



संगणक विज्ञान एवं अभियांत्रिकी विभाग  
भारतीय प्रौद्योगिकी संस्थान मुंबई  
पवई, मुंबई-400 076, भारत  
**Department of  
Computer Science and Engineering**  
Indian Institute of Technology Bombay  
Powai, Mumbai-400 076, India

Tel : (+91-22) 2576 7901, 2576 7902  
EPABX : (+91-22) 2572 2545, Extn.: 7901, 7902  
Fax : (+91-22) 2572 3480,  
(+91-22) 2572 0022 (Direct)  
email : office@cse.iitb.ac.in  
Website : www.iitb.ac.in

IIT Bombay

To,

Honourable Prime Minister Shri Narendra Modi,  
Honourable President Shri Ram Nath Kovind,

**Subject: An Appeal to Reopen Schools in India**

Respected Shri Narendra Modi ji, Shri Ram Nath Kovind ji,

Most of the schools in India have been closed for the vast majority of students since the lockdown started in Mar 2020. The cost-benefit analysis is overwhelmingly in favour of reopening schools. Recently there is talk of vaccinating children under 18 years of age against Covid-19. The risk benefit analysis behind this is overwhelmingly against vaccinating them. We detail these in this appeal below.

This appeal can be found in electronic form at: <https://tinyurl.com/schoolappealletter>

Yours Sincerely,

*Rashankaran* 06 July 2021

Bhaskaran Raman,  
Professor, Department of CSE, IIT Bombay, Mumbai. ([br@cse.iitb.ac.in](mailto:br@cse.iitb.ac.in), 9820082064)

CC:

Education minister (Govt of India),  
Chief Ministers of all states,  
Education ministers of all states,  
Adv. Nilesh Ojha (Indian Bar Association, Mumbai)

# An Appeal to Reopen Schools in India

*Bhaskaran Raman,  
Department of CSE, IIT Bombay.  
06 July 2021*

Most of the schools in India have been closed for the vast majority of students since the lockdown started in Mar 2020. The cost-benefit analysis is overwhelmingly in favour of reopening schools. Recently there is talk of vaccinating children under 18 years of age against Covid-19. The risk benefit analysis behind this is overwhelmingly against vaccinating them. We detail these below.

## **A: Status and comparison with other parts of the world**

1. Most schools have been shut in India for about 15 months now, with very few states partially reopening schools for a brief period. In sharp contrast to various countries where schools have been open even while other businesses have been closed, in India, schools have been shut even as most other businesses have opened for many months.
2. Some example countries where schools have been open mostly, including at the peak of their pandemic are: Sweden, Portugal, Germany, Netherlands, Japan, Taiwan, etc. In the US, several states have opened schools for in-person teaching for many months now. In the state of Florida, schools have been open for in-person classes since late Sep 2020, and stayed open through their second wave.

## **B: The extreme costs of keeping children out of school**

1. Worldwide, “The number of out-of-school children is set to increase by 24 million, to a level we have not seen in years and have fought so hard to overcome.” [[UNICEF report, Jan 2021](#)].  
Link: <https://www.unicef.org/press-releases/children-cannot-afford-another-year-school-disruption>
2. A study in Nov 2020 across 10 states in India [[link](#)] estimates that as many as 64% of children may drop out of school !  
Link: <https://theprint.in/india/64-kids-in-rural-india-fear-they-have-to-drop-out-if-not-given-additional-support-survey/625146/>
3. Haryana has recently [reported](#) a 42% drop in student enrollment in private schools.  
Link: <https://timesofindia.indiatimes.com/city/gurgaon/where-have-12-5-lakh-students-enrolled-in-haryanas-private-schools-gone/articleshow/84104673.cms>

4. “Children’s ability to read, write and do basic math has suffered, and the skills they need to thrive in the 21st century economy have diminished.” [UNICEF report, Jan 2021].  
Link: <https://www.unicef.org/press-releases/children-cannot-afford-another-year-school-disruption>
5. “Research has shown that a mere one-year delay in these measures, not only in India—compounded by the economic downturn—could result in 13 million more child marriages over the next decade (2020-2030) across the globe.” [ORF report, Mar 2021]  
Link: <https://www.orfonline.org/research/the-impact-of-covid-19-on-children-and-adolescents-early-evidence-in-india/?amp>
6. Health anxiety, financial difficulty, and confinement to homes have resulted in increased incidences of domestic violence and child abuse. Even in urban households, there has been an increased incidence of cyber-bullying and abuse of children over the Internet and social media. [ORF report, Mar 2021]  
Link: <https://www.orfonline.org/research/the-impact-of-covid-19-on-children-and-adolescents-early-evidence-in-india/?amp>
7. Prolonged school shutdown has already severely dented India’s fight against child labour. Even as early as June 2020, increased instances of child labour as well as missing children were reported. [HT, 05 Jul 2020]  
Link: <https://www.hindustantimes.com/cities/child-labour-cases-rise-in-june/story-7oDzLfO1x6UN0b3mMucNLI.html>
8. India’s infant mortality rate was about 2.8% in 2019, which translates to about 2000 preventable infant deaths per day! Due to school shutdown, mid-day meal schemes have been shut. Even as early as June 2020, it was estimated that about 800,000 additional children would face underweight and wasting [JGHS, Jul 2020]. One shudders to think of the impact of school shutdown which has lasted well more than a year. Link: <https://e-jghs.org/DOIx.php?id=10.35500/jghs.2020.2.e19>
9. Even in well off urban India and in developed nations, extended school closure is having a severe impact on children’s mental health. In Las Vegas (USA), a surge of student suicides forced schools to reopen in Jan 2021. The UK reported a 40% rise in the number of children taking antidepressants.  
Link-1: <https://www.nytimes.com/2021/01/24/us/politics/student-suicides-nevada-coronavirus.html>  
Link-2: <https://www.telegraph.co.uk/news/2021/06/23/number-children-taking-antidepressants-hits-all-time-peak-pandemic/>



