ROUTINE IMMUNIZATION CATCH-UP VACCINATION GUIDELINE

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ADDIS ABABA, ETHIOPIA

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MINISTRY OF HEALTH-ETHIOPIA
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FOREWARD

The Federal Democratic Republic of Ethiopia, Ministry of Health recognizes the crucial role immunization plays in reducing child morbidity and mortality and it affirms its responsibility to ensure that every child is protected from vaccine preventable diseases. Expanded Program on Transformation Plan (HSTP), the Comprehensive Multi-Year Plan (CMYP 2021-2025), the Reach-Every-District (RED) immunization approach and other initiatives that flag quality and equity at the center of their agenda. There has been an improvement in vaccination coverage in Ethiopia reaching all children with lifesaving vaccines.

The ministry of health has been providing 12 antigens in the routine immunization programme and strongly advocating timely vaccination to maintain population immunity against vaccine preventable diseases (VPDs), ensure that populations are fully protected against life-threatening illnesses as early as possible, and prevent large outbreaks of VPDs. However, no one should miss out on the right to the protection that vaccines offer, simply because they are not able to access services in time.

The World Health Organization advocates a catching-up plan for every missed dose in routine immunization in maintaining a life-course approach to immunization has been widely utilized by vaccination beyond childhood for combating Vaccine-Preventable Diseases (VPD). The national immunization policy implementation guide of Ethiopia needs clear guidance and strategy to address children that missed vaccination within the recommended schedule due to natural and human-made factors.

The Ministry of Health EPI team and its partners have prepared this catch- up vaccination guide for health workers working at the service delivery level which references global WHO recommendations, and the national policy guide, aligns with current immunization strategies and takes country context into account. In turn, this will increase equitable and sustainable access to vaccines for every age-eligible individual and reduce the incidence of vaccine-preventable diseases (VPDs), and create modality for integration of services, delivering vaccines beyond infancy through a life course approach, and address areas affected by insecurity and conflict.

The Ministry of Health appreciates the role of partner organizations and individuals for their technical and financial support in the development and operationalization of the catch- up vaccination guide.

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Overview

Timely vaccination is key to maintaining population immunity against vaccine-preventable diseases (VPDs), ensuring populations are fully protected against life-threatening illnesses as early as possible, and preventing large outbreaks of VPDs. The World He Immunization Agenda 2030 aims to improve and sustain gains in immunization, as no one should miss out on the right to the protection that vaccines offer, simply because they are not able to access services in time. With this regard, the Ethiopian government has been providing 12 antigens in the routine immunization programme. There have been improvements in each antigen vaccination coverage. Despite best efforts, individuals may not always receive all vaccines in a timely manner as per the recommended age in a national immunization schedule. There is no clear guide/strategy in Ethiopia to address children that missed vaccination within the recommended schedule due to natural and human-made factors.

A catch-up vaccination strategy(which includes a clearly defined catch-up vaccination policy and catch-up schedule) is an essential part of a well-functioning national immunization programme and should be implemented on a continuous basis. The importance of having a catch-up vaccination strategy is more pronounced when there is an extended interruption of routine immunization services or delay of mass vaccination campaigns (e.g., due to vaccine shortages or system disruptions caused by outbreaks, natural disasters, acute conflicts, population displacements, insecurity, etc.). While every effort must be made to keep immunization services functioning during an emergency, unavoidable disruptions can result in a significant accumulation of susceptible individuals and possible VPD outbreaks.

Purpose

The purpose of this guide is to:

- Establish catch-up vaccination guidance to ensure eligible individuals who miss routine vaccine doses for any reason can be identified and vaccinated at the earliest opportunity.
- Introduce strategies to address missed opportunities for vaccination for any reason at the earliest opportunity.
- Institutionalize catch-up vaccination as a regular immunization activity addressing disruption in immunization services.
- Tailor efforts to address zero-dose and under-immunized children for any routine vaccine antigens at service delivery points.
- Create a platform to integrate catch-up vaccination with other outreach, child health and nutritional interventions.

Who is this guide for?

This guide is mainly intended for immunization service delivery level staff to routinely operationalize catch-up vaccination to address missed vaccination doses. However, immunization programme managers at Woreda, Zonal, Regional, and National levels may use the guide for monitoring, supervision, technical support, and resource mobilization.

Table 1 below summarizes the target audiences for this catch-up guide and their role:

Table 1. Summary of Catch-up guide target audiences.

Level / Audience	Role
Health Workers (HWs) at Health Centres, Health Posts, and Hospitals	• Operationalize catch-up vaccination in the routine immunization system
Woreda Health Office (WoHO) & Zonal Health Department (ZHD)	• Conduct capacity building and supportive supervision on catch-up • Provide guidance on implementing catch-up strategy, including planning, vaccine and logistic supply
Regional Health Bureau (RHBs) Regional Health Bureau (RHBs) Implementing partners)	• Conduct periodic risk assessments and determine need for special catch-up efforts for areas that have experienced prolonged interruptions to services • Conduct capacity building and supportive supervision on catch-up • Provide guidance on implementing catch-up strategy, including planning, vaccine and logistic supply

Purpose

Catch-up vaccination refers to the action of vaccinating an individual, who for whatever reason (e.g. delays, stock- outs, access, hesitancy, service interruptions, etc.), is missing/has not received doses of vaccines for which they are eligible, per the national immunization schedule.

Catch-up vaccination policy as part of the national immunization policy, a catch-up policy provides clear directives to all actors within the immunization programme on the importance of providing vaccinations for individuals who have missed one or more doses, how to determine eligibility and permissible age ranges, correct recording and reporting of late doses and the value of using every health contact as an opportunity to check vaccination history and provide catch-up vaccination as appropriate.

Catch-up vaccination schedule a catch-up vaccination schedule clearly indicates the age cohorts to whom the catch-up schedule applies, minimum and maximum ages (if applicable as per national policy), and directives on minimum intervals permissible between doses for each antigen, to assist health workers and individuals to complete the vaccination schedule if interrupted or delayed.

Timely vaccination refers to a vaccine dose administered within a certain time since the recommended age of vaccination.

Missed dose when a child did not receive one or more vaccine doses according to the national immunization schedule. When a child has one or more missed doses, they should be screened for catch-up vaccination according to the catch-up vaccination schedule.

Delayed doses of that vaccine, in the national immunization schedule.

Invalid dose a vaccine dose is considered invalid if it is administered earlier than the minimum age recommended or earlier than the minimum interval since the previous dose in the vaccine series. Invalid doses may not elicit an adequate immune response and therefore should be repeated once the individual has reached the minimum age and/or the appropriate minimum interval has passed.

Minimum interval for vaccines requiring multiple doses, is the shortest amount of time permissible between doses in order to provide an adequate immune response. If the interval between the doses is shorter than the minimum interval, the vaccine may not be effective and is considered invalid.

Periodic Intensification of Routine Immunization (PIRI) is an umbrella term to describe a spectrum of time-limited, intermittent activities used to administer routine vaccinations including catch-up doses to under-immunized populations and/or raise awareness of the benefits of vaccination.

Supplementary Immunization Activities (SIAs) refers to vaccination campaigns that aim to quickly deliver vaccination of one (or multiple) antigens to a large target population with the objective of closing immunity gaps in the population.

