Analysis of the Kisii Konya Oroiboro Project's (KIKOP's) Impact on Infant Mortality

MATONGO 2017-2023

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This report has been made possible through the collaborative efforts of the KIKOP community, government entities, and international partners. We express our gratitude for the valuable contributions of each partner, whose perspectives and dedication have been instrumental in the development of this report. KIKOP operates within community and government networks to drive, mobilize, and facilitate initiatives aimed at enhancing maternal and child health.

The remarkable improvements highlighted in this report are the result of collective efforts involving various stakeholders. Together, our combined efforts have yielded significant improvements for families in Kitutu Chache South, particularly benefiting young children. The success outlined in this report is a testament to the collaborative spirit and shared commitment of all involved parties. We eagerly anticipate fostering continued strong relationships that will enable us to further advance maternal and child health outcomes in the years ahead.

Abbreviation and Acronyms Guide

- CHV: Community Health Volunteer
- Curamericas: Curamericas
- KCDOH: Kisii County Department of Health
- KIKOP: Kisii Konya Oroiboro Project
- KTB: KoboToolBox
- RHV: Routine Home Visitation

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Executive Summary

Introduction

In Kenya, pregnant women and young children face a myriad of health challenges, including malaria, diarrheal diseases, and birth-related complications. These challenges are exacerbated by limited access to essential resources and healthcare facilities. The Kisii Konya Oriobora Project (KIKOP) operates in the Kitutu Chache South sub-county of Kisii County, Kenya, with a mission to improve maternal and child health outcomes. Launched in 2017, KIKOP is a collaborative effort between Curamericas Global and the Kisii County Department of Health (KCDOH), focusing on maternal and child health education and community outreach initiatives.

Methods

The study, focused on the Matongo catchment, employed a vital events census from 2017 to 2023 to track pregnancies, births, deaths, and migrations. Data collection was conducted by community health volunteers using digital platforms, with a comprehensive questionnaire covering vital events. Mortality rates, causes of death, and delays in seeking care were among the key metrics analyzed.

Results

The project has demonstrated significant reductions in early neonatal mortality, neonatal mortality, post-neonatal mortality, and overall infant mortality rates in the Matongo catchment, reaching zero incidence in 2023. Leading causes of infant mortality include birth asphyxia, pneumonia, anemia, and malaria. Delays in seeking healthcare are attributed to transportation limitations, healthcare facility inadequacies, and individual-level factors like lack of awareness and cultural beliefs.

Discussion

KIKOP's success in reducing mortality rates is attributed to Care Groups and Routine Home Visits, which have empowered mothers with essential knowledge and fostered community support. The study identified various causes of death and delays in accessing healthcare, emphasizing the need for comprehensive interventions. Individual-level factors such as lack of awareness and cultural beliefs, transportation-related challenges, and healthcare facility deficiencies were significant barriers to accessing care.

Conclusion

KIKOP has significantly reduced infant mortality rates in the Matongo catchment through community-driven health education. Challenges include interpretation biases in survey administration, accuracy of data on causes of death, and healthcare infrastructure deficiencies. Recommendations for future interventions include enhancing survey methodologies, improving data accuracy through timely verbal autopsies, and investing in healthcare infrastructure and staff training. By addressing these challenges and improving health-seeking behaviors, KIKOP can further enhance infant health outcomes in Kisii County, Kenya.

Introduction

Pregnant women and young children in Kenya grapple with a complex array of health challenges including malaria, diarrheal disease, and various birth-related complications. These health concerns operate in conjunction with the realities of limited access to clean water, electricity, educational resources, and inadequately maintained healthcare facilities. The Kisii Konya Orioboro Project (KIKOP) provides community-based health programming in the Kitutu Chache South and Kitutu Chache North sub-counties of Kisii County. KIKOP undertakes the mission of delivering maternal and child health education and community outreach initiatives. At its core, KIKOP seeks to effect a transformation in infant, child, and maternal health by mitigating mortality rates through a multifaceted approach grounded in community-based health education that empowers mothers with knowledge across various crucial domains such as child nutrition, disease recognition, and care seeking behaviors, and access to 24/7 maternal-child health services.

