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UGANDA NATIONAL ACADEMY OF SCIENCES

**RECOMMENDATION REPORT ON
PRIORITISATION OF RISK GROUPS IN
UGANDA**

Ratified Recommendation of the interim Report
submitted on September 09, 2021

By

UGANDA NATIONAL IMMUNISATION TECHNICAL ADVISORY
GROUP (UNITAG)

OCTOBER 07, 2021



EXECUTIVE SUMMARY

Following the advent of the second wave, UNITAG analysed epidemiological data from the second wave (April 1 to July 31, 2021) obtained from the Incident Management Team to assist the Ministry of Health in reprioritizing high-risk groups based on the latest epidemiological evidence.

However, several variables for which data was initially collected for all COVID-19 positive cases is no longer being collected. Although the committee could not perform a comparative analysis of some vital characteristics between the two waves due to missing data, the committee was able to complete a descriptive analysis of the available data to show how demographics and caseload distribution have shifted among sex and age groups.

Case distribution by sex and age group: The wide gender disparity seen in the first wave, in which men were much more likely to acquire the disease, has reversed with a percentage composition of women being 4% higher than men in the second wave. Also, the percentage of COVID-19 cases in the 20 years and lower age group has almost doubled.

Comparison of case-fatality rates between the 1st and 2nd waves: Evidence shows that the risk of death from severe disease has increased between the first and second waves.

Geographical Distribution of COVID-19 Cases across the country: the spread of disease is significantly higher in districts along the highways. Moreover, the top 5 high burden districts remain largely unchanged while eight (8) districts have joined the top 30 high burden districts, replacing the eight (8) districts whose numbers have fallen.

Key Recommendations

1. As more vaccines become available, and in areas where higher risk groups are not taking up the allocated vaccines, all people aged 30 years and above should be included in the vaccination drives. Also, all 20-year-olds and below should be monitored continually as the case load is most likely to grow in this age group.
2. Ministry of Health should establish sentinel sites where all or a systematic sample of people with a COVID positive test undergo a full epidemiological assessment. These sites should be supported with surveillance staff, and case-investigation forms that capture a minimum set of variables.
3. The Incident Management Team should strengthen Stewardship within the data collection team to closely monitor the variables of interest. Systematic and periodic epidemiological analyses should be conducted to understand the drivers for each new phase.



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 analysed Uganda-specific epidemiological data (a sample of 7,233 COVID-19 cases) obtained from the Ministry of Health Incident Management Team that led to the first interim prioritization recommendation. The committee contextualized the WHO SAGE vaccine prioritization and allocation framework and prioritized the following groups as high priority groups in case of very limited vaccine doses:

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

1b-1) adult populations (all people aged 60yrs and above). However, in the case of limited doses, all people above 50yrs can be considered).

1b-2) all 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) essential non-health workers to be considered in case of limited doses.

With the advent of the second wave and the availability of more vaccines, UNITAG found it necessary to revisit this recommendation for possible changes in the prioritization framework for COVID-19 vaccines. The committee analyzed the latest epidemiological data, specifically from the second wave (April 1 to July 31, 2021) obtained from the Ministry of Health Incident Management Team to inform the groups' discussions, conclusions, and recommendations on a new prioritization framework while ensuring consensus through interdisciplinary dialogue among scientists, ethicists, and policymakers. This recommendation, therefore, aims to assist the Ministry of Health in prioritizing high-risk groups based on the current epidemiological evidence.

1. Status of availability of data

From the data received, it was observed that several variables for which data was initially collected for all COVID-19 positive cases is no longer being collected. This has led to a substantial missed opportunity to conduct epidemiological tracking of risk factors associated with the disease.



