



## EXECUTIVE SUMMARY

On November 3, 2020, The Uganda National Immunisation Technical Advisory Group (UNITAG) received a request from the Ministry of Health to advise on the allocation framework and criteria for prioritizing COVID-19 vaccine recipients in the initial phase of scarce vaccine supply. In response to this request, the UNITAG developed its interim recommendations (January 11, 2021) based on the best available evidence guided by a set of eight ethical values principles while using scientific knowledge and practice criteria, particularly the WHO-SAGE risk-based criteria.

UNITAG, provided guidance on COVID-19 vaccine prioritisation and allocation framework and prioritised the following groups as high priority groups in case of very limited vaccine doses (1-2%):

1a) all healthcare workers (formal or informal who come into regular contact with patients);

1b-1) adult populations (all persons aged 60yrs and above).

1b-2) Vaccine eligible people of all ages with a high risk-defining comorbidity, including diabetes, hypertension, chronic organ disease (heart, kidney, liver, and stroke), other chronic conditions such as cancer, TB, COPD, obesity, and people with more than one comorbidity;

1c) other essential non-health workers providing non health services in high-risk populations.

Following the second wave of the pandemic, UNITAG, in September 2021, analysed the updated epidemiology data which showed that older age groups were still at higher risk of getting infected; however, the point of substantial increase in risk for infection seemed to be at the age of 30 years while people aged 30-49 years also seemed to be bearing a significant burden of the disease. Therefore, UNITAG recommended that as more vaccines become available and in areas where higher risk groups were not taking up the allocated vaccines, all people aged 30 years and above should be included in the vaccination drives since this age group is bearing the brunt of the epidemic.

On February 23, 2022, MoH requested the UNITAG for guidance on COVID-19 vaccination of persons below 18 years in Uganda. In response to the request on vaccinating persons under 18 years of age, UNITAG conducted a preliminary review of the global literature on the issue and some preliminary analysis of national data available from MoH to understand the context of the question and inform their deliberations.

Reviewed evidence suggests that although children of all ages can become infected and spread the virus to others, the severe disease burden in this age group is low. As of 1<sup>st</sup> May 2022 available epidemiology data indicated that the number of cases among children aged between 5 and 17 years in Uganda contributed about 9.1% of the overall prevalence, although there were limitations to the data collection process reported. Of the 101 cases of children recorded as managed in COVID-19



treatment units (CTUs) across the country, 58 were children aged 12-17 years, 22 aged 5-11 years, and 21 aged 0-4 years (Ref: Presentation from the COVID-19 Incident Management Team on April 14, 2022). While majority (56) of these cases presented with mild illness, 35 presented with moderate illness and 10 suffered with severe COVID-19. In total, Uganda had recorded 11 COVID-19 related deaths among children below 18 years since the start of the pandemic.

The U.S. Food and Drug Administration approved the Pfizer-BioNTech COVID-19 vaccine as a safe and effective vaccine in reducing disease burden in individuals aged 5 years and older. WHO recommends that children and adolescents aged 5-17 years and with co-morbidities at high risk of severe COVID-19 be offered approved vaccines alongside other priority groups for vaccination.

The WHO set a global vaccination strategy target of 70% by mid-2022, but most countries had not yet achieved high coverage among their highest risk groups to severe disease and death. Indeed, by May 27, 2022, the national data showed that Uganda had only achieved 28.6% full vaccination coverage among the elderly above 50 years, 73% full vaccination coverage in health workers, and 29.4% among security forces.

#### **UNITAG thus concludes that**

- a) Healthy persons below 18 years of age are not at high risk of severe disease or death from COVID-19 disease.
- b) COVID-19 vaccine coverage in Uganda with regard to populations identified as at highest and high risk for severe disease and death is significantly lower than the WHO target of 70% , below which it is not advisable to move to vaccinating the lower priority less-at-risk populations.

**UNITAG thus recommends** that children aged 5-17 years and without co-morbidities should NOT be vaccinated until a coverage of at least 70 % of the highest and high risk population (as defined in the Updated UNITAG recommendation on prioritization for COVID-19 vaccines dated 19 September 2021) is achieved.