The KIKOP initiative, launched in 2018 as a collaborative effort between Curamericas Global and the Kisii County Department of Health (KCDOH). KIKOP started in the Matongo catchment in Kitutu Chache South, which contained 10,405 people, 2,604 women of reproductive age (WRA), 435 children under age 2 (U2) and 2,842 adolescents. KIKOP used a phased approach to expand to 3 areas in the region by fall 2020, to reach a total population of 35,960.

KIKOP employs a spectrum of intervention strategies, with Care Groups, Routine Home Visits, and Community Mobilization taking center stage. Care Groups represent a dynamic methodology that harnesses mother-to-mother education facilitated by care group volunteers. These dedicated volunteers play a pivotal role in disseminating knowledge and extending support, with each Care Group leader assuming the responsibility of guiding and supporting 10-15 pregnant or new mothers[1]. The overarching objective of these care groups is twofold: to foster quantifiable change within the community and to propagate it, creating a ripple effect of knowledge and support that extends across households. Routine Home Visits constitute another pivotal pillar of KIKOP's approach. Visits are conducted by Community Health Volunteers (CHVs), who provide tailored health education at the household level for expecting mothers and mothers of U2. Community mobilization occurs through engagement of village health committees (VHCs), which consist of the CHV, clan elder, and traditional birth attendant. Regular meetings for VHCs are provided throughout the year to provide project updates, education on key health messages, and discuss barriers and solutions to program implementation.

To track the efficacy of its initiatives, KIKOP employs a vital events census, a comprehensive tool that records pregnancies, births, deaths, and migrations. This data is utilized to derive various critical metrics and rates, which guide KIKOP in refining and enhancing its care group curriculum. The objective of this analysis is to determine the impact of KIKOP's actions, specifically if the Matongo Catchment serviced by the Kisii Konya Oroiboro Project (KIKOP) has shown a reduction in infant mortality as a result of community driven health education.

1. Methods

1.1 Study Design

KIKOP presently operates in three distinct catchments in Kisii, Kenya. These catchments are named Matongo, Iranda, and Nyagoto. The Matongo catchment was the initial focal point of the study in 2017-2018 and is the catchment of focus in this analysis. A baseline vital events census was conducted in July of 2018, capturing vital events within the past 12 months prior to project implementation (July 1, 2017- June 30, 2018). From that point forward, vital events were measured in the following intervals: January 2019-December 2019, January 2020-Decemeber 2020, January 2021-December 2021, and January 2023-December 2023. It should be noted that all data was collected in the subsequent year in a retrospective manner. For example, data collected in January 2024 pertained to the events that occurred January 2023-December 2023. It should be noted that there was incomplete data collection for the year 2022 as vital events monitoring switched to the calendar year, so this year is disregarded in our analysis.

1.2 Census Administration and Data Collection

Data was collected by enumerators with the assistance of Community health volunteers (CHVs) and/or clan elders. The vital events census was collected using a paper form in 2018, then switched to digital collection using KoboToolBox in 2019. The data collection tool changed again in 2024, with data collected through the Meaningful platform. The original questionnaire was a census, noting all household members, their occupation, ages, and pregnancy status in order to provide complete demographic data, mortalities in the previous year and gathered information on indicators related to WASH infrastructure, vehicles/transportation available, presence of long-lasting insecticide treated bed nets (LLITNs), HIV testing and counseling during pregnancy, health facility delivery of U2[2]. The updated vital events census for 2023 focused exclusively on questions related to births, deaths, and participation in KIKOP Care Group and routine home visit (RHV) programming. CHVs collect data using Amazon Fire tablets, guiding respondents through the survey, question by question, at each household. Interviews typically conducted with the household head or mother and took about 30 minutes.

