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SPECIAL ARTICLE

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Impact of COVID-19 pandemic on immunization services in Nigeria; A preliminary report by Paediatric Association of Nigeria (PAN)

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Abstract*:* *Background:* Since the onset of the Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic also known as Coronavirus disease 2019 (COVID-19) beginning in Wuhan, China in December 2019 and spreading to Nigeria in February 2020 (as well as the rest of the world), there have been enormous resultant impact on health, social, emotional and economic aspects lives and services. The disease as well as its mitigation measures have negatively affected other aspects of lives and health services. This paper aims to assess the preliminary effects on immunization services, blow the whistle and suggest measures to limit these effects.

Methods: Data was obtained by interviews and use of a structured proforma from Immunization Field Experts/Consultants working with national and international agencies in four states, heads of immunization units, officers in charge of immunization centres and facility immunization records from seven sites across Nigeria.

Results: There were disrupted immunization services with total absence of outreach services and campaigns, limited fixed sessions, disease outbreaks, general drop in number of immunized children. These were thought to be due to the lockdown effects, fears, rumours and panic among others. Outright routine vaccines amongst rejections were also reported.

Conclusion: Reports suggest that the pandemic and its mitigation measures are affecting immunization services in terms of demand/ access (physical and economic), services and logistics with overall drop in coverage and rise in drop-out rates. The effects are still unfolding. It does not appear that health facilities are monitoring and interrogating their data with a view to making specific response action plans. All stakeholders in immunization (Government, non-governmental and professional organizations, the media, traditional / religious institutions) should work to flood the mainstream / social media with positive messages on immunization; monitor immunization progress by ongoing data collection, collation, analysis, interpretation and action; actively counter rumours and anti-vaccine messages and plan for post COVID 19 intensification/ catch-up.

Keywords: Coronavirus, COVID-19, Immunization, Children, Nigeria, Impact

Introduction

According to the World Health Organization (WHO), in 2018 the global coverage for DPT-containing vaccines was 86% leaving more than 19 million children under/ unimmunized and vulnerable to vaccine preventable diseases[1,2]. The coverage is even lower in Nigeria where the 2016-2017 Multiple Indicator Cluster Survey/ National Immunization Coverage Survey (MICS/NICS) reported a coverage of 33% with 4.3 million children unimmunized[3-5]. As a result, the Federal Government of Nigeria through the National Primary Health Care Development Agency (NPHCDA) declared a state of emergency on routine immunization and set up a task force, the National Emergency Routine Immunization Coordination Centre (NERICC) with specific target to revamp the immunization coverage in the country. With concerted efforts, and in collaboration with partner agencies, the coverage has risen from 33% in 2017 to 54% in 2018 with a target of achieving 84% by 2028[4,6]. The plans include, strengthening of the fragile health systems, high level of leadership commitment and optimized integrated routine immunization (an evidence-based focused strategy)[7].

It was in the midst of these focused efforts that the Coronavirus pandemic struck the global community unawares and unprepared. The Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic also known as Coronavirus disease 2019 (COVID-19) was first reported in Wuhan, China in December 2019 and reported in Lagos, Nigeria on 27th February 2020 in a visiting Italian[8,9]. The virus has since spread across the country. The number of cases is still rising, though the rate is slower in Nigeria compared to other African countries[10]. In addition, there are currently much fewer cases/deaths in Africa compared to Europe, America and Asia[11]. However, the picture is still unfolding. As at 3 June 2020. The Nigerian Centre for Disease Control (NCDC) reported 10,819 confirmed cases, 7,266 active cases, 3,239 discharged cases, 314 deaths, and 69,801 samples tested[12]. The Federal Government of Nigeria first announced a lockdown in the country in late March 2020.

Some state governments also announced lockdowns that were either total or partial at different times. Although gradual easing of lockdown has commenced, at various levels, restrictions persist.