## C: Negligible risk of Covid-19 for children

The risk of Covid-19 in children is much lower than in adults, and is also much lower than other (already small) risks they face in daily life anyway.

1. Raj Bhopal reports, based on a study of 137 million children and adolescents in the US and Europe that Covid-19 in this age group is less than half as risky as seasonal influenza, and over 20 times less risky than death by “unintentional injury” [[NCBI, Dec 2020](#)].  
Link: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7361085/>
2. Among the nearly 2 million children in Sweden (where schools have been open throughout), there was not a single death due to Covid-19. [[NEJM, Jan 2021](#)].  
Link: <https://www.nejm.org/doi/full/10.1056/NEJMc2026670>
3. As per Mumbai’s Covid-19 dashboard data, the Covid-19 IFR (Infection Fatality Rate) for under-19 is miniscule: about 0.003% . In comparison, the infant mortality rate in India is about 3% (1,000 times greater) and the infant mortality rate in Japan is 0.18% (60 times greater). In other words, school-age children are at a negligibly lower risk from Covid-19 compared to other threats.  
Link: <https://tinyurl.com/schoolsc19>

Indeed, the indirect proof that children are not affected significantly by Covid-19 is that vast body of literature (a subset is given below) studying whether children spread Covid-19, a question which would not have been so important had children been themselves vulnerable to the disease.

## D: Schools do not play a significant role in spread of Covid-19

It is now well understood through various scientific studies across several countries and regions, that children do not play a statistically significant role in the spread of Covid-19.

1. In a study comparing the school closure in Finland during the Mar-May 2020 period, with Sweden, where schools were open throughout, the Public Health Agency of Sweden concludes “closure or not of schools had no measurable direct impact on the number of laboratory confirmed [Covid-19] cases in school-aged children”. Also significantly, the study also found “no increased risk for teachers” compared to other professions. [[Report by The Public Health Agency of Sweden](#)]
2. In a contact tracing study of school going children in Norway in the period Aug-Nov 2020, it was found that there was “minimal transmission of SARS-CoV-2 from paediatric COVID-19 cases in primary schools” [[Eurosurveillance Jan 2021](#)]
3. A large scale study in 16 states of Germany in the summer and fall of 2020, by University College London, concludes “neither the summer closures nor the closures in the fall have had any significant containing effect on the spread of SARS-CoV-2 among children or any spill-over effect on older generations” [[University College London Nov 2020](#)]

4. In a study of 17 K-12 schools in Wisconsin (US) in the period Aug-Nov 2020: “COVID-19 case rates among students and staff members were lower (191 cases among 5,530 persons, or 3,453 cases per 100,000) than were those in the county overall (5,466 per 100,000)” and also significantly “no infections among staff members were found to have been acquired at school” [[CDC Jan 2021](#)]
5. A US-wide study of in-person classes among under 24 year olds has found: “Several U.S. school districts with routine surveillance of in-school cases report lower incidence among students than in the surrounding communities, and a recent study found no increase in COVID-19 hospitalization rates associated with in-person education” [[CDC Jan 2021](#)]
6. The journal of the American Academy of Pediatrics reports a study of in-person schools in 11 districts of North Carolina (US), involving over 100,000 students+staff reports: “In the first 9 weeks of in-person instruction in North Carolina schools, we found extremely limited within-school secondary transmission of SARS-CoV-2, determined by contact tracing” [[JAAP Mar 2021](#)]
7. A country-wide study of school children in Sweden (where schools have been open throughout) in the New England Journal of Medicine finds: “As compared with other occupations (excluding health care workers), this corresponded to sex- and age-adjusted relative risks of 1.10 (95% confidence interval [CI], 0.49 to 2.49) among preschool teachers and 0.43 (95% CI, 0.28 to 0.68) among schoolteachers”. School teachers are least at-risk! [[NEJM Jan 2021](#)]
8. The journal of the American Academy of Pediatrics reports a study of 57,000+ child-care providers reports: “No association was found between exposure to child care and COVID-19” [[JAAP Jan 2021](#)]
9. A report by ECDC (European Centre for Disease Prevention and Control) in Dec 2020 states: “The return to school of children around mid-August 2020 coincided with a general relaxation of other NPI measures in many countries and does not appear to have been a driving force in the upsurge in cases observed in many EU Member States from October 2020.” [[ECDC Dec 2020](#)]

