TRENDS OF CHILDHOOD VACCINATION IN WAKISO DISTRICT

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Abstract:

Introduction: While immunization remains one of the most successful interventions in public health, the coverage has flattened over the last decade. And so many children don't get a single vaccine dose and while others take vaccine doses partially.

Objectives

Main objective: To evaluate the trends of childhood vaccination in Wakiso district in order to improve the childhood vaccination services in the district.

Specific objectives

1. To determine the trend of childhood vaccination drop-out rates for DPT 1 to DPT3, MR 1 to 2, to PCV3 and HPV1 to HPV2 between October 2021 and September 2022.
2. To establish the trend of childhood vaccination coverage in Wakiso district between October 2021 and September 2022.

Methods: It was a cross-sectional study**.** All records of children who received at least one dose of the childhood vaccines were used in the study from October 2021 to September 2022.

Results: The drop-out rates were very high especially for Measles Rubella vaccine and Human Papilloma Vaccine. The vaccination coverage was very low with Measles Rubella vaccine and Human Papilloma Virus vaccine coverage taking the lowest position.

Conclusions & Recommendations: There should be strategies that decrease vaccination drop-out and increase vaccination coverage.

Key words: Trends, Childhood Vaccination, Wakiso District

Introduction:

It is important to focus on strategies to increase immunization because the current immunization levels are not optimal, they are not very cost effective is a concern and sustainability is a concern(Kijjambu & Mulogo, 2013). Some strategies to minimize drop outs may be: each planned immunization session to be held in spite of holiday/leave and re-schedule session timings, maintaining list of children with partial/ no immunization, reaching migrant populations in service delivery area, informing parents about next immunization date and taking help of community teams(Yazdani et al., 2021). Causes of missed opportunities include lack of simultaneous administration, unawareness about need for additional vaccines (Kakame et al., 2021), invalid contraindications, and avoidance of accelerated schedule, inappropriate clinic policies and reimbursement deficiencies(Nangendo & Nakasolo, 2022). Some strategies for reducing missed opportunities may include creation of standing orders, providing health education with feedback and providing reminder and recall systems(Bbaale, 2013). For effective immunization, there should be community mobilization where there is involvement of community and community leaders for health education, gathering information regarding misconception and its resolution, arranging for interaction between resistant groups and satisfied beneficiaries for promoting

immunization, using loudspeakers, discussion sessions at farmers' meetings and at religious places, radio and television spots, newspaper articles and drama shows and the provision of prompt and quality immunization services(Aakef et al., 2021). In order to achieve very good immunization outputs, dealing with rumors and misinformation is very vital because they can be serious threats to success of immunization programs(*Vaccine Myths Debunked | PublicHealth.Org*, n.d.). Some examples of rumors include: vaccine are a contraceptive to control population or to limit the size of a certain ethnic group, vaccines are contaminated by the aids virus or mad cow disease and children were dying after receiving vaccines(Islam et al., 2021). This is a serious matter and it must always be referred to supervisors so that action may be taken. Lastly, records must be easy to write, compile & read, must be available at the time of the visit, must be accurate and must reflect all vaccines given.

Methods:

Study setting and participants

The study was carried out in Wakiso district from 7th September to 21st September 2022.

Wakiso District is located in Uganda's central region and shares borders with Kampala, Mpigi, Luweero, Nakaseke, Mityana, Mukono and Kalangala districts.

Wakiso, which was curved out of Mpigi district with an aim of improving service delivery, is the second most populated District in Uganda with a population of 2,007,700 as per the 2014 census and covers a total area of 2,807.75 square kilometers. The District is part of the famous Luweero Triangle, which was ravaged during the five-year war in the early to mid-1980s but currently boasts of a highly urbanized society with half of its population living in urban areas.

The District Health Officer (DHO) is the head of the District Health Team (DHT) and is assisted by the Deputy DHO/MCH and the Assistant DHO Environmental Health.