The pandemic has brought enormous disease burden (morbidity and mortality), economic, social, emotional and psychological burdens, whose full dimensions and impact remain to be determined as they are still unfolding.

The pandemic has also significantly affected child health services in various ways. In this paper, we focus on the impact of the pandemic on immunization services. The WHO has warned that, "Halting immunization coverage will trigger resurgence of diseases[13]. According to UNICEF, disrupted immunization services will expose more children to danger[14].

In general, immunization services have been disrupted by the lockdown limiting movement of staff and clients as well as vaccines and logistics. There is also the effect of fear of becoming infected by the coronavirus, rumour mongering and panic, misinformation and disinformation affecting immunization demand. Additionally, fear and panic are being fuelled by COVID-19 deaths (which are real) and enormous social media effect. Being a new disease, many mothers and health workers lack awareness of its nature as well as its mode of prevention of transmission. Immunization outreach sessions and campaigns have been suspended and the traditional health talks are almost non-existent. Additionally, there is diversion of attention/resources and staff away from immunization and other critical health services to COVID 19 mitigation activities. The biggest concern is the future effects of covid vaccine rumours on vaccine confidence (Vaccine hesitancy). There is need to proactively begin to put out positive messages about vaccination in general at health facilities, the mainstream media and the social media. Currently, what is the real picture on ground?

The aim of this paper is to assess the preliminary effects of the COVID 19 pandemic on immunization services in Nigeria as the full effect continues to unfold by the day. It also aims to alert stakeholders on any negative effects observed, as well as suggest measures to mitigate the effects.

Methods

Preliminary data was obtained mid-April to early May 2020, by oral interview (using a structured proforma) in two parts. First was the interview of four field experts on immunization from four states in the country working with national and international agencies involved in immunization activities. The second set of data was obtained from heads/officers-in-charge of seven health facilities who were interviewed and immunization data was obtained from their facilities' records. The facilities are located in the northern (three facilities from Kaduna and Kwara states) and southern (four facilities from Enugu, Anambra and Edo states) parts of the country. Data were analysed using Microsoft Excel and presented in tables and charts.

Results

Expert opinions from the field

Table 1 shows the summary of observations from experts and consultants in four states of the country. Of note are the total absence of outreach sessions, limited fixed sessions, reported outbreak of measles in three Local Government Areas (LGAs) of Enugu state, general drop in immunization coverage, fears and rumours with pockets of outright rejection of routine vaccines presumed to be COVID-19 vaccines.

Table 1: Observations from the field experts in four states

State	General impact observed	Observed impact on clients	Observed impact on staff	Vaccine supply/ Government support
Enugu	Limited fixed sessions ongoing No outreach sessions Measles outbreak reported in 3 LGAs Drastic drop in state March data	Clientele dropped WHO to supply benches to enhance social distancing	Inadequate PPEs Encouraged to increase number of sessions De-motivated by 25% pay-rise for state, but not LGA staff	Excellent Q2 supply in place About to expire MV re-deployed to another state
Delta	Lockdown, no transport; unless private vehicle No outreach sessions Rumours	Dropped due to transport issues Fear of contracting covid19 Social distancing an issue in rural areas	Lockdown, no transport; unless private vehicle	Normal at state level Impaired at facility level because state usually distributes to LGA but resources diverted to COVID-19 mitigation activities
Kwara	Affected by lockdown	Could not move due to lockdown & no public transport Mothers attempted & were sent back by security Intervention led to pass of mothers identified by their immunization cards	State supervision ongoing Initially affected but were given a pass later Lack of transport solved by provision of special buses by covid committee PPE provided by Government& staff	Vaccines were pushed by State Government to LGAs
Anambra	Clientele dropped Outright rejection of vaccine, insisting that they were Covid-19 vaccines	Clientele dropped by up to 50% (State level)	No PPEs Staff working NPHCDA planned to distribute PPE	Normal Mitigating jingles/ sensitization ongoing

