2 in children aged 0 to 19 years in childcare facilities and schools after their reopening in May 2020 found that child-to-child transmission in schools/childcare facilities appeared to be very uncommon.

A PEDIATRICS journal (https://pediatrics.aappublications.org/content/pediatrics/early/2021/01/06/peds.2020-048090.full.pdf) report of 11 North Carolina school districts in the initial 9 weeks of in-person instructions found very limited (rare) within-school secondary transmission of SARS-CoV-2.

A recent CDC report (https://www.cdc.gov/mmwr/volumes/70/wr/mm7004e3.htm?s_cid=mm7004e3_w) on COVID-19 Cases and Transmission in 17 K–12 Schools — Wood County, Wisconsin, August 31–November 29, 2020, found that in-school transmission was very low. In fact, and this is a crucially important finding, the incidence of COVID-19 incidence was *lower* in schools than in the community!

A European Centre for Disease Prevention and Control report (https://www.ecdc.europa.eu/en/publications-data/children-and-school-settings-covid-19-transmission) (December 2020 that included findings from 17 country-level surveys) stated that rates of infection among teachers and non-teachers were generally similar, showing that schools were not associated

with acceleration of community transmission.

A SCIENCE publication (https://science.sciencemag.org/content/370/6514/286) (by Snape) addressing COVID-19 in children and young persons reported that the existing evidence indicates that educational settings play a very limited role at most in the spread of COVID virus when mitigation measures are in place, "in marked contrast to other respiratory viruses".

A BMJ publication (https://www.bmj.com/content/370/bmj.m3249?ijkey=c8fa86cbe79876ba0f8501ed72193ecb720511b9&keytype2=tf_ipsecsha) by Swann reported on a prospective cohort study about the clinical features of children and young people admitted to hospital with laboratory confirmed SARS-CoV-2 in the UK. They found that among 651 children and young people (19 and under) admitted to 138 hospitals, the children and young persons had less severe acute COVID-19 than adults (6 died (0.9%) and they had grave underlying comorbid conditions).

A CDC report (https://www.cdc.gov/coronavirus/2019-ncov/covid-data/investigations-discovery/hospitalization-death-by-age.html) on hospitalization and death in children, found that when compared to persons 18 to 29 years old, children 0 to 4 years had a 4x lower rate of hospitalization and a 9x lower rate of death. Children 5 to 17 years old had a 9x lower rate of hospitalization and a 16x lower rate of death.

A pre-print study (https://www.medrxiv.org/content/10.1101/2020.03.26.20044826v1) examined family clusters of COVID-19 to assess the role of children in the chain of transmission (clusters from China, Singapore, the USA, South Korea and Vietnam n=31 household transmission clusters). Researchers found that only 3 (9.7%) children could be considered as the index case. They concluded that children play a negligible role in the transmission

of COVID-19, this bearing on non-pharmaceutical interventions such as school closures. In fact, relative to the H5N1 epidemic where children *were* often the index case in 54% of household clusters, there were no school closures nor, might we add, were there any other measures taken such as lockdowns and the like which would have taken a great toll on the fabric of society in general. This accentuates even more the sheer fallacy related to decisions made to close schools during the COVID-19 pandemic.

A Clinical Infectious Diseases publication (https://academic.oup.com/cid/article/71/8/1943/5821281) reported on a retrospective study that calculated the secondary attack rates of COVID-19 amongst 392 household contacts of 105 SARS-CoV-2 RT-PCR positive index cases hospitalised in China. The secondary attack rate was 4% for children relative to 21% for the adult household contacts. Researchers concluded there are far lower attack rates in children and that symptomatic patients are at higher risk of spreading the virus than asymptomatic persons.

Insights for Education (https://www.npr.org/2020/10/21/925794511/were-the-risks-of-reopening-schools-exaggerated) produced a report which analyzed school reopening dates and coronavirus trends from February through the end of September 2020 across 191 countries. "There is no consistent pattern," stated Dr. Randa Grob-Zakhary, who is the leader of the organization.

The World Health Organization (WHO) (https://www.who.int/docs/default-source/coronaviruse/risk-comms-updates/update39-covid-and-schools.pdf?sfvrsn=320db233_2) reported that i) there were few outbreaks reported in schools since early 2020 ii) in school outbreaks, it was more likely that virus was introduced by adult personnel iii) in most infections or

COVID-19 cases reported in children, infection was acquired at home iv) studies suggest that children < 10 years are less susceptible and less infectious than older ones.