#### **Additional Recommendations:**

- A. UNITAG further recommends that a more comprehensive analysis of several factors as listed below, guided by the objectives of the national vaccination plan, to be undertaken in order to reach a more meaningful and specific recommendation regarding vaccination of children and adolescents in general:
  - i. Analysis of current national vaccination status of all Uganda's priority groups, including the proportion of children with comorbidities vaccinated.
  - ii. Comparative analysis of the available comprehensive epidemiological data to enable comparison of severe cases with non-severe cases, and to identify specific comorbidities that cause increased risk to SARS-CoV 2 infections and COVID-19 disease among children. Identifying these will be necessary to look out for when advocating for vaccination of children.



- iii. The legal and ethical considerations including respect for human rights such as informed consent regarding the vaccination of children..
  - iv. Mathematical modelling of available data to offer a wide view of the risk of death due to COVID-19 for all children below 18 years.
  - v. Economic evaluations including the cost-benefits of vaccinating children, cost of vaccines, availability, ability to roll them out in routine immunisations nationally as well as surveillance activities, public communication etc., for vaccinating children.
  - vi. Experiences from other the LMIC countries (with equally limited resources) and their rationale for vaccinating children.
- B. The Ministry of Health should:
- i. Prioritise children 5-17 years with comorbidities for vaccination and intensify efforts to improve coverage in the highest risk groups until a coverage of atleast 70% is achieved. Guidelines for prioritization of populations for COVID-19 vaccines was provided by the UNITAG in its recommendation dated September 2021.
  - ii. Review the entire communications strategy to ensure that more unvaccinated get the information required to make an informed decision to get vaccinated.
  - iii. Encourage and support districts to develop strategies to utilise vaccine balances at static vaccination sites and enter aggregate data in the smart paper technology to manage vaccine expiries and wastage. As per the date of this report, ultra cold chain is available only at the National level. Districts should be pro-active in utilizing the thawed vaccine once received. Thawed Pfizer vaccine should be used within 31 days when kept at 2-8 °C, even when the manufacturers' expiry date is beyond that period. J&J should be used within 11 months once thawed and Moderna within 30 days..
  - iv. Consider allowing districts to make their orders of preferred doses of vaccines and task them to consume appropriately what they asked for.
  - v. Invest in the surveillance system to collect more comprehensive data for a more meaningful epidemiological analysis of data on disease prevalence and severity, especially for risk factors, as descriptive data of only the severe cases does not give an accurate epidemiological picture.
  - vi. Guide and support districts to include screening for COVID-19 vaccination for health seeking clients as part of their routine care and measure the extent to which chronic care points across the country have been engaged to provide vaccination against COVID-19.
  - vii. Strengthen electronic COVID-19 vaccination-related data capture throughout the country so that there is a reliable up-to-date national data base which can be used to inform policy and practice guidelines.



## BACKGROUND

On November 3, 2020, The Uganda National Immunisation Technical Advisory Group (UNITAG) received a request from the Ministry of Health to advise on the allocation framework and criteria for prioritizing COVID-19 vaccine recipients in the initial phase of scarce vaccine supply. In response to this request, the UNITAG developed its interim recommendations (January 11, 2021) based on the best available evidence guided by a set of eight ethical values principles while using scientific knowledge and practice criteria, particularly the WHO-SAGE risk-based criteria.

UNITAG, provided guidance on COVID-19 vaccine prioritisation and allocation framework and prioritised the following groups as high priority groups in case of very limited vaccine doses (1-2%):

1a) all healthcare workers (formal or informal who come into regular contact with patients);

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**1b-2)** Vaccine eligible people of all ages with a high risk-defining comorbidity, including diabetes, hypertension, chronic organ disease (heart, kidney, liver, and stroke), other chronic conditions like cancer, TB, COPD, obesity, and people with more than one comorbidity;

1c) other essential non-health workers providing non health services in high-risk populations.

Following the second wave of the pandemic in Uganda, UNITAG in September 2021 analysed updated epidemiology data, which showed that older age groups were still at higher risk of getting infected; however, the point of substantial increase in risk for infection seemed to be at the age of 30 years while people aged 30-49 years also seemed to be bearing a significant burden of the disease. Therefore, UNITAG recommended that as more vaccines become available and in areas where higher risk groups were not taking up the allocated vaccines, all people aged 30 years and above should be included in the vaccination drives since this age group is bearing the brunt of the epidemic.