PPE = personal protective equipment, MV = measles vaccine

Table 2a: Case studies from seven facilities: General impact and Impact on staff

Sites	General impact	Sites	Impact on staff
1	Initial drop in no of clients because mothers not aware clinic was running Outreach site closed because the entire clinic area was closed by management	1	Fear of contracting Covid-19 No Covid-19 education/ training of staff No PPE However continued working
2	Fear	2	Fear since no PPE Absenteeism (no PPE, high transport cost)
3	Drop in clientele and staff attendance	3	Perception was that immunization should stop since no full PPE, but Management insisted that only gloves & masks are necessary
4	Drastic decrease	4-7	Nil
5-7	Nil		

Table 2b: Case studies from seven facilities: Impact on clients and Government/Management support

Sites	Impact on client	Sites	Government /Management support
1	No awareness Mothers coming with other children	1	No PPE No awareness (only done for covid committee for the management of patients)
2	General drop in attendance (Fear, transport cost) Thought services were suspended Others came but no staff to attend to them	2	No provision of PPE and extra transport cost
3	Turned back by staff Also fear of the hospital being a designated covid19 centre	3	High Provided PPE
4	Total lockdown prevents client from coming	4-5	Bus to carry staff from specific spots Immunization cards as pass for mothers
5/6	Nil	6	No change
7	Initial drop but picked up again	7	Pass provided for staff

Table 2c: Case studies from seven facilities: Logistics/supplies and Vaccines supply/data

Site	logistics/ supplies	Site	Vaccine supply/Data
1,3-5,7	No change	1	Private vaccine initially affected (Rotavirus) Currently LGA said no vaccines due to lack of power supply, facilities to go to State
2 & 6	Shortage of PPE, personally provided by staff	3	In one instance, No vaccine because LGA staff not present on duty
		2,4-7	Nil
		No effect on data submission at all sites	

Table 2d: Case studies from seven facilities: challenges and best practices

Site	challenges	Site	Best practices
1	Nil awareness/training/education on covid19 No PPE, hand washing materials Fear among staff -Inadequate no of staff for crowd control	1	Highly committed staff Pub health doctors volunteered to help via crowd control, provision of soap & sanitizers
2/7	Nil	2	Personally provided PPE
3	Fear by both staff and client	3	Education/encouragement restored staff to work
4	PPE, no soap & water yet	4	Dedicated staff
5/6	No PPE	5	Staff continued to work normally Staff provide own PPE
		6	Committed staff
		7	Committed, supplemented PPE by personal cloth mask

Table 2e: Case studies from seven facilities: Covid-19 transmission mitigation measures put in place

Sites	COVID-19 mitigation measures	Sites	COVID-19 mitigation measures
1,3	Social distancing, PPE, Water, soap, sanitizers	1,2,4-6	Social distancing of clients, entering in small numbers
4	Health talk done individually only on vaccines due & next doses	7	Increased no of sessions 4x/week Social distancing enforced by security Mask a must for mothers
5,6	Water, sanitizers, soap Infrared thermometer Client must wear facemask	2,7	Hand hygiene measures; soap, water

January to April 2019 vs 2020 data

Additionally, data on total number of immunized children from January to April in 2019 and 2020 showed a general decline in 2020 over 2019 (Figure 1).The percentage drop in total immunized in 2020 compared to 2019 showed a downward trend too; as well as the dropout rates of 2020 compared to 2019 (Figs 2 and 3).