Wakiso District is made up of eight (8) health sub districts. The eight health sub districts of Wakiso include: Busiro East, Busiro North, Busiro South, Entebbe Municipality, Kira Municipality, Kyadondo East, Kyadondo South and Kyadondo North.

There are around 272 health facilities that are mainly concerned about childhood vaccination which include both government owned and private owned.

Study population

These were all vaccination files about children who were between 1-12 years between October 2021 and September 2022.

Sampling procedure

All the childhood vaccination data from all the eight (8) health sub districts in Wakiso was included in the study between October 2021 and September 2022. The eight health sub districts of Wakiso include: Busiro East, Busiro North, Busiro South, Entebbe Municipality, Kira Municipality, Kyadondo East, Kyadondo South and Kyadondo North.

Inclusion criteria

All records of children who were vaccinated with at least one dose of the childhood vaccines between October 2021 to September 2022.

Exclusion criteria

Records of children that missed key variables like sex

Records of children who were from other districts but had at least received one dose of the childhood vaccines

Study design

This was Cross sectional study design. I extracted the data from the DHIS2 (District Health Information Software 2).

Data collection tools

Checklists that pointed out the list of values needed and things to be done were used to obtain the data from the DHIS2.

Data management and analysis

The data was extracted from the DHIS2 and processed in a Microsoft excel.

Data obtained from the checklists was coded, cleaned and entered into Microsoft Excel worksheet for analysis.

Coded data was entered into Microsoft excel and total scores were summed up and expressed as a percentage for the individual value. It was from this score that a given quantity was rated.

Study variables

Independent variables were Period names

Dependent variables were the dropout rates and the coverage rates

Data quality control

Data was cross checked and proof read for any errors.

Ethical considerations

Permission to access the DHIS2 was obtained from the DHO of Wakiso District.

Confidentiality and privacy of the patients' details was maintained.

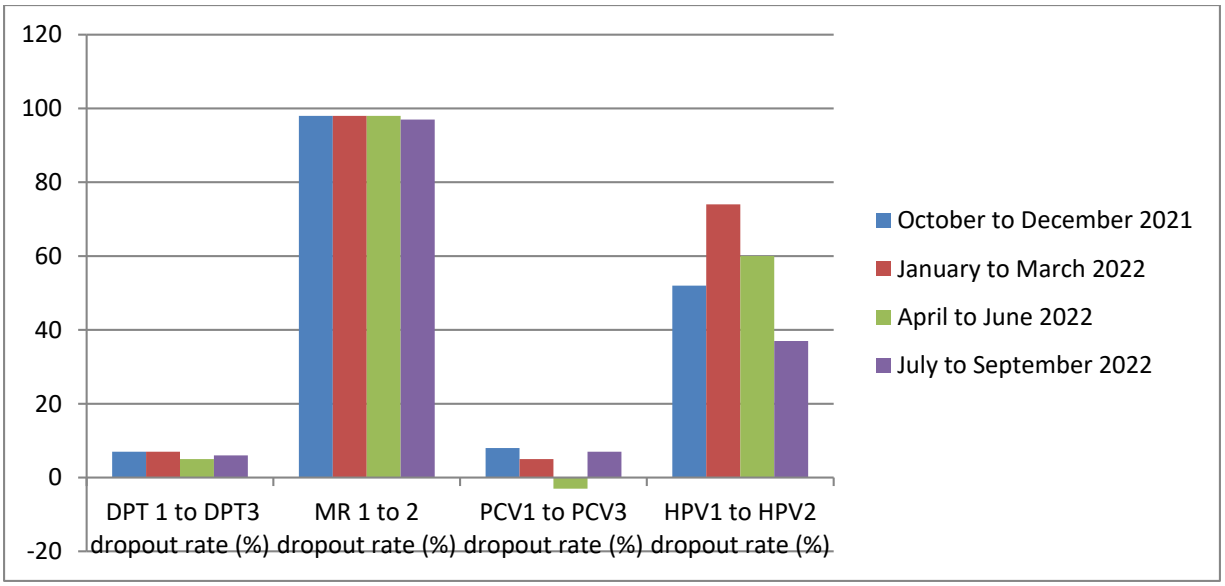
Results:

RESULTS

Table 1: The trend of childhood vaccination drop-out rates for DPT 1 to DPT3, MR 1 to 2, PCV1 - PCV3 and HPV1 - HPV2 between October 2021 and September 2022

Period name	DPT 1 to DPT3 dropout rate (%)	MR 1 to 2 dropout rate (%)	PCV1 - PCV3 dropout rate (%)	HPV1 - HPV2 dropout rate (%)
October to December 2021	7	98	8	52
January to March 2022	7	98	5	74
April to June 2022	5	98	-3	60
July to September 2022	6	97	7	37

Figure 1: **The trend of childhood vaccination drop-out rates for DPT 1 to DPT3, MR 1 to 2, PCV1 - PCV3 and HPV1 - HPV2 between October 2021 and September 2022**

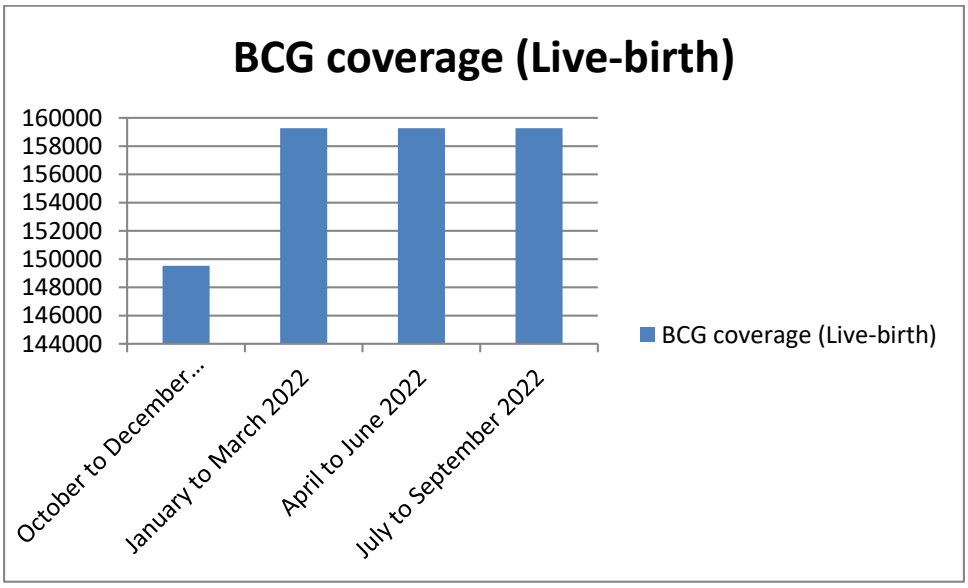


From Table 1 and Figure 1; the drop-out rate from DPT 1 (Diphtheria-Pertussis-Tetanus vaccine) to DPT 2 was constant from October 2021 to March 2022, decreased slightly between April 2022 and June 2022 and then increased slightly between July 2022 and September 2022. The drop-out rate from MR 1(Measles-Rubella vaccine) to 2 was constant from October 2021 to June 2022 and then decreased slightly between July 2022 and September 2022. The drop-out rate from MR 1 to 2 had the highest figures registered within the time frame that was taken. The drop-out rate from PCV 1 (Pneumococcal Conjugate Vaccine) to PCV 3 was at 8 between October and December 2021 but then decreased slightly to 5 between January and March 2022, decreased sharply to -3 between April and June 2022 and then increased sharply to 7 between July 2022 and September 2022. The drop-out rate from HPV 1(Human Papilloma Virus vaccine) to HPV 2 increased sharply from 52 between October and December 2021 to 74 between January and March 2022, decreased sharply to 60 between April and June 2022 and then had a very sharp decrease to 37 between July and September 2022.