Following changes in disease context and availability of approved COVID-19 vaccines for use in children, MoH proposes to expand its eligible population for COVID-19 vaccination to include persons below the age of 18 years. MoH is currently rolling out its COVID-19 vaccination plan, 2022 through the expanded program for immunisation (UNEPI) in a phased manner. According to the plan, the program aims to fully vaccinate 90% of 6.6M children aged 12-17years by the end of July 2022 as well as 8.8M children aged 5-11 years by Oct 2022 using the school-based vaccination model.

On February 23, 2022, UNITAG received a request from the Ministry of Health to provide guidance on COVID-19 vaccination of persons below 18 years in Uganda (Ref: ADM:105/309/23).

UNITAG conducted a detailed review of literature available globally on COVID-19 vaccination of children less than 18 years of age. In addition, preliminary analysis was conducted on data available from MoH, the MoH 2022 COVID-19 vaccination plan, up-to-date COVID-19





vaccination coverage, the national COVID-19 situation, accelerated mass vaccination campaigns (AMVCs) and the national logistical data. This report contains recommendations aimed at advising the MoH on its proposal to vaccinate children aged below 18 years.

## SUMMARY OF EVIDENCE ON COVID-19 VACCINATION OF CHILDREN

### Global Burden of Disease

According to the WHO Interim statement on COVID-19 vaccination for children and adolescents, as of November 24, 2021, there have been proportionally fewer symptomatic infections and cases with severe disease and deaths from COVID-19 in children and adolescents compared with older age groups. Accordingly, age disaggregated cases reported to WHO between December 30, 2019, to October 25, 2021, indicated that children under five years represent 2 % (1,890,756) of reported global cases and 0.1% (1,797) of reported deaths, whereas 5- to 14-year-olds accounted for 7% (7,058,748) of reported global cases and 0.1% (1,328) of reported global deaths. In addition, older adolescents and young adults (15 to 24 years) represented 15% (14,819,320) of the reported global cases and 0.4% (7,023) of reported global deaths. Deaths of all ages less than 25 years represented less than 0.5% of the reported global deaths.

A systematic review and meta-analysis on characterisation of COVID-19 pandemic in pediatric age group by Mustafa et al., 2020 (Ref 6) found that children and adolescents usually demonstrate fewer and milder symptoms of SARS-CoV-2 infection compared to adults and are less likely than adults to experience severe COVID-19. In this regard, milder symptoms and asymptomatic presentations may mean less frequent care-seeking in these groups; hence children and adolescents tend to be tested less, and cases may go unreported. While children and adolescents can experience long COVID-19, post-COVID-19 condition, or post-acute sequelae of SARS-CoV-2 infection, the frequency and characteristics of these conditions are still under investigation. Additionally, a hyperinflammatory syndrome, referred to as pediatric inflammatory multisystem syndrome temporally associated with SARS-CoV-2 (PIMS-TS) in Europe, and multisystem inflammatory syndrome in children (MIS-C) in the United States, although rare, has been reported to occur world-wide and complicate recovery from COVID-19.

Several risk factors for severe COVID-19 in children have been reported. A systematic review and meta-analysis by Shi, et al (2021) on risk factors for poor prognosis in children and adolescents with COVID-19 reported type 2 diabetes, asthma, heart, and pulmonary diseases, and neurologic, neurodevelopmental (in particular, Down Syndrome) and neuromuscular conditions as the preexisting conditions associated with higher risk of severe COVID-19.

### The Role of Children and Adolescents in Transmission of SARS-CoV-2 Infection

According to a serosurvey by Murhekar et al., 2021 (Ref 5) done in India from June-July 2021, after the second wave of Delta variant indicated that children of all ages can become infected and



can spread the virus to others. Although there is some preliminary evidence that younger children may be less infectious, as measured by secondary attack rates, than adolescents and adults, the WHO interim statement on vaccination of children and adolescents dated November 24, 2021, indicated that the relationship between age, viral load, and transmission across the full symptom spectrum of infection has not been comprehensively investigated because people with no/ mild symptoms are seldom tested systematically. Hence, the relative transmissibility of infection at different ages remains uncertain, largely due to the challenges involved in disentangling the influences of biological, host, virus, variants of concern, and environmental factors.