Fig 1: Total immunized Jan –April 2019/2020 at 7 site

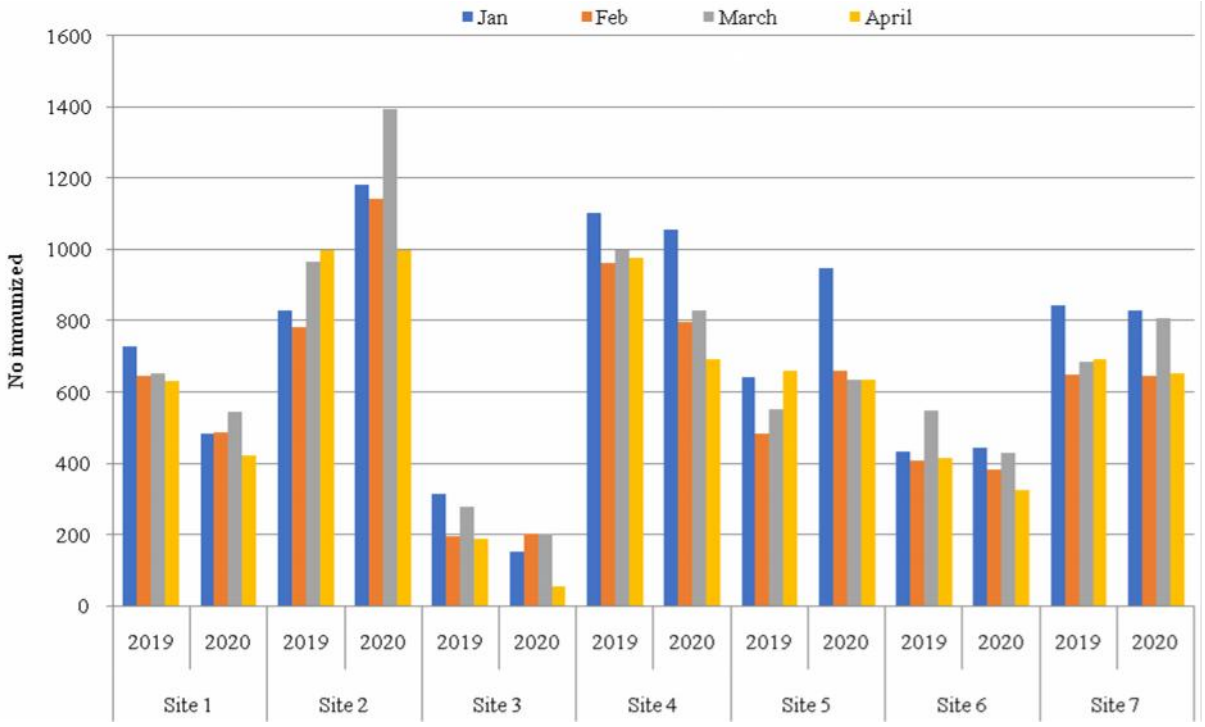


Fig 2a: %drop in no immunized in 2020 over 2019

