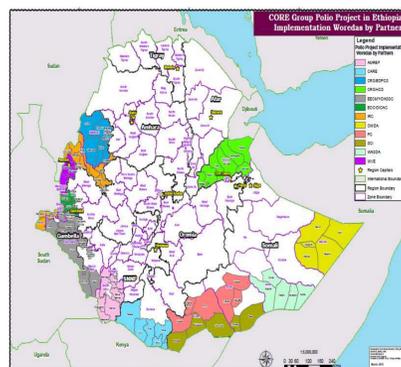


## Evaluate child vaccination timing and interval between doses in hard to reach, pastoral and semi-pastoralist areas in Ethiopia: Evidence from CORE Group Polio Project implementation areas

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### BACKGROUND:

- Immunization is one of the most powerful and cost-effective public health interventions to prevent debilitating illness and disability and saves two to three millions of lives every year,
- Most vaccines in the immunization schedule require two or more doses to trigger adequate immune response; appropriate timing, keeping interval between vaccine doses and completion of all vaccine doses are important to attain optimal protection,
- Funded by USAID, the CORE Group Polio Project (CGPP) is being implemented in underserved, hard to reach, pastoralist & semi-pastoralist communities along the international border of Ethiopia,
- One of its priorities is to improve routine immunization coverage and quality in its operational areas.



### STUDY OBJECTIVE:

To evaluate timeliness of vaccines given, assess interval between vaccine doses identify associated maternal factors among children 12 to 23 months of age.

### METHODS:

A cross-sectional descriptive study that employed a 30 by 10 modified WHO EPI cluster sampling survey was used. Considering pastoral and semi-pastoral areas, a total of 60 clusters with sample of 600 children age 12-23 months of age and mothers or caretakers were included from 51 Woredas/districts and 14 zones. Data was collected using Smart phones loaded with Open Data Kit (ODK) system and exported to STATA 12.0 for data description and analysis.

### RESULTS:

- From the planned sample of 600 children 12-23 month of age, complete response was obtained from 577 (96.2%) respondents, 2 (0.3%) refused, and 5 (0.8%) excluded due to incomplete data and the remaining 16 (2.7%) were not at home during the survey period,
- Nearly fifty five percent (54.8%) were from pastoralist areas. About 51% of the respondents were Muslim and 68% were illiterate,
- More than one-fifth (21.9%) of children have received at least one vaccine dose earlier than the recommended minimum age. The proportion of children who had received early vaccine doses ranged from 32.9% measles vaccine before 9 months to 23.8% for first dose of Rota virus vaccine before 6 weeks,
- Nearly half (47.7%) of children received at least one subsequent dose earlier than 4 weeks interval. Early administration of the second doses of OPV (11.9%), Pentavalent (11.6%) and PCV (11.5%) were higher compared to the third doses of OPV (7.3%), Pentavalent (7.5%) and PCV (8.5%),
- Almost *sixty percent* (58.7%) of children received at least one timely invalid dose,

### RESULTS ...

**Table: timely invalid vaccination doses by mothers/caretakers characteristics and child sex in CGPP implementation areas, July 2015.**

| Caretakers/Child Characteristics | No.        | At least one timely invalid dose |             | P-value | At least one early first dose |             | P-value | At least one early interval |             | P-Value |
|----------------------------------|------------|----------------------------------|-------------|---------|-------------------------------|-------------|---------|-----------------------------|-------------|---------|
|                                  |            | No.                              | %           |         | No.                           | %           |         | No.                         | %           |         |
|                                  |            |                                  |             |         |                               |             |         |                             |             |         |
| <b>Residence</b>                 |            |                                  |             |         |                               |             |         |                             |             |         |
| Semi-pastoralist                 | 230        | 140                              | 60.9        | 0.275   | 54                            | 23.5        | 0.342   | 115                         | 50          | 0.268   |
| Pastoralist                      | 145        | 80                               | 55.2        |         | 28                            | 19.3        |         | 64                          | 44.1        |         |
| <b>Educational Status</b>        |            |                                  |             |         |                               |             |         |                             |             |         |
| At least primary level           | 149        | 88                               | 59.1        | 0.900   | 33                            | 22.1        | 0.915   | 75                          | 50.3        | 0.413   |
| No education                     | 226        | 132                              | 58.4        |         | 49                            | 21.7        |         | 104                         | 46          |         |
| <b>Religion</b>                  |            |                                  |             |         |                               |             |         |                             |             |         |
| Islam                            | 150        | 87                               | 58          | 0.729   | 28                            | 18.7        | 0.145   | 72                          | 48          | 0.928   |
| Any Christian                    | 200        | 120                              | 60          |         | 51                            | 25.5        |         | 96                          | 48          |         |
| Others                           | 25         | 13                               | 52          |         | 3                             | 12          |         | 11                          | 44          |         |
| <b>Age group</b>                 |            |                                  |             |         |                               |             |         |                             |             |         |
| 30+                              | 110        | 60                               | 54.5        | 0.296   | 23                            | 20.9        | 0.773   | 48                          | 43.6        | 0.306   |
| < 30                             | 265        | 160                              | 60.4        |         | 59                            | 22.3        |         | 131                         | 49.4        |         |
| <b>Occupation</b>                |            |                                  |             |         |                               |             |         |                             |             |         |
| Housewife                        | 238        | 144                              | 60.5        | 0.341   | 61                            | 25.6        | 0.020   | 111                         | 46.6        | 0.576   |
| Not housewife                    | 137        | 76                               | 55.5        |         | 21                            | 15.3        |         | 68                          | 49.6        |         |
| <b>Sex of the child</b>          |            |                                  |             |         |                               |             |         |                             |             |         |
| Male                             | 176        | 106                              | 60.2        | 0.564   | 38                            | 21.6        | 0.903   | 86                          | 48.9        | 0.680   |
| Female                           | 199        | 114                              | 57.3        |         | 44                            | 22.1        |         | 93                          | 46.7        |         |
| <b>Total</b>                     | <b>375</b> | <b>220</b>                       | <b>58.7</b> |         | <b>82</b>                     | <b>21.9</b> |         | <b>179</b>                  | <b>47.7</b> |         |

### CONCLUSION AND RECOMMENDATIONS:

- Children who received vaccination earlier than the recommended age (later for OPV 0) and before minimum interval of four weeks were found to be higher,
- Maternal characteristics (such as residence, religion, education, occupation, age and sex of child) have no significant association with vaccination timing and interval between doses,
  - Strong interpersonal communication between mothers and vaccinators should be in place to improve timely vaccine doses,
  - Health workers need to practice proper age screening for timely vaccine commencement and keeping interval between consecutive doses.