Table 2: The trend of childhood vaccination BCG coverage (live birth) coverage in Wakiso district between October 2021 and September 2022

Period name	BCG coverage (Live-birth)
October to December 2021	149525.5
January to March 2022	159269.2
April to June 2022	159269.2
July to September 2022	159269.2

Figure 2: The trend of childhood vaccination BCG coverage (live birth) in Wakiso district between October 2021 and September 2022

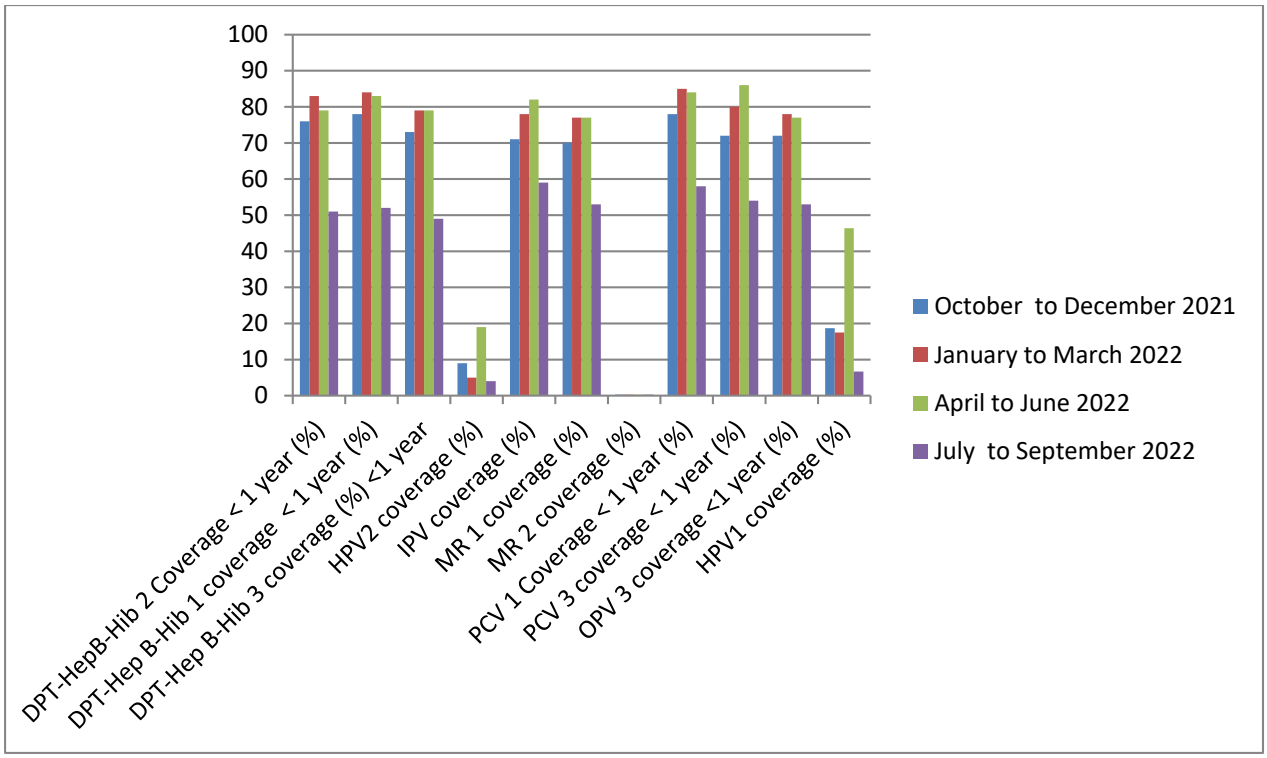


From Table 2 and Figure 2, the BCG (Bacille Calmette-Guerin vaccine) coverage was initially low between October and December 2021 but then increased very sharply between January and March 2022 and it remained constant up to September 2022.

