

# A Rapid Review of the Reopening of Schools in this COVID-19 Pandemic? How Ready are We in Nigeria?

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## Abstract

Reopening schools raise several ethical issues, including safety, privacy, autonomy, vulnerability. Some countries have gradually reopened their schools with explicit guidelines for safety. The safe reopening of schools demands sensitivity to community inequities. We aimed to conduct a rapid review of the strategies adopted in the reopening of schools in some countries amid the Covid-19 and highlight the lessons learned and to consider the feasibility of some of the existing Nigerian guidelines on school reopening. A rapid review technique using PubMed search was conducted using the combination of the following keywords: *Covid-19, school, reopening* along with a Google search using the phrase 'schools reopened in COVID-19 pandemic.' Ten articles met the inclusion criteria and were reviewed. Eight countries namely China, Taiwan, South Korea, Norway, Denmark, Germany, Australia, and Israel were identified. All the countries started with phased reopening and a reduction in class size. Wearing masks was mandatory in some countries. Hand hygiene and strict cleaning of high-touch surfaces were ensured. The Nigerian government's guidelines towards the reopening of schools sound good, but the feasibility, acceptability, and effectiveness need to be objectively assessed and contextualized across all tiers of the government and at all levels of development to avoid COVID -19 resurgence.

**Keywords:** COVID-19, schools, reopening, pandemic

## BACKGROUND

The coronavirus disease (COVID-19) which was first identified in December 2019 in Wuhan, China and declared a pandemic by the World Health Organization in March 2020 has constituted a severe health challenge to populations globally, with a substantial impact on families and children.<sup>[1]</sup> The devastating effect of COVID-19, is no doubt a reality more so in resource-constrained countries both directly or indirectly, on the physical, social, mental, and economic well-being of the populace.<sup>[2]</sup> As of August 16, 2020, the global update on the Coronavirus shows that 12,768,307 cases were infected with 566,654 deaths, while in Nigeria, there were 49,068 confirmed cases with 975 confirmed fatalities.<sup>[3]</sup>

The governments of many countries worldwide are intensifying efforts toward flattening the curve of this infection and are relaxing some previously existing lockdown measures.<sup>[4]</sup> One of the very critical issues associated with our response to the COVID-19 pandemic is how to adequately protect the health

and well-being of our children and ensure safer schools in the context of rising cases of the diseases and community spread.<sup>[5]</sup>

There is no doubt that the COVID-19 pandemic poses a big challenge to any fragile health system. In other words, there is a need for a resilient health system to overcome the challenges of COVID-19. A resilient health system can be defined as one that possesses the ability to prepare for and effectively respond to crises such as disease outbreaks and emergencies, while at the same time keeping up to its core functions, and draw vital lessons from such situations.<sup>[6]</sup> One of the essential features of a resilient health system is integration, where diverse actors from inside and outside the health sector, from government

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and non-government organisations and civil society, work together in a co-ordinated manner with a designated focal point for such co-ordination.<sup>[7]</sup>

The closure of schools was one of the earliest lockdown measures taken globally at the onset of the COVID-19 pandemic, and this continued for several months. This is considered to have some positive public health importance in reducing the transmission of the virus, although some authors have argued that there is no specific evidence to justify these positive effects.<sup>[8,9]</sup> A recently published systematic review reported that during the outbreaks of influenza, school closures and implementation of social distancing guidelines led to a drastic reduction in disease transmission among school children aged 5–17 years old.<sup>[10]</sup> Despite this evidence, some workers have questioned the rationale for closing schools.<sup>[9,11]</sup> However, the main rationale associated with the closing of schools in an epidemic situation is that it restricts social contact and limits physical interaction. There is evidence to support the fact that school closing during epidemics reduces social interactions among children and limits the contacts between the children's parents, caregivers, and staff of the schools.<sup>[12]</sup> Some other recent evidence also suggests that school closures can be an effective epidemic control measure.<sup>[13,14]</sup>

In a previous study by Halder *et al.*, it was opined that school closure is a foremost intervention strategy to limit the spread of the influenza virus among children and youths since they are considered to be more prone to these infections because of their high contact rate in school and their relatively lower immunity than in adults.<sup>[15]</sup> Nevertheless, concerning the COVID-19, pandemic, current data indicate that children and adults have different susceptibility to the infection and outcomes.<sup>[11,16]</sup> Postulated reasons for the low susceptibility in children include changes in children's innate and adaptive immune system induced by childhood vaccinations, maturation, possible previous exposure to common coronavirus-upper respiratory infection as well as variations in the virus binding capacity and infectivity of the epithelial cells of the host.<sup>[16]</sup> This postulation is supported by a number of recent studies, which showed that children aged 0–14 years appeared to be less susceptible to infection from COVID-19.<sup>[17,18]</sup> In the district of Veneto area, Italy, where the first Italian-related COVID-19 demise was noted, the whole populace was tested twice for the presence of COVID-19 using nasopharyngeal swabs, and 234 children between the ages 0 and 10 showed no infection although 13 of them were living with infected relatives.<sup>[19]</sup> The question remains, how infective, in reality, are children in the COVID-19? Information from studies conducted across the world, support low infection and low disease transmission from children to adults.<sup>[20,21]</sup>

The Nigerian Center for Disease Control, has not shown much data on testing done on children for Coronavirus infection to determine statistically how many children are infected or how much susceptible they are to this virus. Nevertheless, schools have been closed for a variable number of weeks globally and

several countries are now gradually returning their children to school, but not without laid down guidelines or policies to ensure safety and avoid a resurgence.<sup>[22,23]</sup>

The purpose of this study was to conduct a rapid review of the strategies adopted in the reopening of schools in some countries amid the COVID-19 and highlight the lessons learned, to assist policies and guidelines as Nigeria makes effort toward reopening.