A Yale University (https://news.yale.edu/2020/10/16/child-care-not-associated-spread-covid-19-yale-study-finds) study published in PEDIATRICS journal, looking at childcare and whether it was associated with the transmission of COVID-19, followed up 57,000 childcare workers in all 50 US states, including Washington DC and Puerto Rico. The did this for the first 3 months of the pandemic and for the study, approximately 50% continued caring for the very young children while the other 50% remained at home. "No differences in COVID-19 outcomes were observed between workers who continued to provide in-person care for young children and those who did not". This indicates that child care providers do not experience any greater risk from their work. Given the usually close proximity interactions that occur between childcare givers with children, *versus* the generally more distant interactions between teachers and their students (i.e. the children), this finding underscores even more the prospect that teachers will develop COVID-19 from their students and *vice vers*a.

Dr. Rainu Kaushal of Weill Cornell Medicine (https://jamanetwork.com/channels/health-forum/fullarticle/2767982) states that "Children under the age of 10 generally are at quite low risk of acquiring symptomatic disease… and they rarely transmit it either (https://jamanetwork.com/channels/health-forum/fullarticle/2767982)".

A BMJ publication by Munro (https://adc.bmj.com/content/105/7/618.long) examined the issue of transmission by children and reported that children are not COVID-19 super spreaders and that it is way past time to go back to

school.

A Clinical Infectious Diseases report (https://academic.oup.com/cid/article/71/15/825/5819060) provided study details on a cluster of COVID-19 in the French Alps, February 2020. Of importance, one (1) nine year-old pediatric case visited three different schools and a ski-class while symptomatic (). There was a large number of contacts of the pediatric case (n=112) and researchers reported that the child did not transmit SARS CoV-2 or COVID-19 disease despite these close interactions!

The Royal College of Pediatrics and Child Health (https://www.rcpch.ac.uk/resources/covid-19-research-evidence-summaries) investigation reported that i) infection with SARS-CoV-2 appears to take a milder course in children than in adults: most infected children present with mild symptoms or are asymptomatic ii) very few (c. 1%) develop severe or life threatening disease iii) secondary attack rates in children have generally been shown to be lower than in adults, suggesting that they have a reduced susceptibility to infection iv) deaths in children due to COVID-19 have been extremely rare: mortality seems to be consistent at around 0.01-0.1% (similar to the incidence seen every year with seasonal influenza) v) overall evidence suggests that children may be less likely to acquire the disease vi) their role in transmitting the virus is limited vii) children were unlikely to be the index case viii) SARS-CoV-2 is mainly spread between adults and from adult family members to children.

An Australian study (https://www.ncirs.org.au/sites/default/files/2020-04/NCIRS%20NSW%20Schools%20COVID_Summary_FINAL%20public_26%20April%202020.pdf) in New South Wales looked at the close contacts (a proportion of 863 contacts) of 9 children and 9 teachers and found no indications that any of the children actually infected a teacher.

Insights for Education (https://www.npr.org/2020/10/21/925794511/were-the-risks-of-reopening-schools-exaggerated) also reported on the IDSA's update (October 14th 2020) on safe school re-openings, where the IDSA indicated that "The data so far are not indicating that schools are a super-spreader site" (Dr. Preeti Malani).

A report by the European Centre for Disease Prevention and Control (ECDC) (https://www.ecdc.europa.eu/sites/default/files/documents/COVID-19-schools-transmission-August%202020.pdf), Stockholm, 2020, concluded that i) investigations of cases identified in school settings suggest that child to child transmission in schools is uncommon and not the primary cause of SARS-CoV-2 infection in children in any case ii) very few significant outbreaks of COVID-19 in schools have been documented and based on the foregoing, it can be surmised that in most cases the outbreaks were probably related to adult index cases.

A report out of the Netherlands (https://www.rivm.nl/en/novel-coronavirus-covid-19/children-and-covid-19) indicate that SARS-CoV-2 is transmitted principally between adults and from adults in a family to children.