## **COVID-19 Vaccines for Children aged 18 years and below**

So far, Pfizer-BioNTech is the only U.S. Food and Drug Administration (FDA) COVID-19 vaccine authorised for emergency use in children aged 5 through 17 years (Ref 9). According to the Pfizer-BioNTech COVID-19 vaccine EUA letter of authorisation as of May 17, 2022, FDA authorised the use of Pfizer-BioNTech COVID-19 Vaccine in individuals aged 12 through 15 years on May 10, 2021 citing that the vaccine was 100% effective in preventing COVID-19 in children ages 12 through 15 years and 91% effective in preventing severe illness in 16-year-olds and older. FDA's analysis of available descriptive efficacy data from 1,983 participants 12 through 15 years of age without evidence of SARS-CoV-2 infection prior to 7 days after dose 2 confirm that the vaccine was 100% effective (95% confidence interval 75.3, 100.0) in preventing COVID-19 occurring at least 7 days after the second dose (with no COVID-19 cases in the vaccine group compared to 16 COVID-19 cases in the placebo group).

Subsequently, on October 29, 2021, FDA authorised the use of Pfizer-BioNTech COVID-19 Vaccine in individuals 5 through 11 years of age, following review of safety and effectiveness data that confirmed that the vaccine was 90.7% effective (95% confidence interval 67.7, 98.3) in preventing COVID-19 occurring at least 7 days after the second dose (with 3 COVID-19 cases in the vaccine group compared to 16 COVID-19 cases in the placebo group).

<https://www.fda.gov/media/150386/download>

According to the FDA website accessed on May 19, 2022, Pfizer-BioNTech COVID-19 vaccine is authorised for emergency use as a two-dose primary series for individuals 5 years of age and older, third primary series dose for individuals 5 years of age and older who have been determined to have certain kinds of immunocompromise, single booster dose for individuals 5 through 11 years of age at least five months after completing a primary series of the Pfizer-BioNTech COVID-19 Vaccine, and first booster dose for individuals 12 years of age and older at least 5 months after completing a primary series of the Pfizer-BioNTech COVID-19 Vaccine or Comirnaty vaccine.

<https://www.fda.gov/emergency-preparedness-and-response/coronavirus-disease-2019-covid-19/comirnaty-and-pfizer-biontech-covid-19-vaccine>

Safety signals identified after widespread roll-out, such as myocarditis, albeit rare, had been reported more frequently in young persons aged 16-24 years typically within a few days after vaccination, particularly males; the risk of myocarditis in adolescents and/or children has not yet



been determined (WHO Interim statement on COVID-19 vaccination for children and adolescents, 2021). However, cases of myocarditis and pericarditis following vaccination are generally mild and respond to conservative treatment and are less severe with better outcomes than classical myocarditis or COVID-19. The very small risk of myocarditis may be further reduced with an extended interval between primary doses. Hence, the risk of myocarditis/pericarditis associated with SARS-CoV-2 infection is higher than the risk after vaccination.

## **Rationale for Vaccinating Children and Adolescents**

Vaccines which receive FDA authorisation for use among children and adolescents are considered safe and effective in reducing disease burden in these age groups. Vaccinating children and adolescents may help advance highly valued societal goals. WHO recognises a number of benefits to vaccinating children that go beyond the direct health benefits including minimising school closures, the academic and psychological impacts of disruptions in education and intergenerational transmission and maintenance of their overall wellbeing, health, and safety (WHO Interim statement on COVID-19 vaccination for children and adolescents, 2021).

Although the risk-benefit assessments clearly underpin the benefit of vaccinating all age groups, the direct health benefit of vaccinating children and adolescents is lower compared with vaccinating older adults due to the lower incidence of severe COVID-19 and deaths in younger persons. While the benefit of vaccinating children and adolescents may be lower in settings with high seropositivity rates in that age group, there is little evidence on seroprevalence of school-aged children globally and Uganda in particular.

## **Global Status on Vaccination of Children of ages below 18 years**

According to evidence from a study on children and COVID-19 vaccinations trends, 2022, by the American Academy of Pediatrics (Ref 2), COVID-19 vaccine coverage for children is rising in some countries; in the USA, for example, 53% of 12–17 -year-olds were fully vaccinated and 25% of 5–11 -year-olds were partially vaccinated by early January 2022. By that time, population-wide full vaccination rates in high-income countries had reached approximately 60%–90%, according to a McGill University COVID19 Vaccine Tracker, and third dose boosters were being scaled up for adults and, more recently, adolescents 12 years and older in some countries (Ref 8: US CDC, 2022).