## METHODS

We adopted the rapid review technique, which is characterized as a kind of information generation, wherein precise audit measures are quickened and techniques are streamlined to finish the survey much faster than is the situation for typical systematic reviews.<sup>[24]</sup> The essence of this approach is to meet policymakers' needs to inform policy development in a very timely manner.<sup>[25]</sup>

A PubMed search was conducted using the combination of the following keywords: COVID-19, school, reopening. The search yielded 90 entries as of August 9, 2020. The search date ranged from March 2020 to August 2020 and was focused mainly on studies published in English and studies published in French but with titles and abstracts translated into English. The publication entries were screened using the following two key study inclusion criteria: (i) must be primary or original research or a report/communication, (ii) must have been conducted in schools with a primary focus on reopening, within the context of the COVID-19 pandemic. Further screening yielded 23 school-based studies on COVID-19. The reference lists of eligible publications retrieved were hand-searched to identify any other important studies. Two of the authors independently performed the search and data extraction which involved screening of titles, abstracts, and the full texts of publications. Where there were differences, an agreement was reached through discussion. We eventually identified four papers from PubMed that suited our objective, as they reported situations in schools that have already reopened. Three of them were full texts, whereas one was an abstract.

We further searched Google using "schools reopened in COVID-19 pandemic" for other recent entries or reports on school reopening and found seven eligible articles from the first 100 entries. One was a duplicate of one of the studies selected from PubMed, five articles were news reports or communications and one other was a policy brief. Finally, after the exclusion of duplicates, a total of ten articles met our inclusion criteria for review.

Table 1 shows some countries that have eventually reopened their schools in this pandemic, after the lockdown, and the practical measures they are using to stem the resurgence of the SARS-COV2 infection.

## RESULTS

A total of ten articles that technically met the inclusion criteria were used in this review. Four were obtained from PubMed

**Table 1: Countries that have reopened their schools in this pandemic and mode of operation to mitigate or Contain the disease**

Country, author	Date and mode of reopening	Strategies adopted at reopening	Hygiene/sanitation policy	Health screening
China Melnick <i>et al.</i> , 2020 BBC News, July 2020	Phased reopening Since March starting with the final years of middle and high schools	Seats are separated with plastic dividers Class size reduced by half (30) Physical and health education was suspended in some schools	Frequent hand washing; government provided masks to be worn by students and staff	Temperature is taken on arrival at the school gate In Beijing, pupils must show that they have a “green” code on an app that calculates their risk before returning to school
Norway Johansen <i>et al.</i> , June 2020	Phased reopening starting with children’s daycares on 20 <sup>th</sup> April, then primary school grades 1-4 on 27 <sup>th</sup> April and higher grades (5-13) on 11 <sup>th</sup> May	Class size was reduced to 15 pupils per instructor in 1 <sup>st</sup> -4 <sup>th</sup> grades 1-4 and 20 pupils per instructor in the 5 <sup>th</sup> -7 <sup>th</sup> grades. Outdoor classes and the use of bigger rooms or areas were adopted for easier physical distancing	Measures for enforced hand hygiene, respiratory hygiene, cleaning, and disinfection were established	Self-isolation of sick children/staff
Australia Madeline Will, June 2020	Phased reopening started from May 11th with 1 day a week’s attendance. Opened full time by 25 <sup>th</sup> May	Class sizes were reduced to 10-15 students, depending on the classroom sizes Spacious areas such as libraries and recreation rooms were converted to classrooms to accommodate more students during social distancing There was a staggering of students’ arrival, departure times, and recess to reduce the crowd	School cleaners do additional cleaning of high-contact surfaces during the day and upgraded cleaning around evening time The use of recreational equipment was restricted unless their cleaning was guaranteed after each use. Wearing of masks by students is not yet strictly recommended	Temperature screenings are not recommended
Denmark Fantini <i>et al.</i> , June 2020 Emiliana Vegas, July 2020	Phased reopening started on 15 <sup>th</sup> April for only prekindergarten and elementary students By 27 <sup>th</sup> May, grades 6-10 returned, followed by the 11 <sup>th</sup> graders	Pupils stayed in their classrooms in small closed groups As for the primary classes, the number of students was limited to 10 per teacher. Sitting in groups was not allowed, rather students sat at their separate desks six feet apart Sharing of classroom materials were not allowed among the children	Places for hand-sanitizing were positioned at every entrance and exit Drinking fountains were closed down and replaced by water stations where students can fill their water bottles Wearing a mask is not mandatory	Temperature check before coming into the school was not the norm Parents were advised to keep their children at home if any symptoms of COVID-19 were noticed
Germany Alex Ward, May 2020	Reopened in phases starting 4 <sup>th</sup> May, with students in examination classes Kindergartens remained closed	Wearing masks was made mandatory in classrooms, with seats spaced at a distance of six feet, which is also maintained between students while standing inline	Windows must be kept open to improve air circulation Hygiene measures are encouraged but no specifications	In some schools, students administer coronavirus tests on themselves to track if they have the disease or not
Israel Stein-Zamir <i>et al.</i> , June 2020	Limited schools reopening (kindergartens, grades 1-3 and 11-12) only in small groups from 3 <sup>rd</sup> May 2020. Subsequently, all school classes reopened on 17 <sup>th</sup> May 2020	Wearing face masks at school was adopted. Social distancing was maintained with reduced interaction among students and between classes	Daily hygiene keeping	Daily health reports, isolation of exposed or symptomatic students and contact tracing
Taiwan Cheng <i>et al.</i> , July 2020 Madeline Will, June 2020	Reopened in late February	5 feet physical distance is not mandatory with proper masking Small class sizes were kept	The Government of Taiwan provided a total of nine face masks for all adults and 10 face masks for all children biweekly Alcohol-based hand-sanitizers are positioned all over the school and people are expected to use them before entering the school building	The school conducts mandatory temperature checks for everyone upon entering the school building or boarding school buses

Contd...