Once the information is gathered, it is categorized into three primary groups: stillbirths, deaths in children under age 5, and maternal deaths. For the purposes of this analysis, our focus centers on deaths among children under the age of one (infant mortality). This category is further subdivided into early neonatal deaths, neonatal deaths, and post-neonatal deaths. This detailed categorization allows for an in-depth examination of infant mortality in this population.

Each child's death is associated with key identifiers, including the child's name, the mother's name, the household ID, village, and catchment. This data serves to maintain records in an organized manner and monitor variations in outcomes across different villages. In addition to age at death and identifiers, the information includes data on the perceived cause of death, location

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[2] Lindsay Woodstock, *Evaluation Report KIKOP: Matongo Catchment* . Kisii, Kenya, 2019.https://www.kikop.org/_files/ugd/95344c_5169fa50a7d34981abf3c287d06fef64.pdf

of death, and treatment received. After the data collection, a verbal autopsy is completed for deaths in children under age 5 and in women of reproductive age (15-49) to ascertain the actual primary cause of death, which often differs from the perceived cause of death. As part of KIKOP's analytical process, a live birth register is also generated. The live birth register documents all live births in the area during the timeframe. This excludes miscarriages and stillbirths, which are captured as such in the mortality register. From 2017-2022 the live birth and mortality register was synthesized from multiple disparate paper and Excel data sources, the VE census and the data from RHV, and Care Groups. In 2023, the VE Census became the primary source of both births and deaths.

1.3 Data Analysis

The collected data is utilized in a variety of formats, with the primary goal being the development of yearly incidence rates of child mortality, with a focus on infant mortality, which encompass early neonatal mortality, neonatal mortality and post-neonatal mortality. Early neonatal mortality is defined by death that occurs within the first 7 days of life. Neonatal mortality encompasses all death within the first 28 days of life. Post-neonatal mortality refers to deaths that occur between 29 days to 365 days of birth. It should be noted that a child's death may fall under multiple categories. For instance, a neonatal death is categorized as neonatal and infant death.

The calculation of these incidence rates involves dividing the number of confirmed cases (deaths) for a given year by the total number of live births. Incidence rates are computed for each mortality category, differentiated by year. We also analyzed causes of death, breaking down each cause of death by count to see which were the most common, and how these trends changed over time. In addition to causes of death, we looked at types of delays. Delays refer to the reasons or barriers individuals delayed seeking or receiving quality care for infants. There were four main types of delays in our study.

> Delay 1: Individual level factors include failure to recognize danger signs, ignorance of available services, cultural/religious objections, literacy, poverty, and high cost of treatment.
> Delay 2: Individual level factors and includes ignorance of available services, cultural beliefs/myths, religious objections, fear of stigma and discrimination, poverty, high cost of treatment, and illiteracy.
> Delay 3: Transportation, including lack of transportation to the health care facility, lack of transportation between different healthcare facilities, lack of communication, long distance, and poor roads.
> Delay 4: Care at healthcare facilities and includes lack of adequate resuscitation equipment, lack of proper infrastructure, lack of proper infection prevention and control, inadequate provider skills, lack of blood products for transfusion, lack of emergency or essential drugs, and staff shortages.

It should be noted that delays are not mutually exclusive, and the death of a child can be attributed to multiple delays. Delays were looked at holistically, over the course of the entire

ongoing study period focusing on the distribution of each delay type relative to the total amount of reported delays. The primary data analysis was carried out using Microsoft Excel.

1.4 Ethical Considerations

Participants in the study were provided with comprehensive information regarding the study's objectives, potential advantages, and risks. Their involvement commenced only upon granting consent in the interview and before the verbal autopsy. Data management procedures were established to safeguard participant privacy, encompassing secure organization, transportation, analysis, and storage. Access to collected information was restricted solely to program management and the data analysis team. Additionally, the team collectively ensured the confidentiality of data and questionnaires.