Similarly, according to the WHO COVID-19 Dashboard 2022 (Ref 10), full COVID-19 vaccine coverage across Africa was 9.6%, with approximately 52% of countries still below 10% coverage as of January 8, 2022. While only 11 African countries had approved COVID-19 vaccination among children under 18 years of age, six countries including South Africa, Namibia, Morocco, Guinea, Zimbabwe, and Egypt have rolled out vaccination in children. It should also be noted that children in African countries also bear a high burden of both communicable (e.g., HIV, TB) and non-communicable (e.g., sickle cell disease, asthma) diseases, which would render them at risk for higher morbidity and mortality if coinfecting with SARS-CoV-2 (Ref 3: Coker et al., 2021).



As has been for adults, the COVID-19 vaccination situation is quite different for children in African countries compared to global trends. Currently, countries with the highest rates of full COVID-19 vaccination among adult populations in Africa include Seychelles (79%), Mauritius (72%), Morocco (62%), Tunisia (50%) and Cabo Verde (46%), according to the McGill University COVID19 Vaccine Tracker, 2021. Clearly, the WHO's modest target of 70% full vaccine coverage for all countries by June 2022 is far from being met. In a recent position statement, the WHO acknowledges that the majority of evidence in COVID-19 among children is from high-income countries and recommends that countries consider the individual and population benefits of immunising children and adolescents in their specific epidemiological and social context when developing their COVID-19 immunisation policies and programs. This recommendation puts the onus on countries to conduct their own local research to guide decision-making on COVID-19 vaccination of children and adolescents.

## **WHO/ SAGE Recommendation on Vaccination of Children**

As stipulated in the WHO Interim statement on COVID-19 vaccination for children and adolescents, November 24, 2021, WHO does not recommend the general vaccination of children and adolescents because the burden of severe disease in these age groups is low. This statement was based on the fact that the greatest burden of disease in terms of severe disease and deaths remains among older persons and those with comorbidities (Ref 12). According to the WHO SAGE prioritisation roadmap updated on January 21, 2022, countries with low rates of primary series coverage should first achieve high primary series coverage rates among the higher priority-risk groups before offering vaccine doses to lower priority-use groups (Ref 14). The roadmap categorised healthy children and adolescents among the lowest priority-use group because of their relatively low risk of severe disease, hospitalisation, and death. In other words, vaccinating this age group is less urgent than vaccinating adults, particularly older adults.

Considering the WHO global vaccination strategy target of 70% by mid-2022, most countries have not yet achieved high coverage among their highest risk groups to severe disease; hence WHO/SAGE recommends that children and adolescents who are at high risk of severe COVID-19 be offered the approved vaccines alongside other priority groups for vaccination (WHO interim statement on COVID-19 vaccination for children and adolescents as of November 24, 2021). WHO further notes that children and adolescents tend to have milder disease compared to adults, unless they are part of the high-risk group. Therefore, the priority should be to fully vaccinate older people, those with chronic health conditions and health workers. In other words, before considering implementing primary vaccination series in adolescents and children, attaining high coverage of primary series and booster doses is needed in highest risk subgroups such as older adults and health workers.





## KEY CONSIDERATIONS IN THE UGANDA COUNTRY CONTEXT

### The Uganda National COVID-19 Status

Data from the MoH update on the national COVID-19 status on persons below 18 years of age as of April 13, 2022, showed that Uganda had approximately 16 million children aged between 5 and 17 years and 14,964 cases of COVID-19 were reported within this age group contributing about 9.1% of the overall prevalence (Ref: Presentation from the COVID-19 Incident Management Team on April 14, 2022). While evidence showed that there was a consistent and significant decline in the general number of cases registered in a period of five weeks from 115 cases to 47 cases, cases among children less than 18 years were fluctuating since the start of the pandemic. Still, they steadily declined since February 2022 with 6 additional cases reported between April 5 and April 10, 2022. These cases included two children between 0 and 4 years, and four children between 5 and 11 years. However, it was noted that there was no case reported among children aged 12 to 17 years.