Zero-dose children are those that have not received any routine vaccines. For operational purposes, Gavi defines 'Zero-dose children' as children who have not received the first dose of the diphtheria-tetanus-pertussis-containing vaccine (DPT1).

Under-immunized are those who have not received a full course of routine vaccines. For operational purposes, Gavi defines 'under-immunized' children as those who have not received the third dose of the diphtheria-tetanus-pertussis-containing vaccine (DTP3).

Country Context

The Expanded Programme on Immunization (EPI) was launched in Ethiopia in 1980 with the aim of reducing childhood morbidity and mortality from vaccine preventable diseases. Six traditional antigens had been provided largely by public health facilities for more than a quarter of a century. Currently, a total of 12 antigens are available through the EPI programme (DPT-HepB-Hib, PCV, BCG, OPV/IPV (Polio), measles, Rota, HPV and COVID-19).

The 2019 Ethiopia Mini Demographic and Health Survey (EMDHS 2019) provides data on the percentage of children (aged between 12-23 months) vaccinated nationally (Figure 1) and by region (Figure 2).

Figure 1. Immunization coverage for selected antigens among 12-23 month old children, EMDHS 2019.

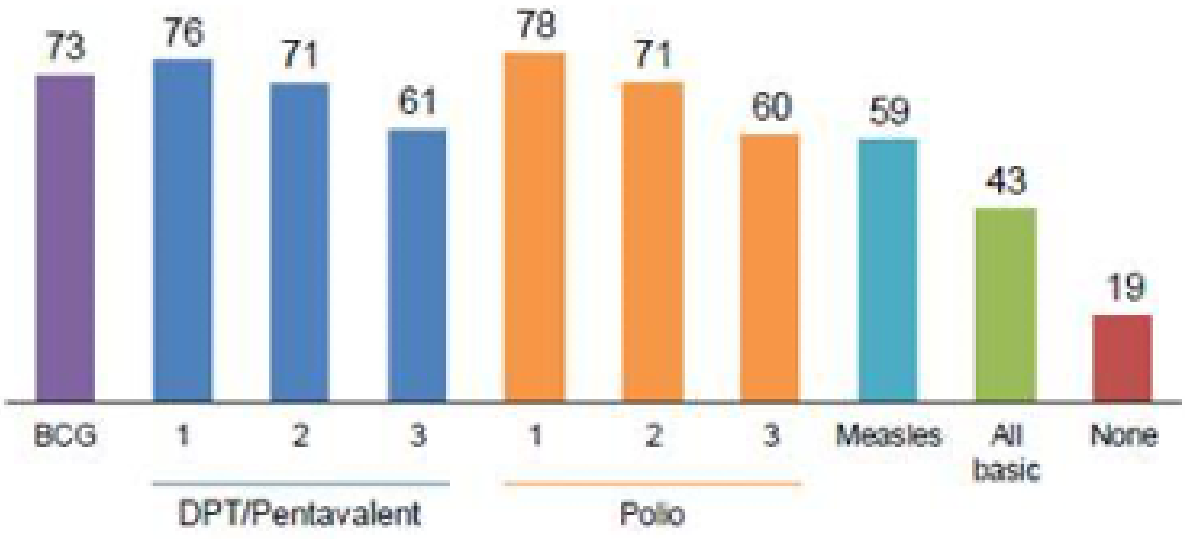
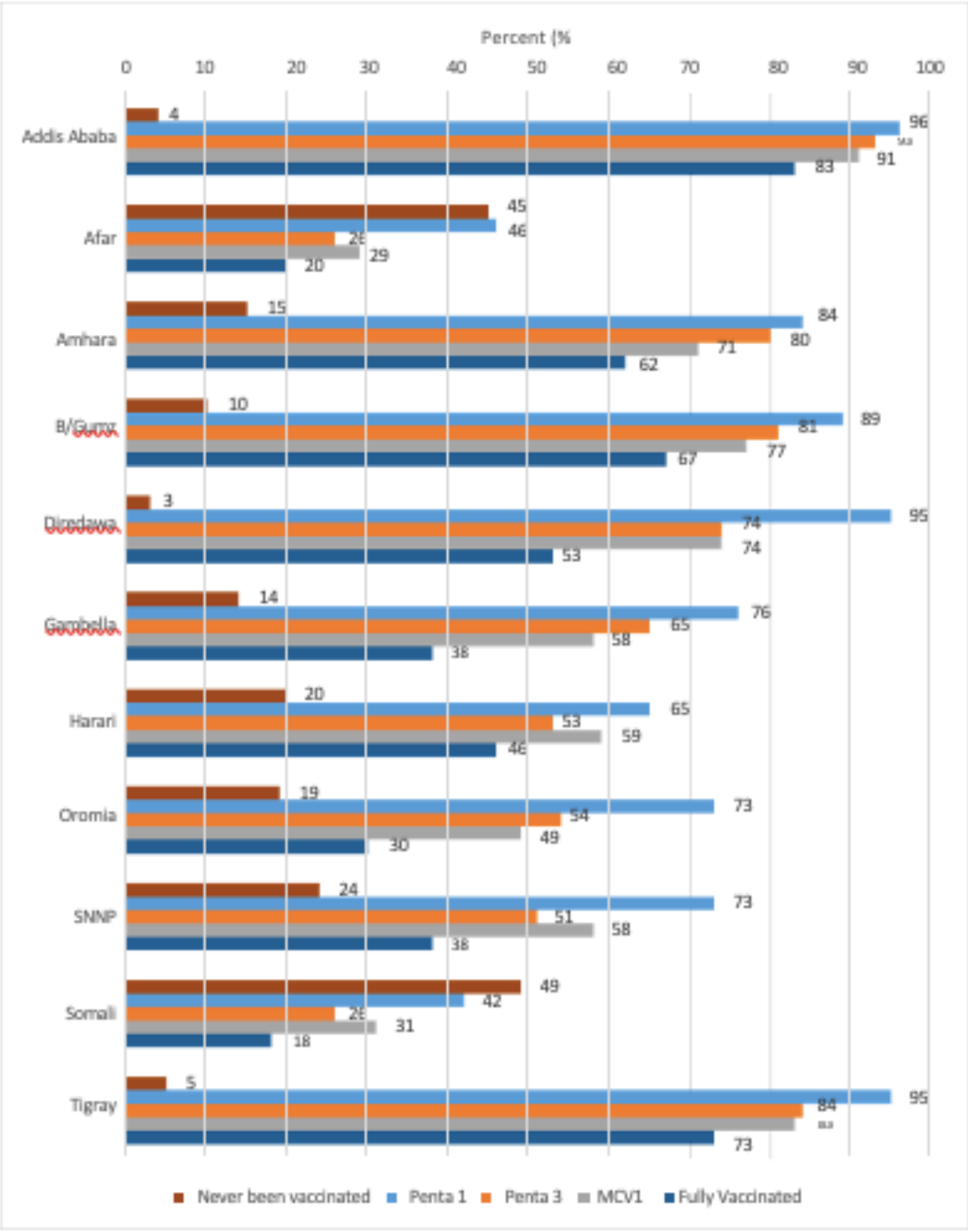


Figure 2. Immunization coverage for selected antigens by region, EMDHS 2019.