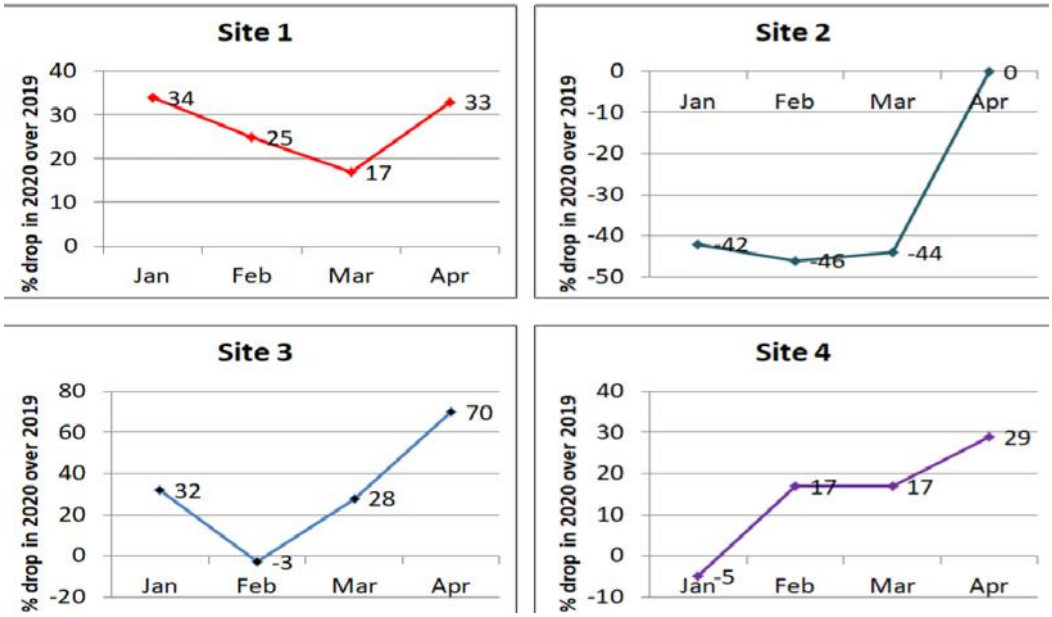


Fig 2a: %drop in no immunized in 2020 over 2019

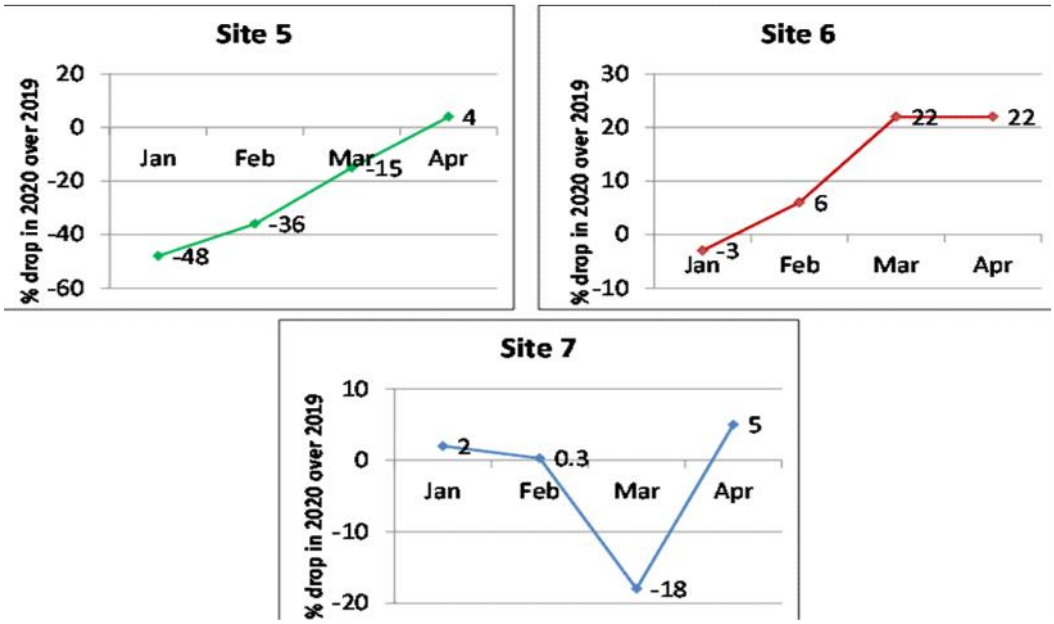
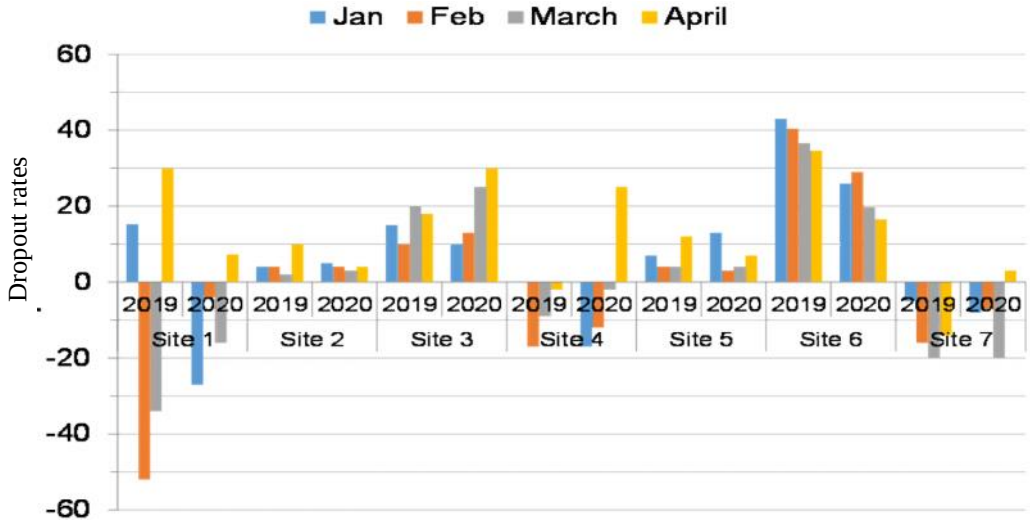