Additionally, of the 101 cases of children recorded as managed in COVID-19 treatment units (CTUs) across the country, 58 were children aged 12-17 years, 22 aged 5-11 years, and 21 aged 0-4 years (Ref: Presentation from the COVID-19 Incident Management Team on April 14, 2022). While majority (56) of these cases presented with mild illness, 35 presented with moderate illness and 10 suffered with severe COVID-19, noting that all these children were not vaccinated. Complaints presented on admission among these children included headache (33.34%), cough (24.24%), flu (15.15%), fever (5.5%), chest pain (4.4%), with very few presenting with difficulty in breathing (3.3%) and (15.15%) recorded as others. Only 23 of the 101 children being managed in CTUs had commodities including with malaria complicated with anemia (6); severe acute malnutrition (4) both non edematous and edematous (SAM (N)E); sickle cell disease (3); neurodisorders (2) – cerebral palsy (CP) and congenital hydrocephalus (CH), asthma (1), pulmonary TB (1) and thrombocytopenia (1) with the remaining 5 having had cardiac conditions and HIV. It was noted that 94 of these children were discharged while 7 died bringing the case fatality ratio of children admitted and managed in the different CTUs to 6.9% as of April 13, 2022. While the mortality rate among children may seem high, it is not a true reflection of the actual situation as less children present to the facilities than adults most of whom present when severely ill.

In total, Uganda had recorded 11 COVID-19 related deaths among children below 18 years since the start of the pandemic. Of these, 3 were children less than 5 years of age, 1 death was among 5–11-year-olds while 7 children were aged between 12-17 years. Prior to death, 3 children were in critical condition while 8 had severe illness on admission. The comorbidities recorded included HIV (1), rheumatic heart disease (1), TB (2), CP (1), CH (1), severe malaria (2), HTN (1) and 2 had none. It was noted that all children who were admitted had not been vaccinated and the duration of hospital stay was dependent on severity of illness, at an average of 5 days.



Some of the reasons highlighted to explain the limitations of the data presented included: insufficient number of personnel to collect the data from CTUs in health facilities, lack of facilitation for the officers who share the data, and insufficient testing, among others. Data analysis regarding children was limited to the CTUs because the CTUs had the comprehensive tool to capture detailed and informative data.

## Uganda COVID-19 Vaccine Uptake and Rollout Status

Data obtained from MoH COVID-19 vaccination progress report as of April 14, 2022, showed that of the of the 22M target population above 18 years to be vaccinated, only 47% had been fully vaccinated and 71% were pending their second dose. Data on high-risk group vaccination coverage showed that Uganda had only achieved 21.7% full vaccination coverage among the elderly above 50 years, 65.3% coverage in health workers, 41.2% in teachers, and 29.4% in security personnel. As of April 25, 2022, 2% of children between 0 and 17 years old had been vaccinated. In general, only 23% of the estimated 44.2 M Ugandan population had been fully vaccinated with 34% having received at least one dose.

In this regard, MoH attributed the low vaccination coverage majorly to individual data entry backlog with 8,220,946 doses not entered in the system that was still prevailing despite the deployment of smart paper technology (SPT). Other challenges reported as contributing to low vaccination coverage included: inadequate preparations for the vaccination campaigns, poor mobilisation of target populations and poor coordination by local governments, negative risk perception of the vaccines, and lack of strategies for utilising vaccine balances at the district level.

## Ministry of Health (MoH) Plan for Vaccination of Children

The national COVID vaccination program's primary focus is to fully vaccinate at least 70% of Uganda's population by the end of 2022, including full vaccination of 22M people by the end of June 2022. According to the plan, MoH proposes to fully vaccinate 90% of 6.6M children aged 12-17 years by the end of July 2022 as well as target 8.8M children aged 5-11 years starting October 2022 using the school-based vaccination model for in-school children and the parish model approach for out-of-school children. The program hoped to maintain implementation strategies based on the availability of resources through the AMVCs, existing static sites and outreaches, integration of COVID-19 vaccination into chronic care clinics and engaging the private health facilities through memorandums of understanding and accreditation processes.

MoH justified the vaccination of children based on a number of challenges and opportunities cited over a period of time. In particular, MoH noted the sub-optimal school-based surveillance and reported that implementing COVID-19 standard operating procedures (SOPs) such as social distancing remains a challenge in schools. Also, the fact that schools are prone to high transmissibility, they are potential hotspots for clustering. MoH reported that vaccination of learners was one of the key strategies highlighted for safe re-opening of schools as vaccination is the most realistic Public Health intervention to avoid disruptions in schools.