Penta3 coverage in Afar and Somali is extremely low, with only one out of four children received the third dose of Pentavalent vaccine. Oromia and SNNP achieved coverage of 53% and 50% respectively, and Dire Dawa and Gambella achieved between 70-79%. Tigray, Benishangul, and Amhara achieved 80 to 90%. The MCV1 coverage follows a similar pattern to that of Penta3, except the percentages reported are a little lower than Penta3 in most regions. The percentage of children that received all vaccinations in Afar and Somali was below 20%, in Oromia and SNNP a bit higher, in the 30-40% range.

Dropout rates reported in 2019 EMDHS show Penta1 to 3 dropouts is highest in Afar with 43%, followed by Somali at 38%, SNNP 30%, and Oromia 27%. According to the EMDHS 2019, about 1.25 million children were not vaccinated for Penta3 in the country.

As seen in Table 2 below, EMDHS 2019 provided estimated percentages of children who have never been vaccinated (zero-dose). Using EMDHS 2019 regional percentages and projected census data were calculated to estimate the numbers of zero-dose per region (Table 3). Five regional states of Ethiopia Afar, Amhara, Oromia, SNNPR (including Sidama), and Somali contribute to 95% of the unimmunized children in the country.

Table 2. Percentage of un immunized (zero-dose) children based on EMDHS 2019.

Region	Estimated Number of Un-immunized
Somali	134,383
Afar	38,985
SNNPR	332,566
Harari	3,599
Oromia	569,705
Amhara	136,824
Gambela	4,688
Benishangul Gumuz	6,578
Tigiray	27,836
Addis Ababa	5,689
Dire Dawa	6,578
Total	1,254,810

Ethiopia has been significantly impacted by the COVID-19 pandemic. From mid-March 2020 to April 2022, Ethiopia has reported 469,758 confirmed COVID-19 cases and 7,497 deaths. Essential public health services have been disrupted in many parts of the country, including routine immunization services which increases the risk of vaccine-preventable disease outbreaks like measles and polio. The negative impact on essential health services was marked during the initial three-to-four months of the pandemic (March-June 2020). Immunization coverage declined, planned polio and measles vaccine campaigns were delayed, and VPD surveillance was interrupted.

Furthermore, public health in Ethiopia has been impacted by ongoing conflicts and natural disasters (drought, flooding, locusts, etc.) in multiple areas. At the start of 2020, Ethiopia was estimated to have about 1.8 million internally displaced persons (IDPs). Since November 2020, the conflict in northern Ethiopia caused severe service disruption in the entire region, further escalating the numbers of IDPs living in difficult conditions. Many IDP sites are very crowded and vary from informal camps to schools, churches, and other similar types of substandard structures and makeshift settings. Crowded living conditions and the increased influx of people overstretching health services pose a potential risk of disease outbreaks including VPDs. The country also hosts close to one million refugees from neighboring countries particularly from South Sudan, Eritrea, Somalia and Sudan.

In conflict-affected and IDP Woredas, immunization services have been seriously interrupted. There are a number of reasons for this: complete distraction of health facilities, staff turnover, stock out of vaccines and supply, lack of transportation & security concerns for health workers. In most cases, immunization service interruption leads to low coverage and increased risk of outbreaks due to VPD.

It is expected that following the pandemic, ongoing conflicts and natural disasters may increase the number of unvaccinated or under-vaccinated children living in Ethiopia.

This catch-up guideline document will serve as a supplement to the existing Ethiopian Immunization Policy to aid public health officials and health workers in catch-up vaccination for children who have missed doses or never received a vaccination.

Rationale for producing catch-up vaccination guidance

- The COVID-19 outbreak is posing a significant risk of disruption to all essential health services including immunization. The Ministry of Health has reported the impact of COVID-19 on the routine immunization programme and interruptions in many parts of the country since the beginning of the pandemic in March 2020.
- In addition, existing country situations such as conflicts, flooding, and IDPs in different parts of the country have caused immunization service interruption to various levels and extents. The Ministry of Health EPI team initiated steps to address children who missed vaccine doses through catch-up vaccination, PIRI and other integrated family health service interventions. However, there is a need to set a policy and schedule to enable catch-up vaccination to occur, as needed, on a routine basis.

- The guide will give standard direction and guidance to HWs, woreda staff, and regional and national decision makers to plan, implement and monitor catch-up vaccination to ensure that all eligible individuals who miss routine vaccine doses (defaulters, zero dose) can be identified and vaccinated at the earliest opportunity in the country immunization schedule.
- Furthermore, there is no other guiding document prepared previously to guide and support the implementation of catch-up vaccination.

Principles of catch-up vaccination

All immunization programmes should have a catch-up vaccination policy and catch-up vaccination schedule in place to ensure individuals are able to be vaccinated even if they miss one or more scheduled doses.

- Everyone should fully benefit from vaccination by receiving recommended vaccines and not to be denied vaccination.
- Most vaccines are safe and effective to administer with no upper age limit and while timely vaccination should always be the aim, it is almost always better to vaccinate late than never. There are a small number of vaccines for which upper age limits do apply for administration1, but for most vaccine-preventable diseases (VPDs), providing vaccines late will still result in protection against morbidity and mortality.
- **Providing catch-up vaccination for those who have missed doses can have a major impact on closing immunization gaps** that would otherwise compound as populations increase in age. As these individuals age, it becomes harder to identify effective ways to reach them with the needed vaccines.
- Having a catch-up vaccination strategy in place is an essential part of a well-functioning routine immunization programme and should be implemented on a continuous basis to ensure an individual right to be offered the benefit of the vaccination, even if its late.
- All touch points with the health system should be used to reduce missed opportunities for vaccination, by assessing vaccination status and vaccinating or referring individuals for catch-up vaccination if they have missed any doses.
- A catch-up vaccination strategy relies on the availability of good record keeping of vaccination history either in individual home-based records (HBRs) such as the child health passport, and/or in facility-based EPI registers (paper or electronic). Communication to caregivers and individuals on the importance of safeguarding the home-based record and making a habit of bringing it to every health contact can reinforce the value of vaccination and the concept that it is never too late to be immunized.

1 For example, in Ethiopia, Hep B birth dose is recommended within the first 24 hours of life. OPV 0 is recommended up to 14 days of life, and BCG vaccine is recommended within 12 months. Upper age limits may vary from country to country, but overall global-level recommendations from WHO, available at: https://www.who.int/immunization/policy/immunization_tables/en/

National routine immunization vaccination schedule

The principle of immunization is to achieve the protection of the target age groups who are at risk of developing the vaccine-preventable diseases having adequate antibody response with minimal adverse effects from the vaccines. The immunization schedule for all vaccines except COVID-19 is described in Table 4 below.

Table 4. Ethiopian national routine immunization vaccination schedule.