## **E: On new variants and possible third wave affecting children**

1. While there is a lot of talk about different variants of Covid-19, there is weak scientific evidence that these variants are more transmissible. There is even weaker evidence that new variants are more deadly, or that they will affect younger age groups.
2. Viruses always mutate. As of July 2020, scientists found over 3 lakh mutation events. Link: <https://www.frontiersin.org/articles/10.3389/fmicb.2020.01800/full>
3. Basic evolutionary biology is that viruses mutate to be less dangerous, because it helps them survive better. As per recent official data from the UK, the Delta variant had a case fatality rate of 0.1% while the original alpha variant had a case fatality rate of 1.9% (19 times higher!). Link: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/993198/Variants\\_of\\_Concern\\_VOC\\_Technical\\_Briefing.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/993198/Variants_of_Concern_VOC_Technical_Briefing.pdf)

4. In India, the first wave and second wave have affected age-groups similarly.  
Reference-1: "Data dispels myth of young people being more at risk during 2nd wave",  
<https://health.economictimes.indiatimes.com/news/industry/data-dispels-myth-of-young-people-being-more-at-risk-during-2nd-wave/83561305>  
Reference-2: "Maharashtra: Death rate falls more than 60% after the first wave"  
<https://timesofindia.indiatimes.com/city/mumbai/maharashtra-death-rate-falls-more-than-60-after-the-first-wave/articleshow/82616445.cms>
5. As per the sero-survey data, it is unlikely that India would have a large third wave.  
Reference-1: "80% Mumbai 'exposed', 3rd wave may not be large: TIFR",  
<https://timesofindia.indiatimes.com/city/mumbai/tifr-80-city-exposed-3rd-wave-may-not-be-large/articleshow/83938893.cms>  
Reference-2: "Children to escape COVID-19 third wave? AIIMS-WHO study finds higher sero-positivity"  
<https://www.businesstoday.in/latest/economy-politics/story/aiims-who-study-reveals-higher-sero-positivity-rate-in-children-may-escape-third-wave-impact-298981-2021-06-18>

## **F: Covid-19 vaccines for children: little benefit for huge risk**

1. As mentioned earlier, the risk posed by Covid-19 for children is miniscule in absolute terms as well as relative to other risks they face anyway.
2. Writing in the British Medical Journal (May 2021), scientists opine "Covid vaccines for children should not get emergency use authorization". And, "Unlike for adults, the rarity of severe covid-19 outcomes for children means that trials cannot demonstrate that the balance of the benefits of vaccination against the potential adverse effects are favorable to the children themselves." Link:  
<https://blogs.bmj.com/bmj/2021/05/07/covid-vaccines-for-children-should-not-get-emergency-use-authorization/>
3. Along the same lines, various experts have opined that the risk benefit analysis for school-age children simply does not justify a Covid-19 vaccine for children.  
Reference-1: "Letting children catch Covid may be safer than giving them vaccine, say experts",  
<https://www.telegraph.co.uk/news/2021/06/30/letting-children-catch-covid-may-safer-exposing-vaccine-risk/>  
Reference-2: "Inventor of mRNA vaccines says people should not be forced to take experimental COVID vaccines because risks aren't known and under 18s and those who've had virus shouldn't take it",  
<https://www.dailymail.co.uk/news/article-9719891/Inventor-mRNA-vaccines-says-young-adults-teens-not-forced-COVID-vaccine.html>
4. In the UK, various doctors have written an open letter expressing grave concerns over plans to vaccinate children. Reference: "COVID-19 child vaccination: safety and ethical concerns", <https://www.hartgroup.org/open-letter-child-vaccination/>

5. In the USA, there are growing concerns over a link between heart inflammation and Covid-19 vaccines for teen-agers and young adults.

Reference-1: "A link between Covid-19 vaccination and a cardiac illness may be getting clearer"

<https://edition.cnn.com/2021/06/09/health/myocarditis-covid-vaccination-link-clearer/index.html>

Reference-2: "Eight chest pain cases detected in San Diego adolescent boys after vaccination",

<https://www.kusi.com/eight-chest-pain-cases-detected-in-san-diego-adolescent-boys-after-vaccination/>

## **Summary**

In view of the above aspects, there is an overwhelming case for opening schools in India with immediate effect.