Background characteristics of COVID-19 cases and other risk factors

Category	Variable	1 st Wave	2 nd wave
Background characteristics	Sex	Available	Available
	Age	Available	Available
	Occupation	Not available	Not available
	Residence (Whether rural or urban)	Available	Not available
	District	Available	Available
Presence of Comorbidities	No comorbidity	Available	Not available
	Diabetes	Available	Not available
	Hypertension	Available	Not available
	HIV	Available	Not available
	Chronic respiratory disease	Available	Not available
	Chronic organ disease (Heart, Kidney, Liver, Stroke)	Available	Not available
	Other chronic diseases	Available	Not available
	Obesity (If available)	Not available	Not available
Disease related characteristics	Has symptoms (Asymptomatic or Symptomatic)	Available	Not available
	Types of symptoms	Not available	Not available
	Severity (Had severe disease/non-severe disease)	Available	Not available
	Outcome (Died or Alive)	Available	Available
Spatial distribution	Distribution and map of cases by district	Available	Available

During the first wave, most people with a positive COVID-19 test were required to be admitted to a COVID treatment center, regardless of whether they had severe, moderate, mild, or asymptomatic disease. As a result, risk factor information was collected from both the mild and severe cases equally. However, during the second wave, the vast majority of identified mild cases were sent back home for home-based care, most without additional info collected, while limiting hospitalization for severe cases whose additional risk factor information was collected.

The lack of data on the epidemiological profile from the mild/ moderate/ asymptomatic, non-hospitalized cases could not enable comparison with severe cases to determine trends in who is at high risk and the changes in natural history and severity of the disease. In other words, the available data could not enable a detailed epidemiological update of the risk profile of new waves of infections. Hence, comparisons could only be made for the few variables for which data was available.



2. Prioritization analysis: factors associated with dying/survival

2a) Previous analysis of factors associated with severe disease: For the first wave, a data driven prioritization analysis to determine which groups of people were at higher risk of suffering severe disease or death was conducted for the following variables: Sex, Age-group, Occupation, Rural-Urban Residence, Presence of one or more comorbidities, Type of comorbidity (Diabetes, Hypertension, HIV, Chronic Respiratory Disease, Chronic Organ Disease, and Other Chronic Diseases). The committee established that older age categories (especially people above 60 years) and the presence of comorbidities (especially diabetes, hypertension, chronic organ disease) were associated with a substantially higher risk of severe disease/death from COVID-19 compared to the others.

2b) Current analysis of factors associated with severe disease: It was not possible to run this analysis because the available data containing records of risk factors did not include mild cases that were treated at home.

Although comparative analysis of some vital characteristics between the two waves was not done due to missing data, the committee was able to perform a descriptive analysis of the available data to show how demographics and caseload distribution have shifted.