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Country, author	Date and mode of reopening	Strategies adopted at reopening	Hygiene/sanitation policy	Health screening
South Korea Jennifer Couzin-Frankel, Gretchen Vogel, Meagan Weiland, July, 2020	The senior high school students returned first, followed by the junior level students a month later	Masks were worn in classrooms, and plastic partitions at each student's desk were installed in some schools	Regular cleaning of high-contact areas such as door handles, with alcohol-based solutions as well as a nightly disinfectant of surfaces with solutions of bleach  School officials drop liquid sanitizer on the hands of students as they enter the school building	Thermometers were used to check students' temperatures at the entrance gate

search, whereas six others were obtained from news reports or communications from Google search. They all gave the situation report in countries that have reopened schools during this COVID-19 pandemic. Eight countries were identified, namely China, Taiwan, South Korea, Norway, Denmark, Germany, Australia, and Israel [Table 1].

### Social/physical distance policy

All the countries (100%) reported phased reopening and reduction in class size. Two countries, specifically Austria and Norway repurposed bigger halls or rooms for social distancing. The use of plastic partitions to separate students were reported in two countries, China and South Korea. Taiwan however was not mandatory about physical distance if masked.

### Masking

Concerning masks, five countries, China, Germany, Israel, South Korea, and Taiwan mentioned mandatory wearing of face masks, whereas masking was not mandatory in Australia and Denmark. Only Taiwan reported the weekly provision of Masks by the government to staff and pupils.

### Hygiene policy

All reported practice of hand hygiene. Strict cleaning of high-touch surfaces was reported in three countries by some responsible staff.

A mandatory temperature check was reported in three countries, China, Australia, and Taiwan.

## DISCUSSION

From the findings, COVID-19 prevention encompasses avoiding the “three Cs:” closed spaces with poor ventilation, crowded places, and close-contact settings.<sup>[26]</sup> Some countries in Asia and Europe have taken the bold step to reopen their schools after months of lockdown from the COVID-19 pandemic after putting in place proven COVID-19 prevention guidelines.<sup>[22]</sup>

The common denominators across the countries mentioned in this review, including China, Australia, Denmark, Norway, Germany, Taiwan, South Korea, are determination, will, and commitment.

School reopening was systematically phased, putting in place what it takes for feasible social/physical distancing and necessary hygiene. In China, schools have enforced strict mitigation measures that include social distancing, temperature taking, designated school buses, the wearing of masks, regular disinfection, and a maximum of 30 students in one classroom.<sup>[22]</sup> In many of the countries that reopened their schools, the school authorities effectively reduced their class sizes to at least half, ensuring well-spaced seating arrangements.<sup>[23]</sup> In some places, plastic partitions were built on desks where a two-feet distance could not be assured.<sup>[27,28]</sup>

Notably, in Australia, some schools employed the use of bigger spaces like gymnasiums and libraries and converted them to classrooms to accommodate more students in the context of adequate social distancing.<sup>[29]</sup> In Norway outdoor teaching was adopted as part of the measures to improve ventilation.<sup>[30]</sup> All the countries in this review practiced phased reopening, however with variations in the age group that returned first. For some, the preschoolers or those in kindergarten returned first,<sup>[30]</sup> whereas some gave preference to exam classes.<sup>[23]</sup> In Germany, the kindergartens were not allowed to reopen.<sup>[23]</sup> In places where older children (10 years old and above) and adolescents were asked to return to school, the rationale behind this was that these categories of individuals are old enough and more likely to understand specific hygiene and sanitation rules and conform to them.<sup>[31]</sup>

Concerning hygiene policy, wearing of masks at school did not appear to be a uniform policy across countries. Most of the Asian countries made mask-wearing mandatory in school but in countries such as Australia and Denmark, wearing masks was not made mandatory.<sup>[22,29,32,33]</sup> According to the Center for Disease Control, children below the age of 2 years, should not wear masks for risk of suffocation.<sup>[34]</sup> However, in Taiwan, wearing face masks was more dependent on the ability to maintain enough physical distance.<sup>[33]</sup> The aim of masking or maintaining physical distance has always been to reduce transmission from person to person through droplets. This principle of masking where a physical distance of at least 1 m cannot be guaranteed may be applicable in densely populated school settings, especially in low- and middle-income countries.



In Denmark also, the sharing of school supplies such as writing materials between pupils were not allowed.<sup>[35]</sup> This, we presume, is necessary to limit person-to-person contact with infected fomites and mitigate the spread of infections. Other hygiene practices include the placement of hand sanitizers at stations in the school and the very impressive cleaning of surfaces day and night with disinfectants, by some responsible staff in schools of Taiwan and Australia.<sup>[29]</sup> This shows the commitment of personnel and the willingness of the governing bodies to make resources available for the provision of cleaning materials in the school. Concerning health screening, most of these countries mandated temperature checks on entry into the school building whereas this was not mandatory in a few others.<sup>[22-33]</sup> The value of temperature checks is well known as fever is an important symptom of COVID-19, however absolutely relying on thermometers particularly, the infrared ones could be misleading. This is because studies have shown that environmental factors, including wind, humidity, and outdoor temperature, can cause infra-red thermometers to read normal values, and in some cases hypothermia, in some individuals due purely to the influence of these environmental factors.<sup>[36]</sup> Another problem that may disparage the use of temperature monitoring is that some people may take antipyretics shortly before the check, to avoid being blocked or quarantined as a suspect.<sup>[36]</sup>