No	Antigen	Total Doses	Recommended Age	Route/Site of Administration
1	HepB Vaccine Birth date	1	At birth or within 24 hours of birth. For home delivered baby, vaccinate up to 14 days old. Birth date	Intramuscular IM, Lt anterolateral thigh
2	BCG	1	At birth or soon after	Intradermal (ID), Rt deltoid
3	Polio (OPV)	4	Birth (OPV0), weeks 6, 10, & 14	Oral
4	DPT-Hib-HepB (Pentavalent)	3	Weeks 6, 10, & 14	IM, Lt anterolateral thigh
5	PCV	3	Weeks 6, 10, & 14	IM, Lt anterolateral thigh
6	IPV	1	Week 14	IM, Rt thigh 2.5 cm below PCV injection site
7	MCV	2	9 and 15 months	Subcutaneous (SC), Rt deltoid
8	HPV	2	Age 14 years (HPV2 6 months later)	IM, Deltoid muscle of upper arm
9	Td	5	For pregnant women: Td1 at first contact,Td2 4 weeks later, Td3 6 months after Td2, Td4 1 year after Td3, Td5 1 Year after Td4	IM, Lt Deltoid
10	Rotavirus vaccine	2	Weeks 6 & 10	Oral

Catch-up vaccination schedule to be conducted on routine basis

In case of vaccination service interruption due to any possible resonse, the country immunization programme recommends catch-up vaccination schedule to address missed/late vaccinations to be delivered on a routine basis at the health facilities. Table 5 below includes information about the minimum age, interval between doses, and upper age limit for catch-up vaccination. For all antigens, if the primary series was interrupted (i.e., the child began to receive doses of a vaccine and then stopped before receiving doses; the health worker should provide only the remaining number of doses needed to complete the series.

Table 5. Ethiopian recommended catch-up vaccination schedule for different antigens to be delivered through routine immunization service delivery.

Vaccine Antigens	Total Doses	Minimum age for dose 1	Minimum interval between doses	Upper age limit
BCG	1	At Birth	N/A	Up-to one year of age
OPV	4	At Birth	OPV0-OPV1: 6 weeks All subsequent doses: 4 weeks	Up to 59 months
Rota	2	6 weeks	4 weeks	Up to 24 months
PCV	3	6 weeks	4 weeks	Up to 24 months
Penta	3	6 weeks	4 weeks	Up to 24 months
IPV	2	14 weeks	4 weeks	Up to 24 months
Measles	2	9 weeks	2nd dose at 15 months; Minimum 4 weeks between dose 1 and 2 if dose 1 is given late	Up to 59 months

Note: All routine vaccine antigens are eligible for catch-up except Hep B birth dose, HPV, vaccination and Td vaccination.

Catch-up vaccination during extended service interruptions

In case of vaccination service interruption for an extended period of time (more than 1 year) due to external factors such as conflict, war, natural disaster, or other reasons, the country immunization programme recommends catch-up vaccinations to address missed vaccination doses and close immunity gaps as quickly as possible, including through the use of catch-up campaigns. Catch-up vaccination for extended service interruptions could follow a decision making process to discuss key considerations, including:

- Identifying eligible population and defining target (particularly if multiple cohorts have been missed)
- Vaccine forecasting
- Resource mobilization to reach the populations as quickly as possible

Recommended strategies to conduct catch-up vaccinations in areas affected by conflict, IDPs, and natural disasters include: catch-up vaccination campaigns, integrating with SIAs, and other humanitarian emergency responses. The decision to conduct catch-up vaccination campaigns in selected areas will need the consultation and involvement of ICC, NITAG, TWG and other bodies in the MOH. Implementation of catch-up vaccination in areas with long-term interruptions to services should be monitored and may be reported separately from routine doses.

Decision-making around special catch-up vaccination strategies

Any time a child is brought for services, whether on schedule assess eligibility and provide vaccination as per the guidance in Table 5. Health workers should also regularly be tracking defaulters as well as births occurring in their community to find and offer services to all eligible children on an ongoing basis.

However, more intensified catch-up vaccination strategies (such as the use of campaigns or additional planned immunization sessions) will depend on several factors:

- Duration and extent of disrupted immunization services (e.g., either less than or more than 1 year)

Local epidemiology of outbreak-prone VPDs (e.g., measles, polio, diphtheria)

- Size and extent of pre-existing immunity gaps in under-served communities or assessment of overall population-level immunity in low coverage contexts

Target population (e.g., age, geography) needing to be caught up

- Availability of human resources, vaccine stocks and supplies, financial resources, home-based records and/or nominal immunization registers

Local contextual considerations (e.g., rainy season, security, major political events)

- Timing the timeframe for resuming immunization services in areas with interruptions may vary across settings.

A framework for decision-making on prioritization of strategies is outlined below as a three step process:

Step 1: Health facilities (health posts, health centers and hospitals) should define the target population under routine immunization basis and track the number of children missed, and work with woreda supervisors to provide this info and support decision making on the appropriate strategy for catch-up

Step 2: Woredas should assess the risk of VPD outbreaks based on the missed number of children and/or extent of service interruptions

Step 3: Based on the assessment, the woreda will determine the appropriate strategy considering the availability of the vaccine, cold chain, HR, and other conditions. If service interruptions are occurring for an extended period of time, the woreda will consult higher levels regarding the catch-up needed. If the catch-up needed is minor or manageable within currently planned routine service delivery (either fixed, outreach, or mobile), the woreda will communicate to health facilities to operationalize microplanning, estimate additional vaccines and cold chain needs, service delivery modalities, and community engagement/social mobilization needed to conduct catch-up.

Strategies for catch-up vaccination

Routine immunization services should be delivered to eligible children throughout the year, despite unexpected interruptions due to emergencies , conflicts and other factors; however, ensuring that all missed children get catch-up vaccination will require designing and delivering a mix of effective service delivery strategies. These strategies include enabling catch-up through routine immunization, integrating with other health services, school vaccination checks, and ad-hoc/need-based efforts such as PIRI, SIAs, and IPOS (Integrated Periodic Outreach Services). A summary of the strategies described is provided at the end of this section in Table 6.

Routine immunization services throughout the year

The practice of catch-up vaccination should be integrated into routine immunization service delivery on a continuous basis. Every immunization contact, whether fixed or outreach (including school-based), should be used as an opportunity to review an individual's vaccination status and catch-up on any antigens that have been missed before that visit. For pastoralist communities, offering catch-up vaccination is critical to ensure they have the opportunity to be caught up to date according to the immunization schedule. Catch-up is particularly important during immunization outreach, as these communities may have less regular or timely contact with the health system; special attention should be paid to missed communities when planning and prioritizing outreach sessions during regular microplanning processes.

In addition, every health facility should have a process in place for both newborn tracking and immunization defaulter tracking in order to properly track and reach zero-dose and under-immunized children in their catchment area. Reducing missed opportunities for vaccination

Every health contact should be used as an opportunity to review a child's vaccination status and to administer doses for which the child is eligible or to refer the child to an immunization provider for vaccination (i.e., (implementation of IMNCI), well-child visits, under five clinics, nutrition screening, before being discharged from hospital, etc. Integrating vaccination during family health visits during outreach and mobile clinic visits.

Supervisors should reinforce the message that checking vaccination status and/or offering catch-up vaccination can also be integrated with other health delivery platforms across the life-course. Box 1 provides an example of using the second year of life (2YL) platform.