Fig 3: Dropout rate 2019/ 2020 at 7 sites



Discussion

Observations from the field experts in four states

Signs of the impact of the COVID-19 pandemic was already beginning to manifest during the study period. For instance, measles outbreaks had already been reported in three local government areas (districts) of one of the states. Although the outbreak could be attributed to other reasons, the pandemic could have also contributed. Outreaches were suspended and fixed sessions were limited by the imposed restrictions on movement of staff and clients, as well as goods and services. This would lead to non-vaccination of infants who were due during the pandemic, rendering them vulnerable. The vulnerability would be further compounded by the stay-indoors order that will increase the risk of exposure to active cases of measles in unvaccinated infants. The World Health Organization (WHO) and UNICEF have warned that disruption or complete halt in immunization services would make more children vulnerable and lead to resurgence of vaccine preventable diseases[13,14]. Restriction of movements were noted to have resulted in suspension of outreach sessions and campaigns, limited fixed sessions, limited movement of staff and clients. The experts observed an obvious drop in number of children immunized up to 50% in some states. This corroborates the result of an unpublished WHO pulse survey showing disruption of immunization services and measles surveillance in many African countries as well as total suspension of services in some countries of the world[15]. It was reported in a state that mothers out rightly rejected routine vaccines based on false rumours that the vaccines were COVID-19 vaccines which is said to be harmful. This raises a serious concern that the authors think could significantly undermine vaccine confidence; accentuate vaccine hesitancy and stall the modest progress so far made by government to improve immunization coverage's.

The state government immediately responded with sensitization activities and jingles. However, all stakeholders (government, professional associations, other NGOs and the private sector as well as the media) need to proactively build a concerted effort to mitigate damaging rumours and nip them in the bud. Initially, most mothers could not move but interventions in some states allowed mothers to go for immunization using their immunization card as a pass at security checkpoints. This is a good step by government although it would not take care of zero dose babies who would not have any cards during their first visit. However, it would also help to enhance card retention rates, as mothers are likely to value the cards more and store it carefully. The restriction of movement of staff was addressed in a state by the provision of buses to convey staff to and from work. This is commendable and should be replicated in all the states. Indeed the State Government should share experiences, challenges and best practices at virtual meeting on a regular basis. In almost all the states, there was either inadequate PPE or none at all. Staff had to either provide entirely for themselves or augment the little provided by the government/hospital management. Yet others worked without PPE. This highlights the overwhelming and sudden nature of the COVID-19 pandemic that seemed to hit the global community unprepared, especially the resource poor countries[16,17]. In terms of government support, there were efforts to support immunization such as moving vaccines to the local government areas; although this was limited by diversion of some staff and resources towards immediate mitigation measures against COVID-19[18,19].

