



Equity and immunization supply chain in Madagascar[☆]



Maya M.V.X. van den Ent^{a,*}, Andre Yameogo^b, Eric Ribaira^c, Celina M. Hanson^a, Ramiandrasoa Ratoto^d, Saholy Rasolomanana^b, Chrysanthus Foncha^b, François Gasse^a

^a United Nations Children's Fund (UNICEF), NY, NY, USA

^b UNICEF Madagascar, Madagascar

^c UNICEF East and Southern Africa Region, Kenya

^d Madagascar Ministry of Health, Madagascar

ARTICLE INFO

Keywords:

Cold chain
Supply chain
Equity
Coverage
Immunization
Vaccination
Reaching Every District

ABSTRACT

Vaccination rates have improved in many countries, yet immunization inequities persist within countries and the poorest communities often bear the largest burden of vaccine preventable disease. Madagascar has one of the world's largest equity gaps in immunization rates. Barriers to immunization include immunization supply chain, human resources, and service delivery to reflect the health system building blocks, which affect poor rural communities more than affluent communities. The Reaching Every District (RED) approach was revised to address barriers and bottlenecks. This approach focuses on the provision of regular services, including making cold chain functional. This report describes Madagascar's inequities in immunization, its programmatic causes and the country's plans to address barriers to immunization in the poorest regions in the country.

Methods: Two cross-sectional health facility surveys conducted in November and December 2013 and in March 2015 were performed in four regions of Madagascar to quantify immunization system barriers.

Findings: Of the four regions studied, 26–33% of the population live beyond 5 km (km) of a health center. By 2015, acceptable (fridges stopped working for less than 6 days) cold chains were found in 52–80% of health facilities. Only 10–57% of health centers had at least two qualified health workers. Between 65% and 95% of planned fixed vaccination sessions were conducted and 50–88% of planned outreach sessions were conducted. The proportion of planned outreach sessions that were conducted increased between the two surveys.

Conclusion: Madagascar's immunization program faces serious challenges and those affected most are the poorest populations. Major inequities in immunization were found at the subnational level and were mainly geographic in nature. Approaches to improve immunization systems need to be equitable. This may include the replacement of supply chain equipment with those powered by sustainable energy sources, monitoring its functionality at health facility level and vaccination services in all communities.

© 2017 The Author(s). Published by Elsevier Ltd. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

1. Introduction

All children have the right to health, regardless of gender, race, religious beliefs, income, physical attributes, geographical location, or other status, as stated in the Convention on the Rights of the Child [1]. Striving for equity requires all to have the same opportunity to resources and services. This makes equity distinct from equality, as equality aims at providing the same resources to everyone.

Inequities in immunization can be related to poverty, mother's education, gender and residence [2,3]. Furthermore, data from

Demographic and Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS) show that in nine out of ten countries with the largest disparities between immunization coverage among the poorest and richest quintiles there also exist geographic disparities in immunizations (i.e. between regions, provinces or states) [2].

The Global Vaccine Action Plan (GVAP 2011–2020) aims at ensuring the equitable extension of immunization benefits to all children [4]. Recently, world leaders committed to universal health coverage in the third Sustainable Development Goal (SDG 3), which includes the extension of immunization to all prioritizing underserved communities. Furthermore, investing in reaching these communities through an equitable approach, ensuring reaching the last mile through supply chains, is cost-effective and beneficial to all [5].

[☆] Open Access provided for this article by PATH.

* Corresponding author.

E-mail address: mvandenent@unicef.org (M.M.V.X. van den Ent).

1.1. Immunization in Madagascar

Madagascar is a country in sub-Saharan Africa with a population near 25 million and an annual birth cohort of approximately 800,000 infants [6]. In 2015, the Madagascar Directorate of the Expanded Program of Immunization (EPI) reached 69% of infants with three doses of DTP-containing vaccines, which was an increase from 57% in 2000 [7].

The status of Madagascar’s immunization program reflects the challenging environment of the country. The vaccination program reached 85% of infants before the coup d’état in 2006 [7]. The political crisis worsened due to an international boycott and the consequent lack of donor funding reduced the available budget by 65%. This has worsened the situation for the poorest communities in Madagascar [8,9].

Immunization inequities are vast in Madagascar and immunization coverage gaps occur across regions (Fig. 1). A child living in a family from the wealthiest quintile is 1.5 times more likely to be vaccinated than a child living in a family from the poorest quintile. Children living in the Itasy region, a more affluent region, are 3.4 times more likely to be vaccinated than children living in the Menabe region, a poorer region characterized by remote areas with difficult access to care. A child with an educated mother is 1.7 times more likely to be vaccinated than a child whose mother is not formally educated [10]. The World Bank estimates that 70% of the population is poor and 59% is extremely poor. The majority (86–88%) of these communities reside in rural areas [8] and half (50%) of people live beyond 5 km (km) from a health facility, with some villages located 100 km from the nearest health facility [11]. Long distances to health facilities have been shown to be a risk factor for under-immunization [12,13].