3. Case distribution by sex and age group

Table showing the distribution of COVID-19 cases by age and sex in the two waves

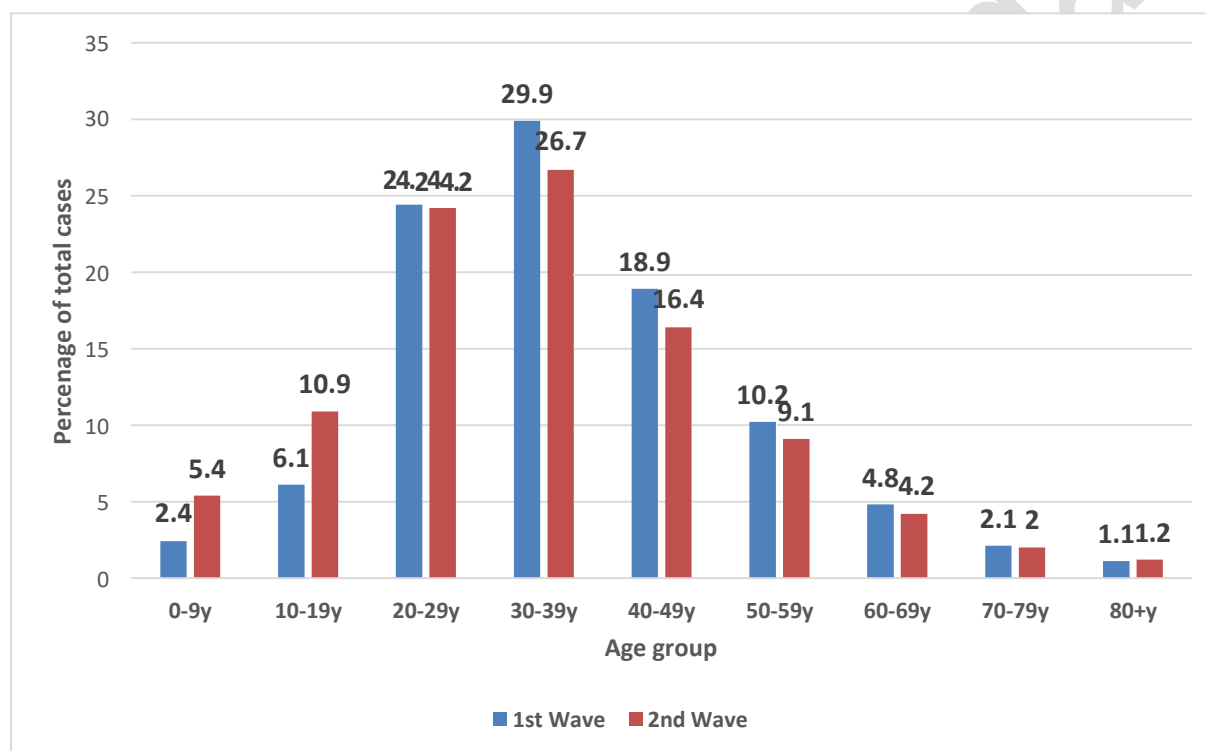
Characteristic	Category	March 1, 2020 – March 30, 2021		April 1, 2020 – July 31, 2021		
		No	%	No	%	
Sex	M	25,648	62.7	25,514	47.7	Substantially reduced to nearly balance with the women
	F	15,276	37.3	27,952	52.3	Now 4% higher than the men
Age-group	0-9	996	2.4	2,831	5.4	Increased by 3%
	10-19	2,495	6.1	5,697	10.9	Increased by close to 5%
	20-29	9,996	24.4	12,696	24.2	Remained steady
	30-39	12,253	29.9	13,985	26.7	Remained steady
	40-49	7,745	18.9	8,624	16.4	Reduced by 2.5%
	50-59	4,167	10.2	4,753	9.1	Remained steady
	60-69	1,980	4.8	2,183	4.2	Remained steady
	70-79	861	2.1	1,058	2.0	Remained steady
80+	431	1.1	623	1.2	Remained steady	



The wide gender disparity seen in the first wave, in which men were much more likely to acquire the disease, has evened out between the sexes. In fact, the percentage of sex composition is now 4% higher for women compared to men. While the previous gender gap was attributed to occupational differences (men being more likely to be involved in inter-district travel), the current reversal has been attributed to more even community spread as well as the gender differences associated with attending to the sick.

The percentage of COVID-19 cases in the age groups less than 20 years has almost doubled from 8.5% in the first wave to 16.3% in the second wave.

Graph showing Age distribution of COVID-19 cases in the first and second waves



Evidence shows that age groups between 20 and 49 years have contributed the most considerable number of cases to the 2nd wave caseload indicating that the risk of infection has shifted to the younger population, especially the 30 years and above in the second wave.

4. Comparison of case-fatality rates between the 1st and 2nd Waves

	March 1, 2020 – March 30, 2021			April 1, 2021 – July 31, 2021		
	Deaths	Cases	CFR	Deaths	Cases	CFR
Case Fatality	1,084	39,839	2.7%	1,640	53,614	3.1%