In Germany, some schools provided self-test kits to help determine if one is infected or not infected with COVID-19.<sup>[23]</sup> In Beijing, China, there is an application that ascertains the presence of COVID-19, and the indicator must be green before they enter the school building.<sup>[27]</sup> The use of wearable devices for the surveillance of influenza-like illness has been tried in some studies with positive results.<sup>[37]</sup> These are high-level technology gadgets that may not be easily accessible, especially, to resource-limited countries. Monitoring of temperatures, isolation of exposed or symptomatic students, testing and tracing for Coronavirus are common practices in most of the reopened schools.<sup>[22,23,38]</sup> It is noteworthy that all the nations (such as South Korea, Hong Kong, Singapore) that got COVID-19 under control did so based on testing and tracing, isolation, quarantining without leaving out any of these. This highlights the importance of a commitment to identify every possible infected case and ensure contact tracing of all the potentially exposed individuals to break the transmission chain.<sup>[39]</sup> Nevertheless, it is obvious that most low-income countries may lack the capacity to trace the contacts of those infected.

An evaluation of the effects of school reopening in some of the above-mentioned countries revealed that the reopening of schools to younger classes and exam students in Germany, Denmark, and Norway did not cause any notable amplification in the transmission rate of the COVID-19. It was reported that there was no increased transmission of COVID-19 in Denmark and Norway, with the return of all students, but in Germany, transmission increased among students with the additional return of older students. Therefore, it becomes questionable, if the risk of transmitting the virus is higher among the older than the younger students.<sup>[40]</sup>

Not many African countries during the peak of the COVID-19 pandemic reopened their schools and maintained. Nigeria is one such country that contemplated school reopening by September 2020, although the examination classes returned to school sometime in August 2020. On July 13, 2020, the Federal Ministry of Education (FMOE), Nigeria, released a 52-page document concerning the guideline for the safe reopening of schools after the COVID-19 pandemic closure.<sup>[41]</sup> Emphasis was on the need to reorganize classes into smaller groups, plan for attendance in shifts, for example, morning and afternoon, or alternate day school attendance in a bid to achieve some social distancing. Sheltered outdoor classes were also suggested to be a safer option than indoor classes. There is a proposed plan for an infrastructural upgrade of the classrooms and provision of boreholes for water as well as alternative electricity supply (Solar power) in schools. Arrangements were made for recruiting more teaching staff to enable the schools to handle the smaller groups of learners and the increased shifts of duties. In addition to these, there were plans to train teachers, school managers, and other related personnel on safety and hygiene measures.<sup>[41]</sup> The guidelines are laudable, but the practicability must be analyzed across all levels of development within the country.

It will be pertinent to note that the safe reopening of schools also demands sensitivity to community inequities. Every school is confronted with its problems with implementing the common COVID-19 prevention strategies such as physical distancing, face coverings, and good hygiene practice.<sup>[15]</sup> Simple basic measures such as proper handwashing and hygiene practices are essential, but many children lack access to necessities such as water, sanitation, and hygiene facilities in resource-poor settings. This is a common situation in most public/Government-owned schools.<sup>[42,43]</sup> Definitely, time and resources are needed urgently to tackle such infrastructural problems before children return to school.

There is no doubt that a number of ethical concerns became obvious when considering the reopening of schools. It has been argued that in the reopening of schools, ethical consideration must be given to factors such as safety, vulnerability, privacy, and health disparities, which impact school children, their families, and staff of the schools.<sup>[16]</sup> The potential risk to the adults working in schools and other education settings need to be considered, but the people with whom they live and those they care for need also to be taken into account.<sup>[44]</sup> Factors such as age, and underlying or preexisting health conditions of students and school staff all need to be taken into consideration when planning for school reopening.<sup>[44]</sup> On the other hand, prolonged closure of school could be counterproductive and may give rise to a high rate of school dropouts, child labor, child marriage, reduced ability for catch-up learning, breed idleness which might result in youth restiveness and crimes.<sup>[45,46]</sup>

It is documented that the decision to open schools must take into cognizance factors such as the level of knowledge about

the transmission of COVID-19, the level of the disease among children; the local epidemiological situation and context of the school location, and the ability of the school authority to adhere to the COVID-19 prevention guidelines.<sup>[47]</sup>

The guideline from the FMOE emphasizes the preparation of the school community for reopening through sensitization, training, and building capacity of teachers, administrators, and other education personnel to effectively implement the protocol for COVID-19 mitigation in schools.<sup>[41]</sup>

The guideline needs to be communicated clearly to the teachers and pupils and made easy to interpret if it is to be implemented effectively. Building the capacity of teachers in knowledge and practice on matters concerning COVID-19 and its prevention is essential for many reasons. It will empower them to give the right information to the young children at school, whom we know as powerful agents of change, and it will give them the capacity to provide answers that can allay the fears and anxieties of the children.<sup>[48]</sup>

Eventually, it could be deduced from these findings that safe reopening of schools will be feasible with a combination of strategies that include containment and mitigation. The containment strategies can include improving access to contact tracing and quarantine while the mitigation strategies can entail the implementation of appropriate hygiene practices, sanitation, ventilation, and social distancing practices.<sup>[33]</sup> A critical look at the recommendations by the government of most countries reveals the emphasis on restructuring of the school system in a way to mitigate the spread of the virus within schools, and from schools to homes. Social distancing requires that the population of learners in the classroom must be reduced to 15–20 depending on the size of the classroom. It requires that school desks must be rearranged to observe at least 2 m apart. A greater level of hygiene practices is a necessity now more than ever, where frequent hand washing with soap and water is a mandate. Regular cleaning of surfaces and floors with disinfectant solutions is a necessity. A high level of toilet/sanitary hygiene should be in place. Learners will need to wear face masks, especially where social distancing cannot be guaranteed. Although according to some authors, this may not be the norm for children <7 years old.<sup>[34]</sup> Teachers who are elderly need to be protected. Those who can, are expected to wear face masks and possibly face shields. There is a need for a functional system to alert the necessary quarters for suspected cases of COVID in schools while protecting the rest of the community. There may be a need for available COVID-19 testing kits, regular temperature checks at school. There needs to be in place the expertise to evaluate common ailments that present with fever, cough, and catarrh among the school children, which mimic the symptoms of COVID-19. The list is probably inexhaustive, but although, may appear cumbersome without appropriate resources, planning, and collaboration. For effective input, in addressing these challenges, a collaboration of policymakers, superintendents, school leaders, teachers, and union leaders will be required.<sup>[16]</sup>