2. Results

2.1 Mortality Rates

Table 1 and Figure 1 present the mortality rates for different age categories over time. Table 1 breaks down the incidence of each category of infant mortality by number of deaths per 1,000 live births. It also includes the number of live births recorded each year in the Matongo catchment. This number of live births is what was utilized to calculate the rates seen below. Figure 1 displays mortality counts by year and category. This is the total number of deaths attributed to each mortality category in Matongo for the given year.

Table 1: Mortality Rates in Matongo Catchment by Category and Year

Mortality Categories	2017-2018	2019	2020	2021	2023
N (Number of Live Births)	n=264	n=249	n=198	n=144	n=128
Early Neonatal Mortality	56.81	20.08	10.10	20.83	0.00
Neonatal Mortality	68.18	24.10	10.10	20.83	0.00
Post-Neonatal Mortality	26.51	4.01	5.05	0.00	0.00
Infant Mortality	94.70	28.11	15.15	20.83	0.00

* All rates are reported in number of deaths per 1,000 live births

Figure 1: Matongo U5 Mortality Counts by Year and Category
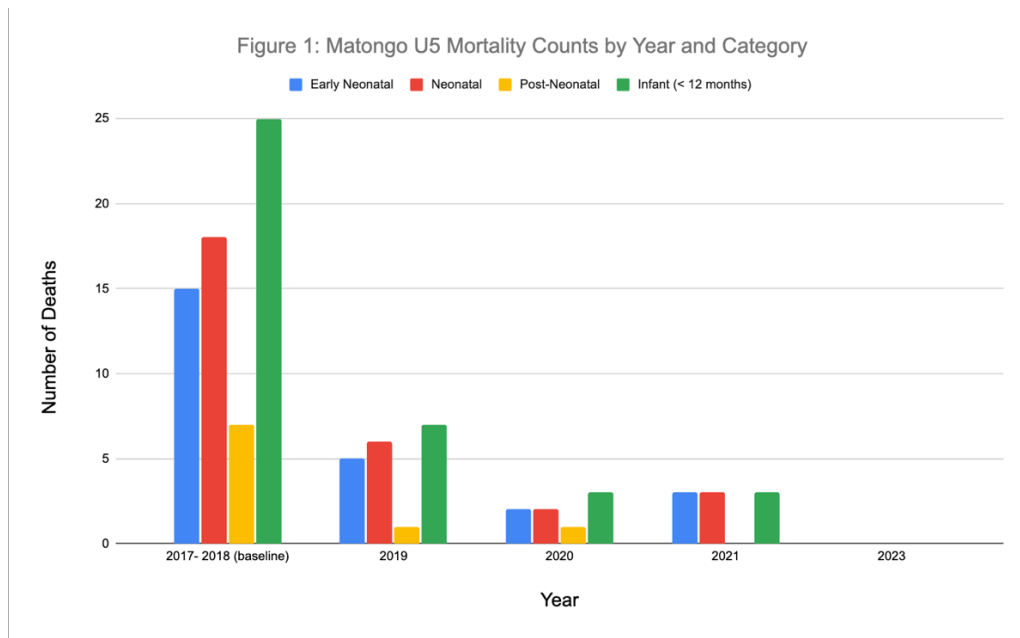
Within the Matongo catchment, data on deaths among children under the age (U1) of one was collected over the span of six years, from 2017 to 2023, with the exception of 2022, where only partial information was available due to adjusting data collection timeframes to the calendar year. In 2017-2018, there were 15 early neonatal deaths with a mortality rate of 56.81 deaths per 1,000 live births. In the following years, the incidence of early neonatal mortality exhibited a downward trend, lowering to 5, 2, 3, and 0 in 2019, 2020, 2021 and 2023, respectively, with rates fluctuating between 10 and 21 deaths per 1,000 live births during the years 2019 to 2021, ultimately reaching zero incidence of early neonatal mortality in 2023.

