VACCINE DELIVERY RESEARCH DIGEST

**UNIVERSITY OF WASHINGTON STRATEGIC ANALYSIS,
RESEARCH & TRAINING (START) CENTER**

REPORT TO THE BILL & MELINDA GATES FOUNDATION

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1. [Conduct of vaccination in hard-to-reach areas to address potential polio reservoir areas, 2014-2015](#)

Bawa S, Shuaib F, Saidu M, Ningi A, Abdullahi S, Abba B, et al.

ABSTRACT

BACKGROUND:

The Global Vaccine Action Plan (GVAP) seeks to achieve the total realization of its vision through equitable access to immunization as well as utilizing the immunization systems for delivery of other primary healthcare programs. The inequities in accessing hard-to-reach areas have very serious implications for the prevention and control of vaccine-preventable diseases, especially the polio eradication initiative. The Government of Nigeria implemented vaccination in hard-to-reach communities with support from the World Health Organization (WHO) to address the issues of health inequities in the hard-to-reach communities. This paper documents the process of conducting integrated mobile vaccination in these hard-to-reach areas and the impact on immunization outcomes.

METHODS:

We conducted vaccination using mobile health teams in 2311 hard-to-reach settlements in four states at risk of sustaining polio transmission in Nigeria from July 2014 to September 2015.

RESULTS:

The oral polio vaccine (OPV)3 coverage among children under 1 year of age improved from 23% at baseline to 61% and OPV coverage among children aged 1-5 years increased from 60 to 90%, while pentavalent vaccine (penta3) coverage increased from 22 to 55%. Vitamin A was administered to 78% of the target population and 9% of children that attended the session were provided with treatment for malaria.

CONCLUSIONS:

The hard-to-reach project has improved population immunity against polio, as well as other routine vaccinations and delivery of child health survival interventions in the hard-to-reach and underserved communities.

WEB: [10.1186/s12889-018-6194-y](#)

START COMMENTARY

Hard-to-reach areas were operationalized as "geographically difficult terrain, with any of the following criteria: having inter-ward, inter-Local Government Area (LGA), or interstate boarders, scattered households, a nomadic population, or a waterlogged/riverine area, with no easy access to healthcare facilities and insecurity." Several critical tasks were conducted during the planning phase, including meeting with government policymakers to gain support for the project, determining resources needed to adequately serve the target population of women and children under 5 years in the selected hard-to-reach settlements, and engaging with community members to sensitive to the intervention and train as volunteer mobilizers and announcers. Program implementers also conducted a baseline assessment of immunization coverage and population needs, created informational materials, and collected immunization data in real-time. In addition to vaccine administration, women and children also received basic primary healthcare services such as iron folate or malaria prevention. Vaccine coverage trends in children under 1 year were described in Table 2. Authors noted the value of providing primary healthcare services not only benefitted maternal and child health, but also led to the acceptance of the mobile health teams. Authors called for a cost-benefit analysis as they did not conduct a costing analysis.

This article was part of a *BMC Public Health* supplement "Experiences and lessons learned in polio eradication in Nigeria."

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2. [Lessons learnt from implementing community engagement interventions in mobile hard-to-reach (HTR) projects in Nigeria, 2014-2015](#)

Hammanyero KI, Bawa S, Braka F, Bassey BE, Fatiregun A, Warigon C, et al.

ABSTRACT

BACKGROUND:

The year 2014 was a turning point for polio eradication in Nigeria. Confronted with the challenges of increased numbers of polio cases detected in rural, hard-to-reach (HTR), and security-compromised areas of northern Nigeria, the Nigeria polio program introduced the HTR project in four northern states to provide immunization and maternal and child health services in these communities. The project was set up to improve population immunity, increase oral polio vaccine (OPV) and other immunization uptake, and to support Nigeria's efforts to interrupt polio transmission by 2015. Furthermore, the project also aimed to create demand for these services which were often unavailable in the HTR areas. To this end, the program developed a community engagement (CE) strategy to create awareness about the services being provided by the project. The term HTR is operationally defined as geographically difficult terrain, with any of the following criteria: having inter-ward/inter-Local Government Area/interstate borders, scattered households, nomadic population, or waterlogged/riverine area, with no easy to access to healthcare facilities and insecurity.

METHODS:

We evaluated the outcome of CE activities in Kano, Bauchi, Borno, and Yobe states to examine the methods and processes that helped to increase OPV and third pentavalent (penta3) immunization coverage in areas of implementation. We also assessed the number of community engagers who mobilized caregivers to vaccination posts and the service satisfaction for the performance of the community engagers.