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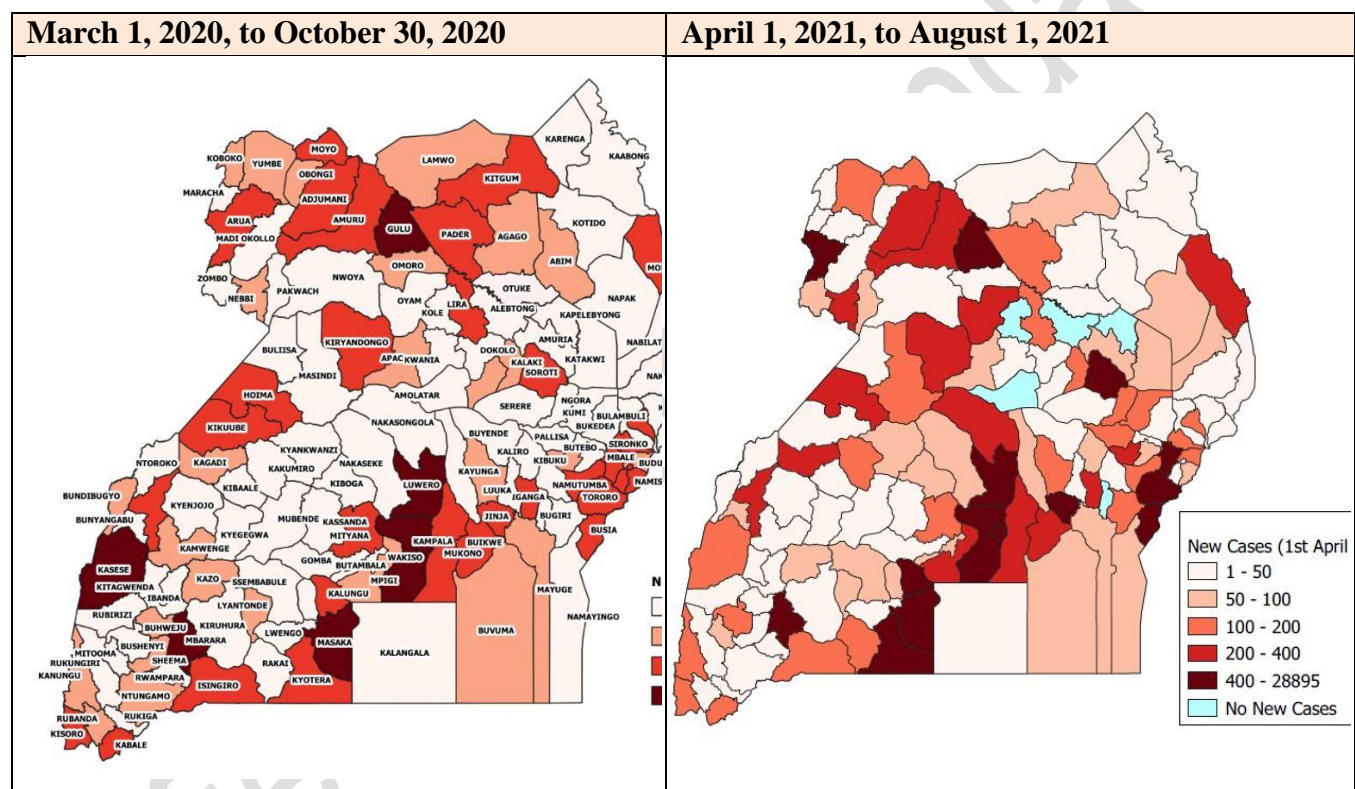
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Evidence shows that the risk of death from severe disease has increased between the first and second wave meaning that the second wave was associated with a higher case fatality rate than the first wave.

5. Geographical Distribution of COVID-19 Cases across the country:

To foster a better understanding of which districts have experienced a shift in the burden of disease, a map showing the distribution and frequency of confirmed cases across the country was drawn, in comparison with the map from the first wave.

Map showing the distribution of cases by district in the 1st and 2nd wave



Data from the first wave showed that the most part of the central districts presented the least cases (1-50). However, due to the substantial increase in community cases, the number of cases in these districts has increased as shown in the second wave (April 1, 2021, to August 1, 2021) map. The spread is significantly higher in districts along the highways, with a major expanse starting from the eastern part of the country to the mid-eastern, through to the central region, and finally to the western part of the country. Other tracts are observed to follow highways from districts of Nakasongola to the northern part of the country, the eastern part towards Soroti, Lira, Oyam, etc.