In 2017-2018, there were 18 neonatal deaths, with a mortality rate of 68.18 deaths per 1,000 live births. Subsequently, the incidence of neonatal mortality exhibited a downward trend, lowering to 5, 2, 3, and 0 in 2019, 2020, 2021 and 2023, respectively, with rates fluctuating between 10 and 25 deaths per 1,000 live births during the years 2019 to 2021, ultimately reaching zero in 2023.

In 2017-2018, there were 7 post-neonatal deaths, with a mortality rate of 26.51 deaths per 1,000 live births. This rate drastically decreased between baseline and 2019, lowering to 1, with a rate of 4.01 deaths per 1,000 live births. Looking forward, we had 1, 0 and 0 deaths in 2020, 2021 and 2023 respectively. We see a slight increase in the mortality rate in 2020 (5.05); however, the incidence rate ultimately drops to zero for 2021 and 2023.

In 2017-2018, there were 25 infant deaths, with a mortality rate of 94.70 deaths per 1,000 live births. The incidence of infant mortality demonstrated a steady decrease in the ensuing years, dropping to 7 deaths in 2019, 3 in 2020, 3 in 2021, and 0 in 2023. During that time, infant mortality rates fluctuated between 15 and 28 from 2019-2021, ultimately having a rate of 0 per 1,000 live births in 2023.

2.2 Causes of Death

Figure 2 displays causes of death by year. This shows how much an independent cause of death contributed to the total number of deaths for a given year. Number of deaths is the count of how many deaths were attributed to a specific cause.


Figure 2: Matongo Distribution of Causes of Death by Year
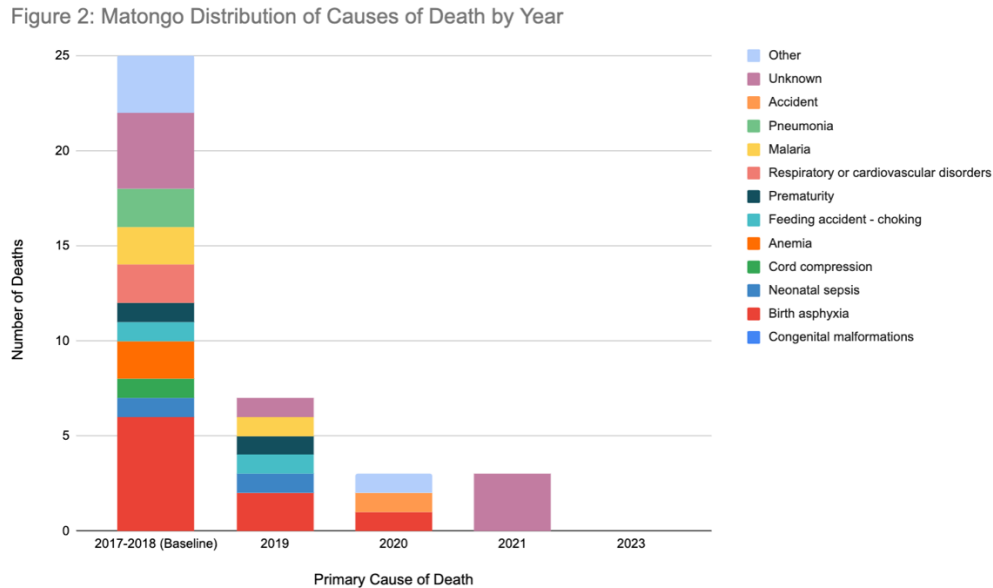
In the project's inception in 2017-2018, Matongo had 25 recorded deaths among children under the age of one. Birth asphyxia emerged as the predominant cause, accounting for 24% of these deaths. Other contributors to Infant mortality included unknown factors (16%), pneumonia (8%), anemia (8%), malaria (8%), respiratory or cardiovascular issues (8%), and other unlisted causes (12%). The remaining fatalities were linked to cord compression, feeding accidents or choking, prematurity, and neonatal sepsis—each contributing 4% to the overall under-one deaths.