In the typical context of schools, especially the public schools (boarding or day schools) in Nigeria, how feasible will meeting the above requirements be? What is the typical population of students per classroom/dormitory/hostel? It could be in the neighborhood of fifty or more. How will class attendance be managed, in terms of shifts or staggers? Are we ready to restructure and redistribute the students into three subsets per class? Can we have enough teachers employed at this time to handle the groups? How many subjects could be taught in a day to reduce contact time? How do we manage a crowd of students coming to see the teacher in the staff room or offices? Would we continue with school assemblies and school sports? Does the guideline for reopening effectively consider boarding schools and higher institutions with their peculiarities? How will social distancing be constructively ensured in dormitories or hostels where students board? Transmission of infections and propagated spread among college-aged persons sharing the same housing facilities has been reported in a study.<sup>[49]</sup>

Concerning the other nonpharmacologic interventions, how mandatory would the wearing of face masks be? What age groups should wear these face masks? Who controls the quality of face masks to be worn? Do the schools have sufficient water supply for the necessary basic daily hygiene practices of particularly frequent hand washing and deep cleaning of surfaces and floors in the schools? Who maintains the necessary supply of soap, disinfectants, and hand sanitizers, especially in public schools?

Are there existing school-based health clinics or even mobile clinics for necessary health assistance should there be a suspected case? Are there plans to employ or deploy or designate school nurses, environmental officers who will help monitor the schools to ensure appropriate implementation of the guideline? These questions are pertinent and require ethical answers at various levels.

It will be very pertinent to note that the school health issues are not the sole responsibility of the Ministry of Education nor are they the sole responsibility of the Ministry of Health (MOH). It is a multi-sectorial business that concerns the MOE, MOH, Ministries of Water Resources, Housing, Environment, Women Affairs to mention but a few. The Royal College of Paediatrics and Child Health Research team recommends an intersectoral approach including Health, Basic Education, and Social Development, partnered with other relevant departments such as Water and Sanitation and Transport, parent bodies, teacher unions, learner representation, and nongovernment organizations, for a coordinated and effective public health response in the school setting.<sup>[8]</sup> COVID-19 pandemic poses a challenge to the School Health system. In Nigeria, there is a National School Health Policy document published by the FMOE (2006) in collaboration with other relevant ministries as a legal backing to ensure the health of learners in school using the school health program (SHP).<sup>[50]</sup> The SHP consists of the provision of health services in schools, provision of skill-based health education/instructions, provision of a safe

and healthy physical and social environment in school, and the promotion of school and community relationships. It is a comprehensive package designed to protect and promote the health of the school community.<sup>[51]</sup>

However, this school health policy has been poorly implemented in the country due to inadequate/lack of school health personnel, inadequate health facilities, inadequate training of teachers on the rudiments of the SHP, lack of dedicated budget for the implementation of the SHP by the government, lack of community involvement in the promotion of the SHP, lack of strict regulation enforcing policies with regular monitoring and evaluation, poor commitments toward the provision of School Health Program from school administrators, community, health department, and Ministries of Education and Health.<sup>[52-55]</sup>

The relevance of the SHP comes to bear so much more at this time of the pandemic. There is an obvious need for health personnel and school-based health clinics/sickbay in schools for monitoring the health of school children as they return in this pandemic. There is a need for teachers to deliver skill-based health instruction particularly on appropriate hand hygiene and respiratory etiquettes for the prevention of the COVID-19. There is a need for a healthy school environment, well ventilated, clean, disinfected, and equipped with sufficient water supply and latrines for appropriate sewage disposal to mitigate this disease. There is a need for an established school and community relationship as a regular interface between the home, community members, and the school health representatives to provide the opportunity for health sensitization and awareness campaign with minimal cost.<sup>[56]</sup>

### Recommendation

Necessary steps to reactivate the School Health Program nationwide and ensure participatory implementation of the COVID-19 safety guidelines for safe school resumption has to be put in place so that this laudable 52-page document does not end up as fiction.

It may be necessary to do a determined or purposive survey of COVID-19 infection among school-age children to determine their rate of infection. This may provide necessary background information on the necessity and the extent of restrictions to be taken in schools.

It is paramount that teachers' and students' safety is considered by ensuring that the necessary personal protective equipment is available in all schools and that realistic assessments as to the possibility of keeping safe distances between students, as well as between students and their teachers are carried out. As school reopens, emphasis should be on core subjects that are to be taught in small groups of up to 15 students, if classrooms are big enough to maximize the efforts in teaching and learning at these difficult times and accommodate at least two shifts of teaching per day.<sup>[57]</sup> Outdoor learning may be more favorable for better ventilation and physical distance in the Nigerian context.

Relevant governing bodies should be willing to fund projects for sufficient water supply to every school. It is indeed a time to provide water sources be it a water borehole or closed water well or water tank/reservoirs for schools that lack water. This will require community participation and contribution.