Box 1. Using the 2YL Vaccination Platform

Using the existing routine vaccination platform at the second year of life, i.e. when children coming for MCV2 vaccination (between 15-24 months of age) gives an additional opportunity to catch-up missed vaccination doses. In addition, other health care visits at the health facilities (e.g. pediatric visits, GMP, Vit A and general outpatient visits) could give an opportunity to address missed vaccination doses by linking them to vaccination.

School vaccination checks

School settings provide excellent opportunities to integrate interventions aimed at reducing vaccine preventable diseases. Implementing school vaccination checks is also an important catch-up vaccination strategy to screen and vaccinate children who have missed polio or measles doses.

Every year during the school registration period prior to the start of the school year, the Woreda health office in collaboration with the education office should facilitate coordination for screening of missed vaccination doses at kindergarten schools for polio and measles vaccination. Woredas should send a letter to schools, and nearby health facilities should discuss with the school to arrange with the school for screening and vaccination as needed. Families should send their child's vaccination card copy to the school to assess the status of the vaccination. Health workers facilitate, conduct, and screen at the registration and refer families to the health facility, or the HW may conduct a vaccination session at the school.

One of the key facilitating factors to successfully implement a practice of school vaccination checks includes strong collaboration between ministries of health and ministries of education. School vaccination checks do not need to be accompanied by a mandate requiring proof of vaccination for entry into school. School vaccination checks can be implemented simply as another touch point for encouraging catch-up of children that may have been missed earlier, without the intent to exclude students who do not have documented vaccinations.

Periodic intensification of routine immunization (PIRI)

Periodic intensification of routine immunization (PIRI) is an umbrella term to describe a spectrum of time-limited, intermittent activities used to deliver routine vaccinations including catch-up doses to under-immunized populations and raise awareness of the benefits of vaccination. PIRI is used either in focused areas with poor access to immunization services or low coverage, or to target certain population groups (e.g., mobile communities). The doses in a PIRI activity should be provided after reviewing an individual's vaccination status and are considered routine vaccinations and recorded as such in the immunization register and on the home-based record. PIRIs will usually target a specific age cohort such as children under two years or under five years. Therefore, PIRI provides a catch-up opportunity for anyone in that age cohort that has been missed or not reached during the year.

Ethiopia implemented PIRI in the selected low performing Woredas of agrarian, pastoralist regions with budget support to support outreach sessions, conduct community sensitization, conduct supportive supervisions and etc. Sometimes in order to complete a vaccination series, PIRI activities are planned to repeat at 4-week intervals (e.g., once a month for 3 months) to 19

ensure various three-dose vaccine series can be offered (e.g., Penta1, 2, and 3). PIRIs may also include integration of other maternal and child health interventions such as vitamin A supplementation, de-worming, nutrition counseling and IFA supplementation for pregnant women. In Ethiopia, PIRI is expected to be continued in low performing Woredas of pastoralist and agrarian regions which need sustained budget support.

Africa Vaccination Week and Child Health Days as an opportunity

Africa vaccination week is celebrated every year in Ethiopia to advocate strengthening routine immunization uptake in low performing areas by creating demand at a community level, tracing defaulters, tracing zero doses and vaccinating them by arranging additional vaccination sessions it could be catch-up for a week period by mobilizing resources at from partners and government. Similarly, in areas where there is a child health day event the health facility could plan and implement catch-up vaccination integrated with other child health services.

Integrate with supplemental vaccination activities

Preventive SIAs for polio and follow up campaigns for Measles are happening periodically in Ethiopia as a means to mitigate outbreaks and susceptibility to VPDs by closing immunity gaps. Supplemental immunization activities are a good opportunity to identify zero-dose or under-immunized children who have missed doses.

Lists of zero-dose or under-immunized children (including geographic location) should be compiled by vaccination teams and provided to the nearest health facility so that health facilities can adjust planning efforts (including outreach) to target the missed child or missed communities. In addition, the SIAs vaccination team should communicate with caregivers to refer them to routine static and outreach services and understand barriers to access to services.

	Routine immunization Service Delivery	PIRI target service delivery	Integrated with SIAs, other family health interventions (IMNCI, GMP, Vit A suppliement
Purpose	Provide timely vaccination to all intended beneficiaries as soon as they become eligible, in accordance with national vaccination schedule	Rapidly reach underserved populations or catch-up children who are overdue for vaccination	Rapidly increase population immunity by providing vaccine doses to a target geographic and age-range, regardless of prior vaccination status
Geographic Scope	Nationwide	Selected geographic areas	Large geographic areas, based on epidemiological data
Age of target population	Corresponds to target age group in national vaccination schedule.	Corresponds to target age group in national vaccination schedule. May be temporarily expanded to catch-up children who are overdue for doses	Often an expanded target age group, based on epidemiologic needs
Screeing	Required to determine for each vaccine dose to be given	Required to determine eligibility for each vaccine dose to be given	Required to determine
Screeing	Each dose is considered routine and must be recorded on home-based record, clinic-based register, and tally sheet	Each dose is considered routine and must be recorded on home-based record, clinic-based register, and tally sheet	Each dose is considered supplemental and is recorded on tally sheet for the SIA, and ideally should be recorded as a supplemental dose on home-based record or SIA card

Reporting of doses	All doses are captured in annual administrative estimates of coverage and Joint Reporting Form	All doses are captured in annual administrative estimates of coverage and Joint Reporting Form	All doses are captured in report for the SIA
Communication on next doses	Inform caregiver on when to return for next dose	Inform caregiver on when to return for next dose	Inform caregiver of need for routine immunization

Planning for catch-up vaccination

Estimating the target population for catch-up vaccination efforts should occur, in addition to compiling a list based on individual vaccination records. The target population for an intensified catch-up effort should be monitored throughout the period of disrupted service. Box 2 below provides an example of how to estimate catch-up targets, and Box 3 provides additional information about the denominators of target populations.

Box 2: Example to illustrate how to estimate catch-up targets

(A)Target population for a given period (e.g. month, quarter, year)

a. Sources of data to estimate (A) is head count population for a specific area, or target population based on the projection micro-plan

(B) Cumulative doses administered for any vaccine antigen of a given period

a. Sources of data to estimate (B) is EPI register, monthly report, tally sheet,

b.

(C)Estimated number of children needing catch-up of any vaccine antigens for the following period

C = (A-B)

(D) Adjusted target population for vaccination for the following period

D = C + A

Example: A health post has a monthly target population of 50. In the month of April, a health post vaccinated 35 children for Penta1. Calculate the number of children needing catch-up and what the target population for the month of May should be, including those who need to be caught up.

A = 50 Children

B = 35 Children

(A B) = C (50 35) = 15 Children

(C + A) = D (15 + 50) = 65 Children for May target

Reliable estimates of the target population are critical in order to effectively track and follow up with defaulters/zero doses and also those individuals in the catchment area that are hard to reach or have difficulty accessing services. Target estimates can be obtained through different sources including census data, local enumerators and head counts and service data from immunization or other programmes.

Box 3. Notes about the Denominator

Reliable estimates of the target population are critical in order to effectively track and follow up with defaulters/zero dose and also those individuals in the catchment area that are hard to reach or have difficulty accessing services. Target estimates can be obtained through different sources including census data, local enumerators and head counts and service data from immunization or other programmes.