The program anticipated a number of challenges during the plan's implementation. These included: difficulty obtaining informed consent for vaccination by the schools and parents, negative attitudes and misinformation for vaccination, low-risk perception of the COVID-19, 30% of the children aged between 12-17 years are out of school, and the available funding is already earmarked for adult vaccination (27 million USD).

## **The Ministry of Health COVID-19 Vaccine Logistical Supply and Forecast**

An update from the Ministry of Health on COVID-19 vaccine logistical supply and forecast as of March 04, 2022, showed that Uganda had received a total of 42,128,500 doses of COVID-19 vaccines including 11,765,520 doses of Pfizer at the central vaccine stores (CVS) since the start of national vaccinations in March 2021. Following dispatch to districts across the country, 5,619,510 doses of the Pfizer vaccine were left undistributed at the CVS located at the National Medical Stores (NMS). A total of 9,028,850 doses including 1,765,650 doses of the Pfizer vaccine, were being expected and in the pipeline.

Data on district stock reconciliations as of February 2022 showed a total of 96,062 doses of open vial wastage and a total of 865,022 doses of closed vial wastage, most of them being mRNA vaccines including Moderna (529,431) and Pfizer (203,784). A total of 14,880,563 doses of all the COVID-19 vaccines at NMS were projected to expire after October 23, 2022. As of March 29, 2022, a batch of 1.4M doses of Pfizer vaccine would expire on July 31, 2022, while another Pfizer batch of 1.4M doses would expire on August 31, 2022. In addition, 2.7M doses of Pfizer would expire at the end of September 2022. In total, about 5.6M doses all at NMS would expire in 2022.

It was explained that the current wastage and expiries reported were due to discard of extra doses of vaccines in a vial, a limited number of clients against the number of doses per vial, freezing of thawed Moderna doses on delivery to district vaccine stores, temperature excursions, short shelf-life vaccines, vaccines that have passed thawed use of date, lack of tracking health facility stocks at the districts and inadequate mobilisation of communities for vaccination.

## **The MoH COVID-19 Vaccination Budget, 2022**

According to the MoH COVID-19 vaccination plan, as of March 17, 2022, MoH estimated the cost of vaccines covering 9,225,738 children aged 5-11 years old and 6,780,138 children aged 12-17 years old at UGX 1,287,449,751,000T as shown in the figure below;

Figure 1: MoH COVID-19 Vaccination Budget as of 2022



## 2022 vaccination Budget

Item	Cost (UGX)	Cost (USD)	Available (USD)	Gap (USD)
Vaccines for unvaccinated and partially vaccinated 18 + (14,24,253 doses)	138,556,513,440	39,587,575	39,587,575	-
Vaccines (5-11 years(9,225,738) & 12 -17 years (6,780,138)	1,287,449,751,000	367,842,786	77,412,425	290,430,361
Vaccine handling	80,156,985,060	22,901,996	4,480,258	18,421,738
Injection material	15,675,069,375	4,478,591	5,000,000	(521,409)
Safety materials	11,249,875,314	3,124,965	506,451	2,618,514
Operational costs				-
Unvaccinated and partially vaccinated (18+)	11,404,087,256	3,258,311	4,019,321	
Vaccination of 12-17 Years	32,000,447,806	9,142,985		9,142,985
Vaccination of 5-11 years	36,907,323,806	10,544,950		10,544,950
Booster Doses	37,470,431,824	10,705,838		10,705,838
<b>Total costs</b>	<b>1,512,313,971,44</b>	<b>432,089,70</b>	<b>131,006,03</b>	<b>341,342,97</b>

*Ref: Slide from the weekly MoH update on COVID-19 vaccination uptake and rollout presented during the March 17, 2022, UNITAG - COVAX WG meeting*

The UNITAG noted that UNEPI has been struggling to have enough financial resources to vaccinate the high priority population groups. There have been inadequate funds to cover , for example, health staff allowances, and backlog data entries. There has also been inequitable in-country vaccine distribution to rural areas close to the different populations such as the elderly and people with co-morbidities, comorbidities and COVID-19 vaccination-related logistics. Vaccination of children would require an additional huge financial investment, the needed human resource load including vaccinators, mobilisers, data entry clerks, g, cold chain facilities, among others. At the same time, there is a need to maintain the routine immunisation activities, which should not be compromised.

### CONCLUSION

UNITAG thus concludes that the available COVID-19 vaccination coverage data shows that Uganda is still below the 70% WHO recommended threshold in getting the highest and high-risk priority groups vaccinated, before moving to lower risk populations.