A report by Public Health England on SARS-CoV-2 infection (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/911267/School_Outbreaks_Analysis.pdf) and transmission in educational settings found that in their examination, "SARS-CoV-2 infections and outbreaks were uncommon across all educational settings. Staff members had an increased risk of SARS-CoV-2 infections compared to students in any educational setting, and the majority of cases linked to outbreaks were in staff". And as suggested above, the staff acquired their infections from the general population in all likelihood and not from the

school sites.

An Emerging Infectious Diseases (https://wwwnc.cdc.gov/eid/article/27/1/20-3450_article) publication reported on an analysis of all children <19 years of age (n=94, median age 6 years, range 2 months to 11 years) with COVID-19 and their uninfected guardians who were isolated together in 7 hospitals in South Korea. Researchers reported no SARS-CoV-2 transmission from children to guardians in isolation settings.

A publication in PEDIATRICS journal (https://pediatrics.aappublications.org/content/146/2/e2020004879.long) by Lee that focused on COVID-19 disease transmission and children, concluded that "Almost 6 months into the pandemic, accumulating evidence and collective experience argue that children, particularly school-aged children, are far less important drivers of SARS-CoV-2 transmission than adults. Therefore, serious consideration should be paid toward strategies that allow schools to remain open, even during periods of COVID-19 spread".

An Emerging Infectious Diseases (https://pubmed.ncbi.nlm.nih.gov/32673193/) publication looking at contact tracing in South Korea found that "household transmission was lowest when the index case-patient was 0–9 years of age".

A South Korean study looking at the role of children in household transmission (https://pubmed.ncbi.nlm.nih.gov/32769089/) of SARS-CoV-2 found that the secondary attack rate (SAR) from children to household members was very low and estimated to be only 0.5%.

An Indian study in the Journal of Public Health (https://pubmed.ncbi.nlm.nih.gov/33454742/) looking at household

secondary attack rates (SAR) (72 pediatric index cases having 287 household contacts were included in the study) found the SAR to be approximately 1.7%.

In The Pediatric Infectious Disease Journal (https://journals.lww.com/pidj/Fulltext/2020/12000/Children_and_Adolescents_With_SARS_CoV_2.1.aspx), in a study looking at 203 SARS-CoV-2 infected children (median age 11 years, range 6 days to 18.4 years) in terms of in-family transmission, researchers reported just one instance of child-to-adult transmission. It cannot be overstated that this transmission occurred in a household setting thus showing just how minor is the transmissibility from child to adult. Clearly households are a setting in which there would be much closer physical interactions between the children and adults in comparison to that which might take place in a school!

In the Journal of the Pediatric Infectious Diseases Society (https://academic.oup.com/jpids/advance-article/doi/10.1093/jpids/piaa158/6007439), a single center US retrospective study of infection patterns in household contacts of children with laboratory confirmed SARS-CoV-2 infection in an urban setting, found no child-to-adult transmission.

A Clinical Infectious Diseases publication (https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciaa1825/6024998) reported in a meta-analysis of the role of children in SARS-CoV-2 in household transmission clusters (n=213 from 12 countries). Researchers calculated that the SAR in pediatric household contacts was lower than found in adult household contacts, RR 0.62; 95% CI 0.42 to 0.91).

A review by Li (https://pubmed.ncbi.nlm.nih.gov/32612817/) published in Journal of Global Health that examined the role of children in transmission (n=16 studies for the narrative review), found that "children may be less

frequently infected or infect others…prolonged faecal shedding observed in studies highlights the potentially increased risk of faeco-oral transmission in children". And in this regard, the latter finding has great implications for school environments where so far, most mitigation efforts focus on mask use, social distancing and the use of physical barriers between the desks of children. Given the type of transmission mechanism for children discussed in this study, the mitigation approaches noted above (apart from social distancing perhaps) would have little to no effect on the transmission of SARS CoV-2.

In a meta-analysis of 40 studies (medRxiv pre-print publication by Madewell (https://www.medrxiv.org/content/10.1101/2020.07.29.20164590v1)) looking at household secondary attack rate (SAR), they found that "household SARs were significantly higher from symptomatic index cases than asymptomatic index cases…to adult contacts than children contacts".