The need for a surveillance system in schools has been proposed, consisting of educating parents and with the implementation of robust testing in schools to promptly identify cases and undertaking case tracing, and quarantine of confirmed cases.<sup>[32]</sup> It is expected that a collaborative team of critical stakeholders including clinicians, scientists, and educators need to come together and deliberate on strategies that will ensure that reopening of schools are planned strategically.<sup>[16]</sup> Such a team should be able to provide scientific evidence, experiential evidence, and transparency to provide valid contextualized advice.

As schools reopen, school-based health centers should be established where it is not existing or expanded where necessary.

It is recommended that a mandatory face mask-wearing policy be put in place for the schools in addition to temperature screening and maintaining of social distancing in classrooms and the prompt closing of any classroom where infected students are identified.<sup>[57]</sup> Concerted efforts must be made to provide clear guidance to schools regarding preparation for measures on school reopening. These will require training of teachers, administrators, and other education personnel as already proposed by the Federal government of Nigeria.

The lessons of the COVID-19 pandemic informs the need for the services of a school nurse, or other health workers culled from the community health or public health units, community health extension workers, and environmental health workers, to help monitor and supervise health in schools.

There is a need for coordinated intersectoral collaboration between the MOH and MOE to address teachers' concerns and parents' fears regarding children and their health in this pandemic.

The Nigerian Education sector needs to be strengthened for better functionality and flexibility using available resources obtainable from the global initiatives to help COVID-19 response.

### CONCLUSION

A weak health system is potentially exposed and overwhelmed by COVID-19.<sup>[58]</sup> However, every country must have its lessons learned from the pandemic.

This is a wake-up call for a national school health policy dialog. If the whole world considers school closure important in the control of a pandemic, it implies that the school is a necessary hub for community health protection. COVID-19 pandemic may be an opportunity to resuscitate the School Health Program in Nigeria. Most of the guidelines laid down by the



Nigerian government toward the reopening of schools sound good, but the feasibility, acceptability, and effectiveness need to be objectively assessed across all tiers of the government and all levels of development. This will warrant an appropriate dialog with the primary implementers and stakeholders, including teachers, school managers Ministries of Education, Health, Water Resources, Women Affairs, Parent Teachers Association, Union of Teachers, Students Associations, and non-governmental organizations.

Policies are better developed and made more implementable when a bottom-top approach is used. It is, therefore, our hope and desire that as many of the necessary stakeholders as possible are involved and committed in the preparation of schools for a safe reopening.

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### Conflicts of interest

There are no conflicts of interest.