Table 3: The trend of vaccine coverage for the other vaccines

Period name	DPT-HepB-Hib 2 Coverage < 1 year (%)	DPT-Hep B-Hib 1 coverage < 1 year (%)	DPT-Hep B-Hib 3 coverage (%) <1 year	HPV2 coverage (%)	IPV coverage (%)	MR 1 coverage (%)	MR 2 coverage (%)	PCV 1 Coverage < 1 year (%)	PCV 3 coverage < 1 year (%)	OPV 3 coverage <1 year (%)	HPV1 coverage (%)
October to December 2021	76	78	73	9	71	70	0.3	78	72	72	18.7
January to March 2022	83	84	79	5	78	77	0.3	85	80	78	17.5
April to June 2022	79	83	79	19	82	77	0.3	84	86	77	46.4
July to September 2022	51	52	49	4	59	53	0.3	58	54	53	6.7

Figure 3: The trend of vaccine coverage for the other vaccines



From table 3 and Figure 3, MR 2 (Measles Rubella vaccine) coverage (%) had the lowest coverage followed by HPV2 (Human Papilloma Virus vaccine) coverage (%). The highest coverage for most of the vaccines was registered between October 2021 and June 2022. The lowest coverage for most of the vaccines was registered between July and September 2022.

Discussion:

Discussion

The drop-out rate is still very high especially from Measles Rubella Vaccine 1 to 2 and from HPV 1 to HPV 2 and this was similar to study done by Kijjambu (Kijjambu, 2021). The immunization coverage for most of the vaccines was relatively fair but still the immunization coverage for MR 2, HPV 2 and HPV 1 was still very low and it must be noted that Malande and colleagues obtained similar results (Malande et al., 2019). This has led to many children to continue dying from the vaccine preventable diseases and some get health complications like drug resistance (Fine et al.,

2011). Childhood vaccination is the one of the number one remedies for a healthy live hood and it is a priority for every child to get vaccinated (Ralaidovy et al., 2018). In this study there is a declining significant trend of childhood vaccination uptake and the number of drop outs is also very alarming (Malande et al., 2019). The trend of childhood vaccination drop-out rates for DPT 1 to DPT3, MR 1 to 2, PCV1 - PCV3 and HPV1 - HPV2 between October 2021 and September 2022; from this study, only DPT1 to DPT2 and PCV1-PCV2 dropout rates are the only ones that were low and the rest which include MR1-MR2 and HPV1-HPV2 dropout rates were very high and other researchers also obtained the same results as a study done by Larsson and colleagues (Larsson et al., 2015). This was much higher than the way it was in the financial year 2020/20221 by around 23% on average(Ministry of Health, 2021). From the DHO, there was intense training of health workers and a lot of support from the Ministry of Health and its partners but still the dropout rate was still in a worrying state (*Wakiso Targets 640,000 Children in Mass Polio Vaccination Campaign*, n.d.). The trend of childhood vaccination BCG coverage (live birth) coverage in Wakiso district between October 2021 and September 2022; the coverage was lowest at 149525.5 from October 2021 to December 2021 and the it became constant at 159269.2 in the rest of the periods up to September 2022 and this was slightly higher than that of the financial year 2020/2021 by around 5%(Ministry of Health, 2021). Despite the ongoing efforts by the District Health Team like immunization campaigns the coverage is still very low. The trend of the remaining vaccines that included HPV, DPT-Hep B-Hib, OPV, IPV and MR; the MR 2 vaccine coverage had the lowest coverage followed by HPV 2 and the highest included DPT-Hep B-Hib 1 and 2, OPV and IPV. The overall coverage was not lower than the target that was set in the financial year 2020/2021(Ministry of Health, 2021). The overall coverage was just slightly higher than the one of the financial year 2020/2021. The District Health Team carried out activities like contact

tracing and door to door vaccinations to make sure that all children but still the coverage was not in the expectations.

Recommendations

There must be strategies that are meant to decrease the immunization drop-out rates and to increase the immunization coverage. Some of these strategies include health education, trainings, community sensitization, campaigns and constant follow up.

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