A Clinical Infectious Diseases publication (https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciaa794/5862649) looking at transmission risks in educational settings in Singapore reported that they "could not detect SARS-CoV-2 transmission despite screening of symptomatic and asymptomatic children. The data suggest that children are not the primary drivers of SARS-CoV-2 transmission in schools". This important finding also illustrates the fallacy behind the drive to screen all children coming into school for the presence of SARS CoV-2 mRNA or mRNA fragments.

A PEDIATRICS publication by Posfay-Barbe looking at COVID in children (n=40) in Switzerland and the dynamics of infection in families, found that "in 79% of households, > adult family member was suspected or confirmed for COVID-19 before symptom onset in the study child, confirming that children

are infected mainly inside familial clusters".

The National Academies of Science, Engineering, and Medicine (https://www.nap.edu/catalog/25858/reopening-k-12-schools-during-the-covid-19-pandemic-prioritizing) (NASEM) has stated "evidence to date suggests that children and youth (aged 18 and younger) are at low risk of serious, long-term consequences or death as a result of contracting COVID-19".

We would be remiss if we did not accentuate that the school setting for many children especially less advantaged children presents as their principal route out of crushing poverty and for many, it is the only 'daily' safety from the dangers of a chaotic, disordered, and at times threatening home life. School closure and shift to on-line learning is a catastrophic mess and a real threat (https://www.interpol.int/en/News-and-Events/News/2020/INTERPOL-report-highlights-impact-of-COVID-19-on-child-sexual-abuse). In a February 2021 BMJ publication, Lewis et al. (https://www.bmj.com/content/372/bmj.n521) cogently outlined how closing schools is not evidence based and harms children and this is supported by a very recent systematic review which shows that when the lowest risk of bias studies are examined, school closures have no obvious or distinct effect on SARS-CoV-2 transmission (https://www.medrxiv.org/content/10.1101/2021.01.02.21249146v1?ijkey=26e5d891ae6bf23522a2c33e03d695c404ec72d8&keytype2=tf_ipsecsha).

Conclusion

Why have these school closures gone on for so long? Why has the public, the parents, the children and teachers been so badly deceived as to risk? Were decisions made based on evidence or other factors? Who is at fault here? What

was the reason for this very flawed policy, as it surely is not based on available research data or even common sense. This is tantamount to sabotage (https://www.nytimes.com/2020/10/06/opinion/liberal-cities-schools-covid.html) of our children by government officials, Teachers' unions, seemingly unskilled medical experts and public health agencies, the latter charged with the health and well-being of our societies. Why have the CDC and other US health agencies such as the NIH been so slow to react to the science that was readily available so soon after the onset of the pandemic (e.g. the strong evidence from Norway, Ireland (https://dontforgetthebubbles.com/evidence-summary-paediatric-covid-19-literature/), Singapore (https://www.eurosurveillance.org/content/10.2807/1560-7917.ES.2020.26.1.2002011), North Carolina (https://www.cidrap.umn.edu/news-perspective/2021/01/three-studies-highlight-low-covid-risk-person-school) etc.) and thus guide optimal and rational policy decisions based on this clear prior accumulated science (Washington Post piece (https://www.washingtonpost.com/education/feared-covid-outbreaks-in-schools-yet-to-arrive-early-data-shows/2020/09/23/0509bb84-fd22-11ea-b555-4d71a9254f4b_story.html) September 2020, *The Atlantic* (https://www.theatlantic.com/ideas/archive/2020/10/schools-arent-superspreaders/616669/), October 2020)? Why have they dropped the ball on our children? What is very troubling is that decision-makers know that the children most impacted by these closures are often in minority groups (https://www.nytimes.com/2020/10/06/opinion/liberal-cities-schools-covid.html), in many instances from poor inner-city areas, least able to withstand the deficits. This is not just a safety issue, but a health equity issue.

We contend that the evidence of very low risk if any, to children (and teachers) especially with safe re-openings, was always there. And the CDC is only now,

in January/February 2021 (https://jamanetwork.com/journals/jama/fullarticle/2775875), racing to any open podium and microphone it can find to tell us it's time to re-open schools and it can be done safely. Yet this is not new data the CDC is stumbling upon for the first time; they have always known this. Any medical expert or agency implying otherwise that this is new science and 'we now understand the data' or 'the data is now available' is being flat out duplicitous. The CDC always knew it was safe to re-open schools for many months now (almost a year). They, like those around the globe, had the publicly available published pediatric-children data since mid-2020 which has been consistent and clear: There is very low risk to children and that given the other serious and negative effects on our children related to school closures the schools should not have been closed in the first place. We understand that during the very early phases of the pandemic there was a paucity of any information regarding SARS CoV-2 and so perhaps the initial lockdowns can be understood and definitely forgiven. But this cannot be said of the ongoing closures.