## REFERENCES

- Child TL. Pandemic school closures: Risks and opportunities. *Lancet Child Adolesc Health* 2020;4:341.
- Ozili, P.K. COVID-19 in Africa: Socioeconomic impact, policy response and opportunities. *International Journal of Sociology and Social Policy*. 2020 ahead-of-print. <https://doi.org/10.1108/IJSSP-05-2020-0171>.
- NCDC COVID 19 situation report, Accessed Mon 13th July 2020. Available from <https://ncdc.gov.ng/diseases/sitreps>.
- Fisher M, Sang-Hun C. How South Korea Flattened the Curve. *The New York Times*; March 23, 2020.
- Siegfried N, Mathews C. COVID-19 and the school response: Looking back to learn what we can do better. *S Afr Med J* 2020;110:727-8.
- Kruk ME, Myers M, Varpilah ST, Dahn BT. What is a resilient health system? Lessons from Ebola. *Lancet* 2015;385:1910-2.
- Nuzzo JB, Meyer D, Snyder M, Ravi SJ, Lapascu A, Souleles J, *et al.* What makes health systems resilient against infectious disease outbreaks and natural hazards? Results from a scoping review. *BMC Public Health* 2019;19:1310.
- Royal College of Paediatrics and Child Health Research and Evidence Team. COVID-19 Research Summaries. Available from: <https://www.rcpch.ac.uk/sites/default/files/generated-pdf/document/COVID-19---research-evidence-summaries.pdf>. [Last accessed on 2020 May 22].
- Wang CJ, Ng CY, Brook RH. Response to COVID-19 in Taiwan: Big data analytics, new technology, and proactive testing. *JAMA* 2020;323:1341-2.
- Cowling BJ, Ali ST, Ng TW, Tsang TK, Li JC, Fong MW, *et al.* Impact assessment of non-pharmaceutical interventions against COVID-19 and influenza in Hong Kong: An observational study. *Lancet Public Health* 2020;5:e279-88.
- Wu Z, McGoogan JM. Characteristics of and important lessons from the coronavirus disease 2019 (COVID-19) outbreak in China: Summary of a report of 72 314 cases from the Chinese center for disease control and prevention. *JAMA* 2020;323:1239-42.
- Viner RM, Russell SJ, Croker H, Packer J, Ward J, Stansfield C, *et al.* School closure and management practices during coronavirus outbreaks including COVID-19: A rapid systematic review. *Lancet Child Adolesc Health* 2020;4:397-404.
- Cheatley J, Vuik S, Devaux M, Scarpetta S, Pearson M, Colombo F, Cecchini M. The effectiveness of non-pharmaceutical interventions in containing epidemics: a rapid review of the literature and quantitative assessment. *medRxiv*. Published online April 10, 2020:2020.04.06.20054197. doi:10.1101/2020.04.06.20054197.
- Bin Nafisah S, Alamery AH, Al Nafesa A, Aleid B, Brazanji NA. School closure during novel influenza: A systematic review. *J Infect Public Health* 2018;11:657-61.
- Halder N, Kelso JK, Milne GJ. Developing guidelines for school closure interventions to be used during a future influenza pandemic. *BMC Infect Dis* 2010;10:221.
- Cooper DM, Guay-Woodford L, Blazar BR, Bowman S, Byington CL, Dome J, *et al.* Re-opening schools safely: The case for collaboration, constructive disruption of pre-COVID expectations, and creative solutions. *J Pediatr* 2020;223:183-5.
- Zhang J, Litvinova M, Liang Y, Wang Y, Wang W, Zhao S, *et al.* Changes in contact patterns shape the dynamics of the COVID-19 outbreak in China. *Science* 2020;368:1481-6.
- Gudbjartsson DF, Helgasson A, Jonsson H, Magnusson OT, Melsted P, Norddahl GL, *et al.* Spread of SARS-CoV-2 in the Icelandic population. *N Engl J Med* 2020;382:2302-15.
- Lavezzo E, Franchin E, Ciavarella C, Cuomo-Dannenburg G, Barzon L, Del Vecchio C, *et al.* Suppression of COVID-19 Outbreak in the Municipality of Vo'. Italy: MedRxiv; 2020.
- World Health Organization (WHO). Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19). 16-24 February 2020. Accessed on 11th August 2020, Available from <https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf>.
- National Institute for Public Health and the Environment, Ministry of Health, Welfare and Sport, The Netherlands. Children and COVID-19. Accessed 11<sup>th</sup> August, 2020. Available from <https://www.rivm.nl/en/novel-coronavirus-covid-19/children-and-covid-19>.
- Melnick H, Darling-Hammond L, Leung M, Yun C, Schachner A, Plasencia S, Ondrasek N. Reopening schools in the context of COVID-19: health and safety guidelines from other countries. Accessed 18<sup>th</sup> August 2020. Available from <https://learningpolicyinstitute.org/product/reopening-schools-covid-19-brief>.
- Germany, Vietnam, and New Zealand Have Reopened Schools. Here's What the US Can Learn. Available from: <https://www.vox.com/21270817/coronavirus-schools-reopen-germany-vietnam-new-zealand>. [Last accessed on 2020 Jul 22].
- Tricco AC, Langlois EV, Straus SE, editors. *Rapid Reviews to Strengthen Health Policy and Systems: A Practical Guide*. Geneva: World Health Organization; 2017.
- Wilson M, Guta A, Waddell K, Lavis J, Reid R, Evans C. The impacts of accountable care organizations on patient experience, health outcomes and costs: A rapid review. *J Health Serv Res Policy* 2020;25:130-8.
- Furuse Y, Sando E, Tsuchiya N, Miyahara R, Yasuda I, Ko YK, *et al.* Clusters of coronavirus disease in communities, Japan, January-April 2020. *Emerg Infect Dis* 2020;26:2176-9.
- Coronavirus: Schools Start Reopening in China's Biggest Cities. Available from: <https://www.bbc.com/news/world-asia-china-52441152>. [Last accessed on 2020 Jul 19].
- Couzin-Frankel J, Vogel G, Weiland M. School openings across globe suggest ways to keep coronavirus at bay, despite outbreaks. Accessed 7<sup>th</sup> July, 2020. Available from <https://www.sciencemag.org/news/2020/07/school-openings-across-globe-suggest-ways-keep-coronavirus-bay-despite-outbreaks>.
- How Schools in Other Countries Have Reopened. Available from: <https://www.edweek.org/ew/articles/2020/06/11/how-schools-in-other-countries-have-reopened.html>. [Last accessed on 2020 Jul 22].
- Johansen TB, Astrup E, Jore S, Nilssen H, Dahlberg BB, Klingenberg C, *et al.* Infection prevention guidelines and considerations for paediatric risk groups when reopening primary schools during COVID-19 pandemic, Norway, April 2020. *Euro Surveill* 2020;25:2000921.
- Walger P, Heining U, Knuf M, Exner M, Popp W, Fischbach T, *et al.* Children and adolescents in the COVID-19 pandemic: Schools and daycare centers are to be opened again without restrictions. The protection of teachers, educators, carers and parents and the general hygiene rules do not conflict with this. *GMS Hyg Infect Control* 2020;15:Doc11.
- Fantini MP, Reno C, Biserni GB, Savoia E, Lanari M. COVID-19 and the re-opening of schools: A policy maker's dilemma. *Ital J Pediatr*