Moving into 2019, Matongo recorded seven infant deaths, with birth asphyxia standing out as the primary cause at 29%. Contributing roughly 14% each, other causes encompassed neonatal sepsis, feeding accidents or choking, prematurity, malaria, and unknown factors. The year 2020 had three causes of death for infants. Birth asphyxia, accident, and other unlisted causes each accounted for 33% of deaths. In 2021, three deaths were reported, all attributed to unknown causes. There were zero reported deaths in infants in 2023.

2.3 Delays

Figure 3 displays the percentage of infant mortality by delay type across the entire study period. This is the percentage of total delays each type of delay individually is responsible for.

Figure 3: Percentage of U5 Mortality by Delay Type
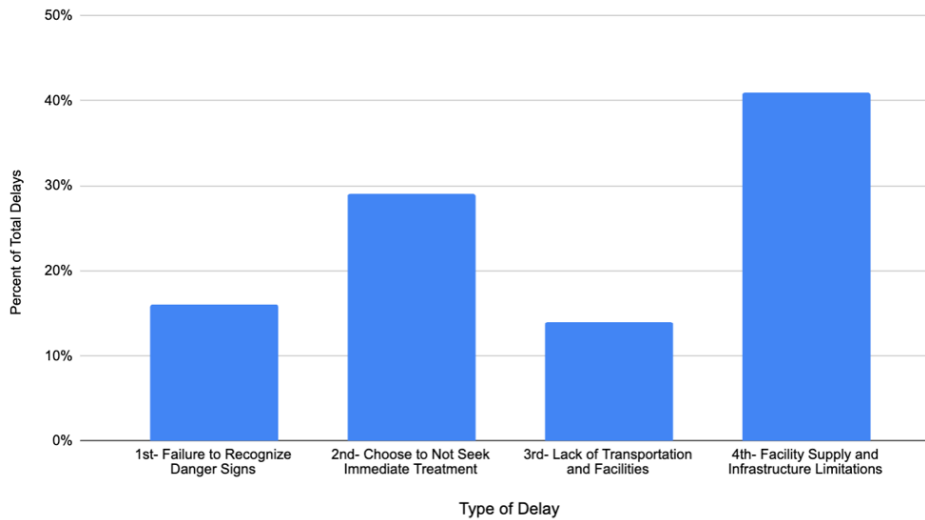
Type 1 delays, representative of the failure to recognize danger signs or the need for medical intervention, were linked to 8 deaths (16%) over the course of our study. Of all the type 1 delays, 38% occurred because danger signs weren't recognized, 25% were due to unawareness of available services, another 25% stemmed from illiteracy, and the final 12% resulted from cultural or religious objections.

Type 2 delays, associated with recognizing the need for medical intervention, but delaying treatment due to ignorance, cultural beliefs or poverty, were associated with 15 infant deaths (29%). The contributing factor that led to the most type 2 delays was ignorance of available services, responsible for 47% of type 2 delays. Cultural beliefs or myths accounted for 27% of type 2 delays, while 13% were attributed to poverty. The remaining 13% were evenly divided between illiteracy and the high cost of treatment.

Type 3 delays, associated with lack of transportation and facilities, were a factor in 7 deaths (14%). Of these type 3 delays, 29% were a result of a lack of available transportation to the healthcare facility, 14% were due to poor roads, and 14% were a result of a long distance between home and the facility. The remaining 43% of type 3 delays were attributed to other, non-specified factors.

Type 4 delays, which pertain to the infrastructure, training and supplies of medical facilities, were listed as the most common delaying factor, with 21 deaths (41%) associated with it. 48% of these type 4 delays were due to lack of emergency or essential drugs. Other contributing factors in this delay were inadequate provider skills (29%), staff shortage (14%), and lack of proper infrastructure (5%). The remaining 5% of type 4 delays were a result of other, non-specified factors.