Case studies from seven facilities

The observations across the seven facilities in the country were similar to the findings of the field experts in many ways - the noticeable drop in clientele, the restricted movements, the fear of contracting COVID-19 influencing demand for immunization, the effect of rumours, the demotivation of staff and the inadequate PPE. Additionally, a main observation at the facilities was lack of COVID-19 awareness among mothers and health workers with no formal training or sensitization of health workers, especially on COVID-19 prevention measures and accurate donning, doffing and use of PPEs. This calls for action. Facility management teams and government need to hold formal training of immunization clinic staff. Often, only staff at the curative sections of the hospitals receive attention to the neglect of preventive and promotive staff. It should be noted that while the immunization and welfare clinics attend to well children, many children who are often not tested for COVID-19 could be asymptomatic carriers who could potentially infect some health workers, especially the older age group. They therefore require adequate protection and awareness sensitization. The minor disruptions in vaccine supply either due to non-availability of staff or poor power supply, requires attention of state government immunization and cold chain supervisors for prompt resolution. Almost all sites observed some level of social distancing measures; hand hygiene and face mask use. Some made it mandatory. This is commendable and requires re-enforcement especial in the areas of crowd control, extra space for effective distancing, provision of hand hygiene items and enforcement of face-mask wearing. Supervisory authorities need to ensure that the number of immunization sessions are increased, thereby reducing crowd per session. Only one site increased their number of sessions to four times a week as against twice a week. However, many mothers still preferred to come on the usual two days.

January to April 2019 vs 2020 data

Most sites (Figure 1) showed a decline in the number of children immunized per month in 2020 over 2019 and showed a decline in 2020 from January to April. This trend calls for mitigation measures by facilities, governments and professional bodies especially the Paediatric Association, the National Association of Nurses and Midwives of Nigeria and the National Medical Association. Although a few sites immunized more children in 2020 compared to 2019, they still had a decreasing trend from January to April 2020 suggesting that coverage

could still drop if the pandemic effects continue unmitigated. Therefore, such sites still require attention.

Percentage drop in number immunized in 2020 over 2019

The percentage drop in number of immunized children in 2020 over 2019 was quite high in four sites reaching up to 70% drop in children immunized in April 2020 compared to 2019. This calls for immediate intervention. The remaining three sites that had no drop or a rise also require attention as the negative figures gradually increased towards positivity over time.

Dropout rate 2019/2020 at seven sites

Site 6 had very high dropout rates, as the maximum acceptable dropout rate is 10%. This site requires thorough interrogation of data and institution of mitigation measures. Although the trend shows a fall in dropout rate this drop is offset by the very high dropout rates in that site in general. Two sites had positive trends but require close monitoring while two sites had mostly negative dropout rates that was gradually moving towards positivity. The negative dropout rates also require interrogation while watching the trend towards positivity. There is need for close monitoring and mitigating actions. The WHO has released guidelines on immunization during COVID-19 pandemic[20]. The document requires dissemination nationwide. Among other recommendations by the guidelines, there should be a plan for a post-COVID-19 intensification including the implementation of suspended immunization campaigns. Tracking of vaccine supplies as well as vaccine preventable diseases surveillance need to continue.

Conclusion

The observations in the States and the facilities suggest that the pandemic and its mitigation measures are affecting immunization services in terms of demand, access (physical and economic), services and logistics. The overall effect is drop in coverage and rise in dropout rate. These are only preliminary observations, as the impact is still unfolding. It does not appear that sites are monitoring and interrogating their data with a view to making specific response action plans. This should be done regularly at facility, Local government, State and National levels

Recommendations

In view of the foregoing, all stakeholders in immunization should work to amplify the world immunization-week messages on the usefulness of vaccines; reinforce positive immunization key messages; increase the number of sessions per week; find alternatives to traditional health talks and train staff and clients on COVID-19 disease and prevention. Other recommendations include the flooding of the mainstream media and the social media with positive messages on immunization; monitor immunization progress by ongoing data collection, collation, analysis, interpretation and action; actively counter rumours and anti-vaccine messages and plan for post covid-19 intensification/ catch-up.

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