- 2020;46:79.
33. Cheng SY, Wang CJ, Shen AC, Chang SC. How to Safely reopen colleges and universities during COVID-19: Experiences from taiwan. *Ann Intern Med* 2020;173:638-41.
  34. Centers for Disease Control and Prevention. Coronavirus Disease 2019 (COVID-19). Use of Cloth Face Coverings to Help Slow the Spread of COVID-19. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/diy-cloth-face-coverings.html>. [Last accessed on 2020 Jul 19].
  35. Vegas E. Reopening the World: Reopening Schools – Insights from Denmark and Finland in Education Plus Development; Monday, July 6, 2020. Available from: <https://www.brookings.edu/blog/education-plus-development/2020/07/06/reopening-the-world-reopening-schools-insights-from-denmark-and-finland/> [Last accessed on 2020 Aug 11].
  36. Hsiao SH, Chen TC, Chien HC, Yang CJ, Chen YH. Measurement of body temperature to prevent pandemic COVID-19 in hospitals in Taiwan: Repeated measurement is necessary. *J Hosp Infect* 2020;105:360-1.
  37. Radin JM, Wineinger NE, Topol EJ, Steinhubl SR. Harnessing wearable device data to improve state-level real-time surveillance of influenza-like illness in the USA: A population-based study. *Lancet Digit Health* 2020;2:e85-93.
  38. Stein-Zamir C, Abramson N, Shoob H, Libal E, Bitan M, Cardash T, *et al.* A large COVID-19 outbreak in a high school 10 days after schools' reopening, Israel, May 2020. *Euro Surveill* 2020;25:2001352.
  39. Cohen J, Kupferschmidt K. Countries test tactics in 'war' against COVID-19. *Science* 2020;367:1287-8.
  40. Stage HB, Shingleton J, Ghosh S, Scarabel F, Pellis L, Finnie T. Shut and re-open: the role of schools in the spread of COVID-19 in Europe. *medRxiv [Preprint]* 2020. [DOI: HYPERLINK "http://dx.doi.org/10.1101/2020.06.24.20139634" 10.1101/2020.06.24.20139634].
  41. FMOE. Guidelines for Schools and Learning Facilities Reopening after COVID-19 Pandemic Closures Produced by the Federal Ministry of Education Published July 13, 2020. Available from: <http://www.education.gov.ng> [Last accessed on 2020 Aug 15].
  42. Mogaji HO *et al.* (2017). A preliminary survey of school-based water, sanitation, hygiene (WASH) resources and soiltransmitted helminthiasis in eight public schools in Odeda LGA, Ogun State, Nigeria. *Parasitology Open* 3, e16, 1–10. <https://doi.org/10.1017/pao.2017.18>.
  43. Stanley HO, Ugboma CJ, Okeke VC, Olodiana E, Odubo EG, Oboro TE. Potable water and sanitation practices among pupils in some selected Primary Schools in Yenagoa, Bayelsa State, Nigeria. *Asian J Adv Res Rep* 2018;30:1-8.
  44. Beghin JC. Some Economic Implications of the COVID-19 Pandemic in Nebraska. *Cornhusker Economics*; 2020. p. 1052. Available from: [https://digitalcommons.unl.edu/agecon\\_cornhusker/1052](https://digitalcommons.unl.edu/agecon_cornhusker/1052) [Last accessed on 2020 Aug 12].
  45. Onyema EM, Eucheria DNC, Obafemi, DFA Sen S, Atonye, FG, Sharma DA, Alsayed AO. Impact of Coronavirus Pandemic on Education. *Journal of Education and Practice*, volume 11, issue 13, p. 108 – 121.
  46. Viner RM, Bonell C, Drake L, Jourdan D, Davies N, Baltag V, Jerrim J, Proimos J, Darzi A. Reopening schools during the COVID-19 pandemic: governments must balance the uncertainty and risks of reopening schools against the clear harms associated with prolonged closure. *Arch Dis Child* 2020. Available at: <https://adc.bmj.com/content/early/2020/08/02/archdischild-2020-319963>. Accessed: 5th September 2020.
  47. World Health Organization. Considerations for school-related public health measures in the context of COVID-19: annex to considerations in adjusting public health and social measures in the context of COVID-19, 14 September 2020. World Health Organization; 2020. Accessed 20th September 2020, Available at [https://apps.who.int/iris/bitstream/handle/10665/334294/WHO-2019-nCoV-Adjusting\\_PH\\_measures-Schools-2020.2-eng.pdf](https://apps.who.int/iris/bitstream/handle/10665/334294/WHO-2019-nCoV-Adjusting_PH_measures-Schools-2020.2-eng.pdf).
  48. UNICEF, WHO and IFRC. Key Messages and Actions for COVID-19 Prevention and Control in Schools; 2020. Available from: [https://www.who.int/docs/default-source/coronaviruse/key-messages-and-actions-for-covid-19-prevention-and-control-in-schools-march-2020.pdf?sfvrsn=baf81d52\\_4](https://www.who.int/docs/default-source/coronaviruse/key-messages-and-actions-for-covid-19-prevention-and-control-in-schools-march-2020.pdf?sfvrsn=baf81d52_4). [Last accessed on 2020 Jul 04].
  49. Kimball A, Hatfield KM, Arons M, James A, Taylor J, Spicer K, *et al.* Asymptomatic and pre-symptomatic SARS-CoV-2 infections in residents of a long-term care skilled nursing facility – King County, Washington, March 2020. *Morb Mortal Wkly Rep* 2020;69:377.
  50. Federal Ministry of Education. National School Health Policy. UNICEF; 2006. Available from: [http://www.unicef.org/nigeria/NG\\_resources\\_schoolhealthpolicy.pdf](http://www.unicef.org/nigeria/NG_resources_schoolhealthpolicy.pdf) [Last accessed on 2020 Aug 16].
  51. Akani NA, Nkanginieme KEO. The school health programme. In: Azubuike JC, Nkanginieme KEO (eds.) *Pediatrics and child health in a tropical region*. 2<sup>nd</sup> ed. Owerri: African Educational services; 2007. pp. 47-55.
  52. Ademokun OM, Osungbade KO, Obembe TA. A qualitative study on status of implementation of school health programme in South Western Nigeria: Implications for healthy living of school age children in developing countries. *Am J Educ Res* 2014;2:1076-87.
  53. Ofovwe GE, Ofili AN. Knowledge, attitude, and practice of school health programme among head teachers of primary schools in Egor Local Government Area of Edo State, Nigeria. *Ann Afr Med* 2007;6:99.
  54. Obembe TA, Osungbade KO, Ademokun OM. Awareness and knowledge of national school health policy and school health programme among public secondary school teachers in Ibadan Metropolis. *Niger Med J* 2016;57:217-25.
  55. Bakwai B, Sarkin-Kebbi M. Revitalising school health programme for effective school administration in Nigeria. *Int J Top Educ* 2017;1:199-211.
  56. Ojo OG, Nda AI. Implementation of school health policy: Echoing its prospects in combating emerging health challenges in Nigeria. *World J Innov Res* 2020;4:125-30.
  57. Esposito S, Principi N. School closure during the coronavirus disease 2019 (COVID-19) pandemic: An effective intervention at the global level? *JAMA Pediatr* 2020;174:921-2.
  58. Mareiniss DP. The impending storm: COVID-19 pandemics, and our overwhelmed emergency departments. *Am J Emerg Med* 2020;38:1293-4.