3. Discussion:

3.1 Intervention Strategies and Positive Data Trends

The Kisii Konya Oriobora Project (KIKOP) has demonstrated significant success in reducing infant mortality rates within the Matongo catchment of Kisii County, Kenya. The multifaceted intervention strategies employed by KIKOP have contributed to positive data trends indicating declining mortality rates among children under the age of one.

Care Groups, facilitated by community health volunteers, have played a crucial role in empowering mothers with essential knowledge and support regarding child health and nutrition. These peer-to-peer education sessions have not only equipped mothers with the necessary skills to care for their children but have also fostered a supportive network within the community, amplifying the reach and impact of health education efforts. Routine Home Visits have further complemented Care Groups by providing personalized health education at the household level. By addressing specific health concerns and providing targeted support, Routine Home Visits have ensured that families receive tailored care, contributing to improved health outcomes for infants in this population. Community Mobilization efforts, including the establishment of Village Health Committees, have engendered a sense of ownership and accountability within the community. By actively involving community leaders and stakeholders in health promotion activities, KIKOP has fostered a supportive environment conducive to sustainable health outcomes.

The positive data trends observed, including reductions in early neonatal mortality, neonatal mortality, post-neonatal mortality, and infant mortality rates, underscore the effectiveness of KIKOP's intervention strategies. These promising outcomes affirm the transformative potential of community-driven health education and healthcare improvements in mitigating child mortality rates in resource-constrained settings.

3.2 Causes of Death and Delays

The findings from the study conducted in Matongo shed light on the complex interplay of factors contributing to child mortality and delays in accessing healthcare services. Understanding these factors is crucial for developing targeted interventions aimed at reducing child mortality rates and improving access to essential healthcare services. Birth asphyxia emerged as a significant contributor to mortality, particularly during the early years of the project. In 2017-2018, birth asphyxia accounted for a substantial proportion of deaths among infants, highlighting the need for interventions aimed at addressing this specific cause. However, it is noteworthy that over subsequent years, the number of deaths attributed to birth asphyxia decreased, indicating some progress in this area. There is a diverse range of causes of death that emphasizes the complexity of infant mortality and the need for comprehensive approaches to address multiple contributing factors simultaneously.

Delays in seeking care for children U1 were categorized into four types, each representing different barriers to accessing healthcare services. Individual-level factors, such as failure to recognize danger signs, ignorance of available services, cultural/religious objections, poverty, and

illiteracy, were identified as significant contributors to delays. These factors highlight the importance of health education and community outreach programs to increase awareness and knowledge about child health issues and available healthcare services. Transportation-related delays, including lack of transportation infrastructure and long distances to healthcare facilities, were also identified as significant barriers to accessing care. Improving transportation infrastructure and increasing the availability of transportation options for rural communities could help alleviate these barriers and improve access to healthcare services for infants and their families. Furthermore, delays related to healthcare facilities, such as lack of adequate equipment, infrastructure, and trained staff, were identified as common delaying factors. Strengthening healthcare systems and investing in essential medical supplies and training programs for healthcare providers are essential steps to address these infrastructure-related delays effectively.

4. Conclusion

4.1 KIKOP's Success

The Kisii Konya Oriobora Project (KIKOP) has demonstrated remarkable success in reducing infant mortality rates within the Matongo catchment of Kisii County, Kenya. Through its thorough intervention strategies, KIKOP has effectively addressed the complex array of health challenges faced by young children in the region. The positive data trends observed, including significant reductions in early neonatal mortality, neonatal mortality, post-neonatal mortality, and infant mortality rates, underscore the transformative impact of community-driven health education. By empowering mothers with essential knowledge and fostering a supportive community environment, KIKOP has succeeded in mitigating infant mortality rates in resource-constrained settings.