It is very evident to populations that school closure policies have been extraordinarily harmful to our children and they will bear the catastrophic effects for decades to come. This is even more impactful for our vulnerable minority children. There have been and will continue to be overwhelming harms due to these actions and this policy in particular has injured our children.

We knew it then and do now as to school closures and the risk, based on what we learnt about societal lockdowns in COVID and just how ineffective and devastating lockdowns are (e.g. Jutland Denmark (https://www.medrxiv.org/content/10.1101/2020.12.28.20248936v1.full.pdf), Chaudhry's (https://thefatemperor.com/wp-content/uploads/2020/11/1.-LANCET-

LOCKDOWN-NO-MORTALITY-BENEFIT-A-country-level-analysis-measuring-the-impact-of-government-actions.pdf) country level analysis, German (https://advance.sagepub.com/articles/preprint/Comment_on_Dehning_et_al_Science_15_May_2020_eabb9789_Inferring_change_points_in_the_spread_of_CO19_reveals_the_effectiveness_of_interventions_/12362645) evidence, UK (https://arxiv.org/abs/2005.02090) evidence, New Zealand (https://www.tandfonline.com/doi/full/10.1080/00779954.2020.1844786?journalCode=rnzp20) evidence, European (https://advance.sagepub.com/articles/preprint/Comment_on_Flaxman_et_al_2020_The_illusory_effects_of_non-pharmaceutical_interventions_on_COVID-19_in_Europe/12479987) evidence, Lipsitch (https://advance.sagepub.com/articles/preprint/Comment_on_Flaxman_et_al_2020_The_illusory_effects_of_non-pharmaceutical_interventions_on_COVID-19_in_Europe/12479987)'s evidence, evidence from Ioannidis (https://www.medrxiv.org/content/10.1101/2020.07.22.20160341v3), and evidence from American Institute for Economic Research evidence (https://www.aier.org/article/what-they-said-about-lockdowns-before-2020/) (AIER). Policy makers knew of the harms but imposed and continue to impose catastrophic lockdowns. It is way past time to end these school closures, societal lockdowns, and unscientific mask mandates (https://www.aier.org/article/the-question-of-masks/) as they have a very limited benefit but are causing serious harm with long term consequences, especially among those least able to withstand them!

We point out that the impact of school closures has not been mitigated by so-called distance learning. We know that the remote learning model (https://www.washingtonpost.com/outlook/2020/08/10/remote-school-toxic-stress/)s have in large part failed causing severe damage to our

children's education. Matthew Snape (https://www.theatlantic.com/ideas/archive/2021/01/just-open-schools-already/617849/) who is a pediatric researcher at the University of Oxford stated "There is clear evidence that shutting schools harms students directly, in terms of both their education and their mental and social health." We should take this warning seriously! Dr. Craig Wax (https://www.physicianoutlook.com/articles/openschoolsnow) also states it clearly: We cannot allow school closures to further damage our children and the fabric of society".

To close, we must admit that the public health communication about COVID-19 disease has been dreadful from the prior Administration and now this one. The facts are clear and the public demands far better decision-making. We call on the new Administration to remedy these failures and we suggest that they should start with immediate public health education and messaging to the teachers about their very low risk and that of the children. "Teachers also benefit from in-person school teaching (https://www.physicianoutlook.com/articles/openschoolsnow). They benefit from more effective teaching, direct attention and interaction, immediate feedback and non-verbal communication, increased job satisfaction and security, and a host of other benefits." The COVID-19 survival rate is approximately 99.995% in children and teens and it is this that must be messaged.

If we were teachers today, between the misinformation and recommendations supplied by some unions and the mess and fear created by the inept, illogical and nonsensical 'television' medical experts who seek mainly to sow fear and hysteria, as to the risk to children as well as others in the school setting, then we too would not want to go back to in-person instruction.

We are well past the point where we must replace hysteria and fear with knowledge and fact. The schools must be immediately re-opened for in-person instruction.

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