During the annual EPI RED micro planning the woreda, health facility should include a list of targets for unvaccinated/zero dose for catch-up vaccination every year. The health facilities should review the defaulter list/register to identify and reach missed children during vaccination sessions.

Delivering catch-up vaccination

In Ethiopia, primarily most of the immunizations take place in fixed posts in health facilities equipped with permanent cold chain facilities.

In addition to routine fixed strategy, outreach and mobile strategies play a role in improving routine vaccination service delivery to access communities out of health facility catchment areas help to reach hard to reach communities, urban slams, marginalized communities, semi-urban and remote rural, IDP and etc. Catch-up vaccinations will happen in all types of routine vaccine delivery strategies.

Throughout, all types of vaccination sessions, HWs need to ensure the availability of an adequate supply of vaccines, logistics, temperature monitoring devices, recording and reporting formats, antiseptics, space for vaccination and other supplies.

Health workers need to ensure adequate supply and use of COVID-19 infection prevention and control measures during immunization service (hand sanitizers, face mask and maintaining physical distance).

Availing vaccines and supplies for catch-up vaccination

As catch-up vaccination becomes standard practice and forecasting is revised based on updated consumption, vaccine and supply needs should stabilize, based on the following principles: Catch-up vaccination is simply allowing for doses to be provided to individuals that should have already been included in the forecast of vaccines needed to protect that age cohort. Ethiopia forecasts routine vaccine antigens every year and includes in GAVI vaccine renewal based on previous consumptions mainly for vaccines procured under co-financing like (PCV, IPV, Penta, Rota, Measles, HPV). However, the cost of traditional vaccines such as (BCG, OPV and TT) is fully covered by the government.

Delays between doses in a vaccine series (e.g. Penta1, 2, 3) does not require restarting the entire series, regardless of the length of time that has elapsed since the last dose was received.

Therefore, catch-up vaccination should not require the consumption of any extra vaccine per individual (except in some cases where vaccination history cannot be ascertained and re-vaccination with some vaccines may be needed). Expanding eligibility and offering catch-up vaccination to older age cohorts who had missed doses may actually have the overall effect of reducing wastage for multi-dose vials of vaccines that must be discarded within six hours (such as BCG, MCV), as more eligible individuals may be vaccinated during a given session.

It is crucial to conduct regular monitoring of the availability of vaccines at service delivery points to decide on the need for additional requests or reallocation. Further, should be reflected on the annual vaccine renewal every year to anticipate the need for catch-up and integrate with emergency vaccine stocks.

Immunization managers at all levels of the supply chain should closely monitor their actual vaccine stock, vaccine consumption, wastage, and target population in their respective catchment areas, and adjust vaccine forecasts and distribution accordingly, ensuring a buffer stock is maintained on top of any revised consumption.

Health facilities may observe a temporary increase in consumption of certain antigens e.g, OPV or Measles in the first few months of offering catch-up to an expanded age cohort if given up to 5 years. In addition, if vaccine supply is forecasted or requested based on previous consumption rather than by target population, the shortage might occur at facility level or woreda level.

Stock out of key supplies may be a challenge, requiring a remapping of inventory, at all levels, and a coordinated redistribution of supplies once delivery channels are reopened.

At Woreda level close monitoring of vaccine stock with the health facilities and the EPSA Hubs particularly for OPV and Measles vaccines hence we expect more target is going to consume.

The table below (Table 7) provides vaccine availability actions for each level of the health system.

Table 7: Action steps for catch-up vaccination to ensure adequate vaccine quantities

No	Vaccine Availability Action	Level
1	Monitor monthly stock availability through: • VRF • Vaccine stock book • Mbrana • EPSA vaccine and logistic distribution list	HF HF HF, Woreda Woreda, EPSA Hub
2	Strict monitoring of vaccine and logistics such temperature, VVM, expiry date, closed vial wastage	HF
3	Principle	HF
4	Define target population for catch-up based on the micro plan	HF Woreda
5	Based on the target population request VRF to nearest hubs	HF Woreda
6	Supply for the catch-up vaccination considering available vaccine allocation, buffer stock of 25% and un-utilized stock	EPSA Hub
7	Closely monitor closed vial vaccine wastage and any stock out of vaccines (especially Measles, OPV can be given up to age 5)	HF, Woredas
8	If there is any stock out, reallocate from nearest HF, or, contact hub to request for additional/emergency stock	HF, Woreda, EPSA Hub

Building health worker knowledge and practice

Training and orientation for national and regional programme managers on the catch-up vaccination policy and schedule will be conducted through online zoom or physical meetings at national level. Whereas, sub- national level HWs at Zones, Woreda and HFs will be oriented on the catch-up guide at regional, zonal, woreda and health facility levels with direct trainings on the job and plenary sessions. The training content should include key capacity of knowledge, skills, behaviors and practice in planning and targeting, update in the policy changes, service provision, communication, and monitoring and evaluation on the catch-up guide. EPI trainings such as IIP, MLM will also be updated to introduce catch-up vaccination recommendations in each section.

WoHOs should provide post-training follow-up support to health workers through regularly planned supportive supervision to ensure that catch-up vaccination is being implemented. Supervision visits should emphasize the importance of checking for vaccination history at every health contact (including non-immunization visits) and reinforce the principle that while timely vaccination is ideal, vaccinating late is better than never for most vaccines. HWs understanding of how to evaluate the eligibility of individuals of any age and determine if any missed vaccinations need to be provided is critical to successfully catching-up with children. HWs interpersonal communication with care givers should be assessed whether the HWs addressed the time for the next visit, type of vaccination, possible AEFI and catching up on any missed doses.

The understanding and use of job aids can reinforce these skills and serve as a helpful reference during screening. See Annex 1 for an example job aid showing the immunization schedule, minimum intervals between doses, and upper age limits for vaccination.
Instructions for HWs are summarized below in Box 4, with a comprehensive set of instructions in Annex 2.

Box 4: Summary of health worker screening instructions for catch-up vaccination

Step 1: Greet the parents or care giver for bringing their child for vaccination today. Find out record or the caregiver

How old is the child today?

Which vaccine has the child already received? (chec k the child's health passport)

Step 2: Use the chart above to decide what to give. If a child missed any dose of vaccine, it is not too late. Administer the vaccines for which they are eligible, respecting the necessary spacing

Step 3: Remind the caregiver when to bring the child back for the subsequent doses due. Take this opportunity to emphasize the importance of receiving the complete series of vaccines for the child to be fully protected.

Communication and community engagement

Targeted communications should inform individuals, caregivers, and communities more broadly of the value of vaccination and the importance of being vaccinated in a timely manner. Communication with caregivers and individuals through phone calls, message reminders through HEWs, as well as broader messaging through television, radio, social media, posters, etc. should aim to increase awareness that missing a scheduled vaccination does not necessarily mean that

individuals are no longer eligible: vaccines given late are still safe and effective at providing protection against disease, and caregivers and individuals should feel empowered to seek vaccination, even if delayed.