KIKOP's success can be attributed to several key factors. Firstly, the emphasis on community engagement and participation has been crucial in ensuring the sustainability and effectiveness of interventions. By involving community members - particularly mothers and community health volunteers - in the planning, implementation, and evaluation of programs, KIKOP has fostered a sense of ownership and empowerment, leading to greater uptake of health-promoting behaviors and practices. Secondly, KIKOP's holistic approach to maternal and child health has allowed for comprehensive and synergistic interventions. Rather than focusing solely on one aspect of healthcare delivery, KIKOP recognizes the interconnectedness of various factors influencing health outcomes, thereby maximizing the impact of interventions.

4.2 Limitations

While KIKOP's interventions have yielded success, it is essential to acknowledge the study's limitations. Generalizability is compromised due to the small sample sizes inherent in our community-based approach. This means our findings may not be broadly applicable to the larger Kisii population, limiting external validity. The study is also vulnerable to both measurement and response biases. Survey questions were developed in part by an English-speaking team in the

United States and administered by community health volunteers in the native language of the Matongo Catchment. This language difference may lead to incorrect interpretations of questions and differential responses. Additionally, recall bias may affect respondents, as they were required to remember events from the past 12 months in a retrospective survey. This potential for bias is heightened when the primary respondent was not the child's mother.

Regarding causes of death, there is a risk of attribution error. The study heavily relied on verbal autopsies, perceived causes of death, and hospital-recorded causes. While distinct causes of death were identified, deaths attributed to pneumonia or cardiovascular issues may have possibly been associated with birth asphyxia. This overlap could lead to misattribution or labeling issues.

Lastly, it is important to note that there is no comparable catchment to Matongo without the intervention. Therefore, we can only analyze time trends. July 1st 2017-June 30th 2018 serves as our baseline comparison group, before the intervention began. All subsequent years have participated in the intervention, allowing us to only observe trends over time.

4.3 Challenges and Recommendations for Future Interventions

Despite the successes of the Kisii Konya Oriobora Project (KIKOP) in reducing infant mortality rates within the Matongo catchment, several challenges and areas for improvement have been identified. The use of surveys developed in English and administered in local languages by community health volunteers may introduce interpretation biases. Efforts should focus on enhancing survey methodology to mitigate interpretation biases by developing culturally and linguistically appropriate surveys and providing thorough training for community health volunteers (CHVs). While there has been a reduction in mortality rates, the accuracy of data regarding causes of death could be improved. Over the study period, several deaths were attributed to unknown causes. Improving the accuracy of data on causes of death is crucial, requiring thorough verbal autopsies and recording hospital-ascertained causes whenever possible. One approach to mitigate this problem is to have deaths reported as they occur, limiting the reliance on retrospective recall of the cause of death. Furthermore, delays related to healthcare facilities, such as inadequate equipment, infrastructure, and trained staff, remain significant barriers to accessing timely and effective healthcare. Addressing these infrastructure gaps is crucial to improving healthcare service delivery in remote and underserved areas.

Future interventions should expand community-based programs like Care Groups and Routine Home Visits, increase the use of digital solutions for data collection and monitoring, promote cross-sectoral collaboration, and establish a robust monitoring and evaluation framework. These strategies aim to build on the successes of KIKOP and further improve infant health outcomes within the Matongo catchment, and the larger Kisii County.

References:

Kenya Child mortality rate, 1960-2023 - knoema.com. Accessed March 11, 2024. https://knoema.com/atlas/Kenya/Child-mortality-rate

Niru, James. *Knowledge Practice and Coverage Survey Report*. Kitutu Chache South Subcounty, Kisii County, 2018. https://www.kikop.org/resources

Peters, Olivia. *KIKOP Knowledge, Practice, and Coverage Survey (kpc): A difference-in-difference Report on Key Maternal and Child Health Indicators Based on Household Interviews of Mothers with Children Younger than 24 Months in Kisii County, Keny*a, 2021.

Woodstock, Lindsay. *Evaluation Report KIKOP: Matongo Catchment* . Kisii, Kenya, 2019. https://www.kikop.org/_files/ugd/95344c_5169fa50a7d34981abf3c287d06fef64.pdf