## RECOMMENDATION

UNITAG thus recommends that children 5-17 years without co-morbidities NOT be vaccinated against COVID-19, until the country achieves at least 70% coverage among highest and high risk populations as defined by the WHO/SAGE prioritization Framework updated January 2022.

In this regard, UNITAG maintains its guidance for risk based prioritization of populations for COVID-19 vaccination as detailed in the Updated recommendation of September 2021.

UNITAG commits to reviewing this recommendation should be deemed necessary, for example, as evidence of change in disease burden and trends becomes available. .

## ADDITIONAL RECOMMENDATIONS

In order to reach a more meaningful and specific recommendation to the Ministry of Health regarding vaccination of children and adolescents in general, a more comprehensive analysis of several factors as listed below, guided by the objectives of the national vaccination plan, including children and adults needs to be undertaken;

- i. Analysis of current national vaccination status of all Uganda's priority groups, including the proportion of children with commodities vaccinated.
- ii. Comparative analysis of the available comprehensive epidemiological data to enable comparison of severe cases with non-severe cases, and to identify specific comorbidities that cause increased risk to SARS-CoV 2 infections and COVID-19 disease children among children. Identifying them will be necessary to look out for when advocating for the vaccination of children.
- iii. The legal and ethical considerations including respect for human rights, such as informed consent regarding the vaccination of children.
- iv. Mathematical modelling of available data to offer a wide view of the risk of death for all children below 18 years.
- v. Economic evaluations including the cost-benefit analysis of vaccinating children, cost of vaccines, availability, ability to roll them out in routine immunisations nationally and surveillance activities, public communication etc., for vaccinating children.
- vi. Experiences from other LMIC countries (with equally limited resources) and their rationale for vaccinating children.

UNITAG also made additional recommendations as follows:

### a) Vaccination of High-Risk Populations

- i. While available evidence indicates that it is less urgent to vaccinate children and adolescents as they tend to have milder disease compared to adults, MoH should prioritise vaccine eligible children with comorbidities for vaccination as local data indicated that children who suffered severe illness are those that had comorbidities.
- ii. Uganda's high-risk population remains unprotected, with only 28.6% full coverage among the elderly and 73% coverage for health workers. Since the primary objective of



vaccination is to reduce hospitalisation and deaths and protect the health system, as per the WHO roadmap, MoH should intensify efforts to improve coverage in the highest risk groups as opposed to vaccinating the low-risk groups. In particular, MoH should spend national resources reaching high-risk groups, including children with comorbidities, and making the vaccines accessible for them to get vaccinated first before vaccinating those at low risk.

## b) Negative Risk Perception

- iii. With the population's perception towards COVID-19 declining following the very low disease prevalence in the country, MoH should review the entire communications strategy to ensure that the unvaccinated get vaccinated. The message therein should contextualise the importance of vaccination despite the low disease prevalence, the possibility of the emergence of more waves, lessons learnt from other vaccine-preventable diseases, and the frequently asked questions on COVID-19.

## c) Vaccine Wastage

- iv. In order to reduce the likelihood of wastage and expiry of vaccines, MoH should encourage and support districts in developing strategies to utilise vaccine balances at static vaccination sites and entering aggregate data in the SPT.
- v. Since frozen vaccine vials, once thawed, should not be refrozen, MoH/ UNEPI should allow districts to do their own thawing considering the regional cold chain capacity instead of relying on the existing cold chain capacity in facilities.
- vi. MoH should consider allowing districts to make their orders of preferred doses of vaccines and task them to consume what they asked for.

## d) COVID-19 Surveillance

- vii. MoH should invest in the surveillance system to collect more comprehensive data for a reasonable epidemiological analysis of data collected especially for risk factors as descriptive data of only the severe cases does not give a true epidemiological picture. For instance, the surveillance team could consider a matching sample of children who had COVID-19 but were not hospitalised and assess whether they had the same comorbidities to enable a comprehensive epidemiological analysis.
- viii. MoH/UNEPI should guide and support districts to include screening for COVID-19 vaccination status and vaccination site for clients as part of their routine care and measure the extent to which chronic care points across the country have been engaged provide vaccination against COVID-19.
- ix. MoH/ UNEPI should continue to engage regional partners to see how best they can be supported to share their journey of integration of COVID-19 vaccination into their existing structures.



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