Community level approaches for community mobilization includes:

- House to House visit by HEW or CV for regular health education tracing dropouts and zero dose and link for catch-up vaccination
- Community level dialogue/meetings or community conversation (with women development army, health development army)

Furthermore, advocacy meetings at national, zonal and woreda level will be conducted to mobilize politician, policymakers, religious leaders and community leaders to be engaged in the catch-up vaccination activity.

Communication working groups at national and regional levels will tailor key messages to TV/Radio Spot, brochures, and banners, and adapt to the local language for social mobilization on catch-up vaccination.

It is essential to mainstream vaccination through religious institutions such as the Orthodox Church, the Islamic Affair Council, the Protestant and Catholic churches, and others because though timely vaccination is important, it is never too late to get vaccinated.

Civil society groups, non-government organizations and clan structures can be engaged to manage vaccination miss information, rumors and disinformation.

Furthermore, schools can be also engaged in social mobilization about the importance of full vaccination, catch-up vaccination through messaging to both students and parents.

Coordination and resource mobilization

There are existing immunization coordination platforms at the national level such as; ICC, NITAG, EPI technical working groups and sub-working groups with defined roles and responsibilities. Immunization technical working groups at national and sub- national levels should be regularly monitoring the need, implementation and monitoring of catch-up vaccination.

The main steps for coordination and resource mobilization include ; mapping of partners working on immunization, humanitarian emergency, etc to identify the existing technical, and financial supports to conduct and monitor catch-up vaccination session. Sub- national level working groups, coordination platforms should be used during planning, implementing and monitoring of catch-up sessions.

Catch-up vaccination in areas with an extended period of time would require proper planning of budget, allocating HR and logistics and vaccines by mobilizing from gov't, partners, and donors on regular basis for emergency situations.

Recording and reporting of catch-up vaccination doses

Supportive tools to help HWs record and report catch-up vaccination doses include instructions for screening a child for catch-up doses (Annex 2). The Ethiopian immunization recording and reporting tools includes: Tally sheet (see Annex 3), Register, Child health card, monitoring chart, and monthly reporting format (see Annex 4) which HWs at health facility use on daily basis.

A major challenge for identifying eligibility, administering and monitoring catch-up vaccination is the lack of a reliable written record of vaccination. For the EPI register, if the history of previous vaccination is not available, HWs could register as a new entry and provide the required vaccine antigen.

The immunization tally sheet records the number of doses administered for respective antigens for ages under 1 year for most of the vaccines and one year and older MCV2. Similarly, the EPI register captures children vaccinated by age for the date received vaccination. However, the monthly report captures DHIS 2 selected indicators for specific vaccine schedules based on the national immunization policy guide. Except for MCV2 vaccine dose, all other vaccine antigens will be reported for children vaccinated below under one year.

There needs to be a way to manage restrictive options in the recording and reporting formats in the tally sheet, register and monthly reporting. For catch vaccination, record all doses given both on a tally sheet and register, according to the dose number in the series they are due and actually received (regardless of age) based on the catch-up schedule agreed.

Schedule subsequent visits, following the appropriate minimum interval, and communicate this schedule with the individual so they know when to return. All vaccination reports and records should be archived at health facilities, Woredas, Zones, Regions and National levels. A summary of tools and instructions is provided below (Table 8).

Table 8. Summary of how to record and report catch-up vaccination doses:

Tool	Instruction
Tally Sheet	Health workers should use the EPI tally sheet to capture all immunization doses, including catch-up doses given. Given the expanded age eligibility, the tally sheet has been updated to have two columns that divide age categories:vaccine doses administered under one and vaccine dose administered above one year. Health workers will tally doses in one of these two columns depending on the age of the child. See Annex 3 for the updated tally sheet.
EPI Register	Health facilities should use existing EPI register to register vaccination doses given, including catch-up doses. If a child comes needing catch-up and there is no historical record of previous doses easily found in the EPI register, HWs should record doses given on a new row in the register.
Child health card	Any time a child comes for vaccination, either on time as per the RI schedule the card in a safe place at home and bringing it to every visit should be emphasized.

Monthly Reporting	Health workers are expected to report all doses administered through monthly reporting. Data on all doses provided to children under 1 (and under 2 for MCV2) will be fed up through DHIS2 as usual. For doses administered to children above 1 year of age (second column in the tally sheet, except MCV2), health workers should report these separately using the catch-up monthly reporting format (See Annex 4 and 5). This additional reporting format will be reported monthly. Future changes to DHIS2 to incorporate late doses given to children above 1 year of age are currently being considered and discussed. The National EPI team, Zonal and Woreda level EPI managers should distribute the catch-up monthly reporting template to health facilities with hard copy and electronically. The EPI programme managers at woreda, zone, region and national level should monitor the timeliness and completeness of catch-up monthly reporting by email.
Monitoring Chart	The monitoring chart should still continue to be used as usual, to plot Penta1, Penta3, and MCV1 doses given under 1 year of age. Any doses given to children above 1 year of age does not need to be included.

Monitoring and evaluation of catch-up vaccination activities

All doses administered should be monitored through vaccine coverage for a specific antigens. Data from the catch-up reporting template can also be monitored regularly. Presumably, over time as the need for catch-up reduces, overall timeliness and coverage will improve. It is very important to emphasize the importance of recording all doses administered and the dates they are given.

Monitoring and Evaluation indicators:

- The indicators set for routine immunization apply to catch-up vaccination for example immunization coverage and dropout rate.
- For coverage calculation, the numerator will be the number of children vaccinated under one for the period in a given specific year and the denominator will be surviving infant.

Programme managers and supervisors at national, regional, zonal and woreda levels including immunization partners should give priority to monitoring and following vaccination performance. The immunization supervision checklist should be revised addressing the advice on country routine catch-up vaccination schedules. Process indicators such as sessions planned and conducted (particularly for outreach) should also be reviewed and discussed during supervision visits. Based on the supervision checklist the performance should be assessed periodically to provide feedback to health facilities and Woredas to minimize Zero dose and under vaccinated children in areas affected with conflict, IDP and marginalized, urban slum, hard to reach and remote rural communities. Furthermore, assessment surveys and operational researches are recommended to look at the timeliness of vaccination.