Immunization in Madagascar is further challenged by infrastructure and health system constraints. Poor roads leave many to access health facilities only by foot. In addition, 32% of caregivers of children under 5 years old stated difficulties in paying for transportation to health centers [8]. In 2014–2015 12 cases of Vaccine Derived Polio Virus (VDPV) were reported in seven regions of the country confirming weak routine immunization coverage [14]. In this context, Madagascar’s vaccination program conducts immunization as a routine service at fixed and outreach sites, complemented by twice yearly Mother and Child Health Weeks.

The present paper describes findings of health facility surveys between 2013 and 2015 in four regions in Madagascar, and the strategy that Madagascar has developed to improve immunization

performance. Madagascar’s approach identifies the importance of collecting and analyzing data on the pathway to raising immunization coverage from health facilities and lessons in immunization and equity that may be applicable to other countries.

2. Methods

Two cross-sectional health facility surveys were conducted in 2013 and 2015 respectively, to determine the extent of health system barriers to immunization in Madagascar. The surveys collected data on supply side indicators and included planning, cold chain, stocks, staffing, accessibility and reporting tools.

The first survey was conducted in the months of November and December of 2013, reflecting the program reality of September 2013. It included all health facilities routinely providing vaccinations (n = 400) from four regions; Anosy, Atsimo-Andrefana, Androy, and Itasy, in addition to four additional regions that are out of the scope of this paper. The data collected in this survey was considered baseline.

Data for the second survey was collected in March 2015 and reflected program realities at two points in time: December 2014 and February 2015. It included health facilities (n = 305) routinely providing immunizations in the same four regions as the first survey. Due to operational constraints (inaccessibility due to conflict and rain), the 2015 survey was not conducted in health facilities in five of the nine districts in the Atsimo Andrefana region.

Regions were selected based on wealth of the population. The four regions are Androy, Anosy, Atsimo Andrefana and Itasy. Itasy is the best performing region and is less poor with only 19% of its population in two of Madagascar’s poorest wealth quintiles [15]. Androy, Anosy and Atsimo Andrefana have 83%, 68% and 69% of populations in the two poorest wealth quintiles [15] respectively, and they are southern regions with large numbers of under-immunized.

A questionnaire was developed to collect quantitative data in the first survey. This questionnaire was amended for the second survey to assess the two time periods and the recommendations implemented in the second half of 2014. Questionnaires were addressed to chiefs of health centers.

For the two surveys, data was collected by a team comprised of members from the Vaccination Service department in Madagascar’s Ministry of Health (MOH) and UNICEF after a two-day training session. Comparison of data between the two surveys was

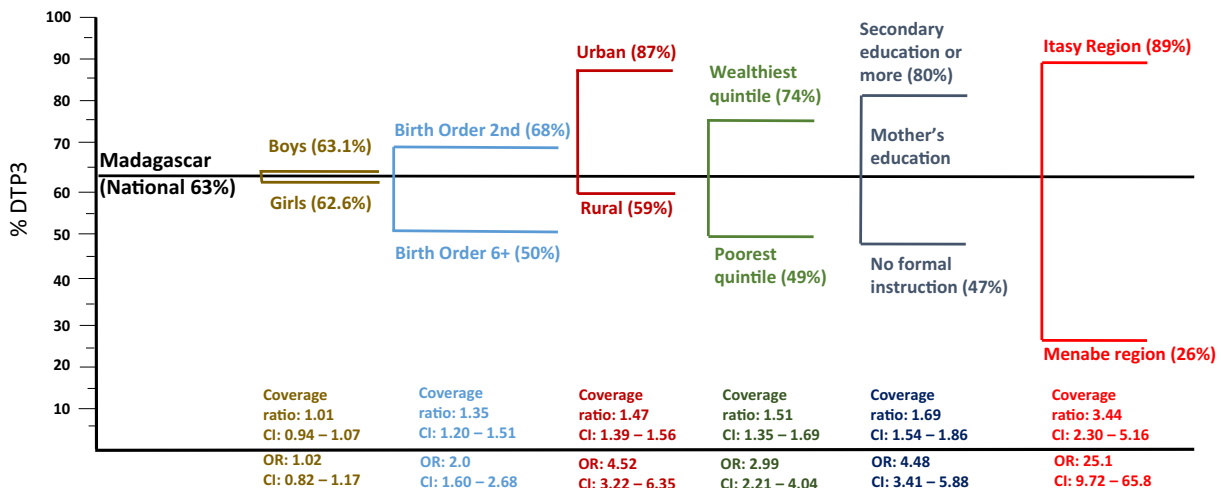


Fig. 1. Immunization inequities by population characteristics in Madagascar (DTP3 = Diphtheria Tetanus Pertussis 3rd Dose; CI = 95% confidence interval; OR = odds ratio) [7].

Download English Version:

<https://daneshyari.com/en/article/5537514>

Download Persian Version:

<https://daneshyari.com/article/5537514>

[Daneshyari.com](https://daneshyari.com)