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Distribution of top 30 affected districts during the 1st and 2nd Waves

	1 st March to 30 th October 2021	1 st April 2021 to 1 st August 2021
No	District	District
1	Kampala	Kampala
2	Wakiso	Wakiso
3	Luwero	Gulu
4	Gulu	Luwero
5	Mbarara	Mbarara
6	Kasese	Tororo
7	Masaka	Masaka
8	Mityana	Jinja
9	Kassanda	Kyotera
10	Kalungu	Mbale
11	Kyotera*	Soroti
12	Mukono	Arua
13	Buikwe	Kalungu
14	Jinja*	Busia
15	Iganga	Kiryandongo+
16	Namutumba	Mukono
17	Tororo*	Kibuku+
18	Busia*	Nakasongola+
19	Mbale*	Adjumani
20	Bulambuli	Oyam+
21	Moroto	Mpigi+
22	Kitgum	Hoima+
23	Pader	Kabarole_
24	Soroti*	Amuru
25	Kalaki	Moroto
26	Lira	Iganga
27	Amuru*	Kagadi+
28	Adjumani*	Buikwe
29	Moyo	Nebbi+
30	Arua*	Kalaki



Also, current data shows that the top 5 high burden districts remain largely unchanged while eight (8) districts have joined the top 30 high burden districts (+), replacing eight (8) districts whose numbers have fallen (in white).

6. Conclusions and Recommendations

Based on the foregoing evidence presented, UNITAG came to the following conclusions and recommendations:

- a) The data available was not sufficient to assess trends in several epidemiological risk factors due to insufficient capture of data from mild/moderate cases.
- b) Available descriptive data showed that older age groups are still at higher risk of getting infected; however, **the point of substantial increase in risk for infection seems to be at the age of 30 years while people aged 30-49 years also seem to be bearing a significant burden of the disease.** Therefore, as more vaccines become available and in areas where higher risk groups are 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.
- c) There has been a doubling of percentage cases among people aged 20 years and below. Although they are a much larger number within the population composition, meaning their overall contribution to the caseload is still very low compared to the older age groups, they still need to be monitored continually. This is because the caseload is most likely to grow among this age group.
- d) The case fatality rate has also increased during the second wave. This increase is most likely associated with the higher virulence of the main variant (delta variant) that drove the second wave. However, the increase could also be attributed to health system challenges from a surge of cases. Strengthening the clinical response is recommended.
- e) The increase in community spread seems to be affecting districts mainly along the major highways and then extending to the more remote ones. Vaccine efforts should therefore intensify in these high-burden districts.

7. Way Forward

Following the missed opportunity to collect data on specific variables to guide the committee in conducting a comparative analysis of risk factors, including the presence of comorbidities among risk groups in the two waves, UNITAG further recommends that;

- f) Although mild and moderate cases are sent home for home-based care, the Ministry of Health should establish sentinel sites where all or a systematic sample of people with a COVID positive test can undergo a full epidemiological assessment. The data should be recorded in a case investigation form, including for mild/ moderate cases that are sent home for home-based care. This is because such data is counterfactual in comparative analyses between data from severe cases and that from the mild/ moderate cases not hospitalized.



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- g) At the sentinel sites, a minimum set of epidemiological variables, including background characteristics, comorbidities, disease-related characteristics, spatial distribution of cases, vaccine-related factors, and post-COVID factors such as long-term effects on discharged cases, should be monitored in the case investigation form. The Ministry of Health should support these sites with surveillance staff and case investigation forms to monitor such variables of emerging importance.
 - h) Stewardship within the data collection team should be strengthened to closely monitor the variables of interest.
 - i) Periodic epidemiological analysis should be conducted to understand the drivers for each new phase.
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Ratified Recommendation