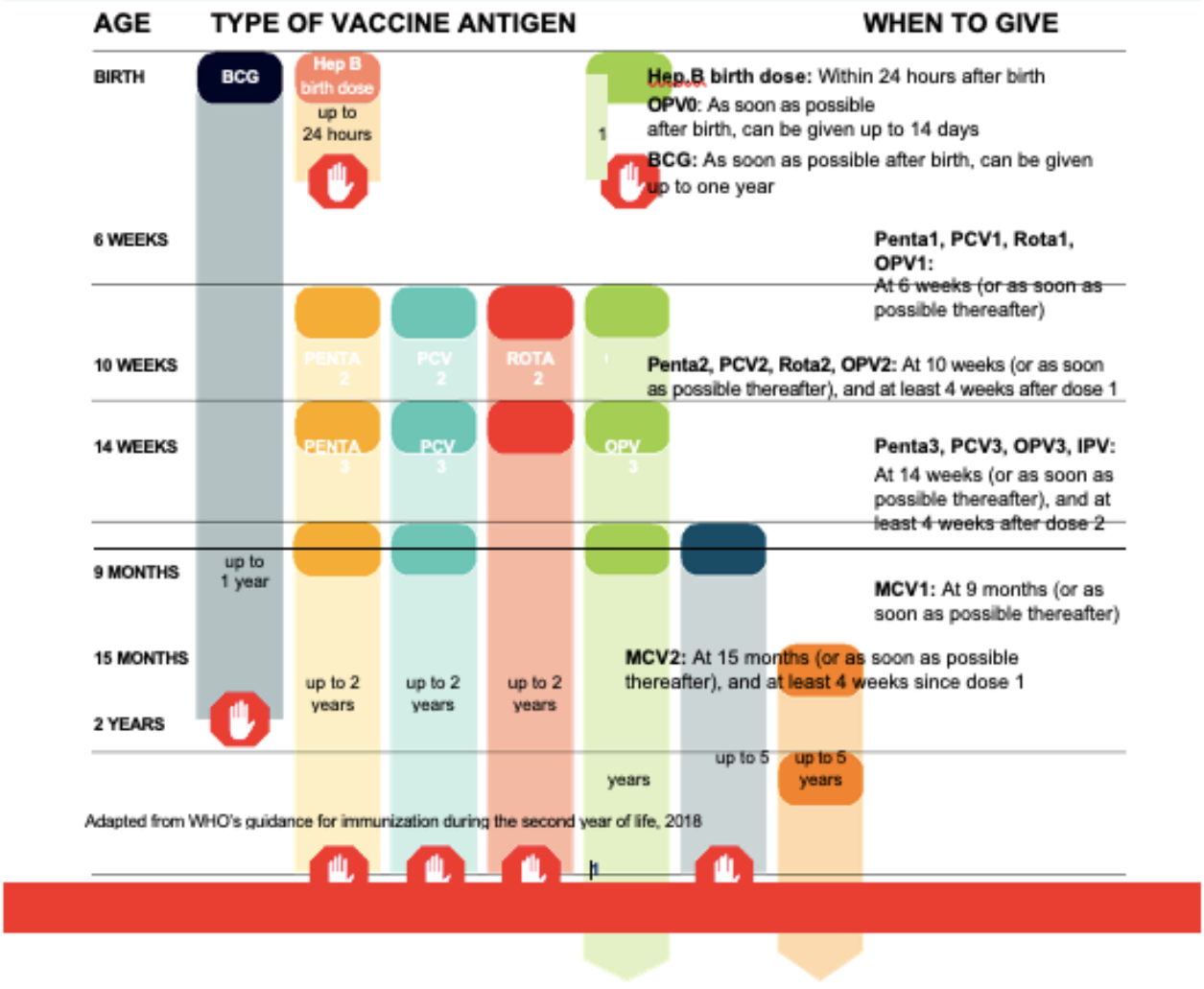
Annex 1 - Job Aid

JOB AID FOR CHILDHOOD CATCH-UP VACCINATION

Leave no one behind! All children should be fully protected from diseases through vaccination.

Key points to remember:

- **At every health contact, review individual child vaccination history** to determine whether any vaccine dose is missing or due – if a child is "late" for vaccination, take steps to catch them up!
- **For most vaccines, it is better to vaccinate late than never.** Check the chart below for upper age limits for vaccines.
- **It is safe to give multiple vaccine injections at the same time** – this protects a child as soon as possible, reduces return visits, and minimizes defaulting.
- Respect **minimum age of eligibility and minimum intervals permissible between doses**
- **Record all doses given**, regardless of whether they are "on time" or "late" – on the **tally sheet, be sure to tally the doses in the correct column for the age of the child** (either under 1 year of age, or 1 year and older)
- Communicate with caregivers on **key messages for vaccination, including when to return**



JOB AID FOR CHILDHOOD CATCH-UP VACCINATION

1. At every health contact, review individual child vaccination history to determine whether any vaccine dose is missing or due. If there is no evidence or confirmation of vaccination history, assume the person has not been vaccinated. Do not blame the caregiver or individual if any doses are missing.

2. For most vaccines, it is better to vaccinate late than never. Refer to the national catch-up vaccination policy and catch-up schedule for any exceptions to this general principle.
3. If more than one vaccine is due, provide one dose of each vaccine due at that visit. Do not unnecessarily defer giving vaccines that are due or overdue. E.g if a child at 9 months for MCV1 arrived, but not yet received OPV3, Penta3, and IPV the child is eligible for all four of these vaccines at this 9 months visit.

4. It is safe to give multiple vaccine injections at the same time this protects a child as soon as possible, reduces return visits, and minimizes defaulting.

5. Always respect the minimum age of eligibility for each vaccine in the schedule.

6. Always respect minimum intervals permissible between doses. For most vaccines, the minimum interval between doses is 4 weeks in the primary series is 4 weeks b/n doses. For HPV, the minimum interval is 5 months.

7. If vaccination history shows only some doses in the vaccine series were given, the series, regardless of the time that has passed between doses. Continue with next dose.

8. Record the administered vaccine dose according to actual dose number in the series received.

9. Schedule subsequent immunization visits following the appropriate minimum interval, and communicate this schedule with the caregiver or individual so they know when to return.
10. Remember to listen carefully to any questions from the caregiver or individual and respond to all their concerns and questions.

Once the individual is back on track, revert to using the national immunization schedule until they are fully vaccinated.

Immunization Talley Sheet

Woreda: _____ Family: _____

Year: _____ Month: _____

Type of Session Static Outreach Mobile

S.N	ANTIGEN			One year and older		Total
		tally	Count	Tally	Count	
	A	B	C	F	G	J(C+G)
1	BCG					
2	Pentavalent 1					
3	Pentavalent 2					
4	Pentavalent 3					
5	OPV 1					
6	OPV 2					
7	OPV 3					
8	IPV					
9	PCV 1					
10	PCV 2					
11	PCV 3					
12	Rota 1					
13	Rota 2					
14	Measles 1					
	(MCV1)					
15	Measles 2					
	(MCV2)					
16	Fully Immunized					
	before 1 year					

Ministry of Health

Catch up vaccination implementation reporting format

Region: _____ Zone: _____ Woreda: _____

Reporting period (date /month/ year) : _____

S.No	Name of health facility			Number vaccinated above 1 years age											
		OPV1	OPV2	OPV3	Pent1	Pent 2	Pent 3	PCV1	PCV2	PCV3	IPV	Rota 1	Rota 2	MCV1	MCV2	PAB

Total name of EPI focal preparing the report:

Name of supervisor approved:

Ministry of Health

Catch up vaccination implementation reporting format

Region: _____

Reporting period (date /month/ year) : _____

S.No	Name of health facility			Number vaccinated above 1 years age											
		OPV1	OPV2	OPV3	Pent1	Pent 2	Pent 3	PCV1	PCV2	PCV3	IPV	Rota 1	Rota 2	MCV1	MCV2	PAB

Total name of EPI focal preparing the report:

Name of supervisor approved:

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MINISTRY OF HEALTH - ETHIOPIA
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HEALTHIER CITIZENS FOR PROSPEROUS NATIONS

ROUTINE IMMUNIZATION CATCH-UP VACCINATION GUIDELINE

JANUARY, 2022
ADDIS ABABA, ETHIOPIA