RESULTS:

Penta3 coverage was at 22% in the first quarter of project implementation and increased to 62% by the fourth quarter of project implementation. OPV coverage also increased from 54% in the first quarter to 76% in the last quarter of the 1-year project implementation.

CONCLUSIONS:

The systematic implementation of a CE strategy that focused on planning and working with community structures and community engagers in immunization activities assisted in increasing OPV and penta3 immunization coverage.

START COMMENTARY

Through focus groups and key informant interviews, program implementers identified community mobilizers and town announcers as the optimal way to mobilize a community for immunizations. Community mobilizers, town announcers, and village development committees helped mobilize caregivers by providing information about vaccination posts and responding to concerns. There were a total of 4622 town announcers and community mobilizers, 1170 community-based organizations, and 431 village development committees (see Table 1) participating in the vaccination intervention. Table 2 describes the activities of the community members, showing variability in member activities by state. Authors noted limitations to their study included the inability to assess the sole impact of community engagement on vaccine coverage, the lack of data on vaccination dropout rates, and the potential impact of other interventions on the mid-term review results.

This article was part of a *BMC Public Health* supplement "Experiences and lessons learned in polio eradication in Nigeria."

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3. [Oral cholera vaccination in hard-to-reach communities, Lake Chilwa, Malawi](#)

ABSTRACT

OBJECTIVE:

To evaluate vaccination coverage, identify reasons for non-vaccination and assess satisfaction with two innovative strategies for distributing second doses in an oral cholera vaccine campaign in 2016 in Lake Chilwa, Malawi, in response to a cholera outbreak.

METHODS:

We performed a two-stage cluster survey. The population interviewed was divided in three strata according to the second-dose vaccine distribution strategy: (i) a standard strategy in 1477 individuals (68 clusters of 5 households) on the lake shores; (ii) a simplified cold-chain strategy in 1153 individuals (59 clusters of 5 households) on islands in the lake; and (iii) an out-of-cold-chain strategy in 295 fishermen (46 clusters of 5 to 15 fishermen) in floating homes, called zimboweras.

FINDING:

Vaccination coverage with at least one dose was 79.5% (1153/1451) on the lake shores, 99.3% (1098/1106) on the islands and 84.7% (200/236) on zimboweras. Coverage with two doses was 53.0% (769/1451), 91.1% (1010/1106) and 78.8% (186/236), in the three strata, respectively. The most common reason for non-vaccination was absence from home during the campaign. Most interviewees liked the novel distribution strategies.

CONCLUSION:

Vaccination coverage on the shores of Lake Chilwa was moderately high and the innovative distribution strategies tailored to people living on the lake provided adequate coverage, even among hard-to-reach communities. Community engagement and simplified delivery procedures were critical for success. Off-label, out-of-cold-chain administration of oral cholera vaccine should be considered as an effective strategy for achieving high coverage in hard-to-reach communities. Nevertheless, coverage and effectiveness must be monitored over the short and long term.

START COMMENTARY

The target population were individuals residing on the shores, six islands, and the fishermen living on *zimboweras*. Spatial random sampling of household clusters was conducted using Google Earth satellite images. Fisherman living in *zimboweras* were sampled at tea rooms. Due to the migratory nature of the lake residents, authors stratified analyses based on arrival date in relation to vaccine administration. Coverage among fishermen residing in *zimboweras* varied by arrival date (see Table 1), suggesting a need to tailor vaccine delivery to maintain vaccine coverage for this population. Limitations of the study include potential selection bias and misclassification (from oral reports of vaccination status), as well as higher than anticipated design effects.

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4. [Routine immunization community surveys as a tool for guiding program implementation in Kaduna state, Nigeria 2015-2016](#)

Nomhwange TI, Shuaib F, Braka F, Godwin S, Kariko U, Gregory U, et al.

ABSTRACT

BACKGROUND:

Routine childhood immunization remains an important strategy for achieving polio eradication and maintaining a polio-free world. To address gaps in reported administrative coverage data, community surveys were conducted to verify coverage, and guide strategic interventions for improved coverage.

METHODS:

We reviewed the conduct of community surveys by World Health Organization (WHO) field volunteers deployed as part of the surge capacity to Kaduna state and the use of survey results between July 2015 and June 2016. Monthly and quarterly collation and use of these data to guide the deployment of various interventions aimed at strengthening routine immunization in the state.

RESULTS:

Over 97,000 children aged 0-11 months were surveyed by 138 field volunteers across 237 of the 255 wards in Kaduna state. Fully or appropriately immunized children increased from 67% in the fourth quarter of 2015 to 76% by the end of the second quarter of 2016. Within the period reviewed, the number of local government areas with < 80% coverage reduced from eight to zero.

CONCLUSIONS:

The routine conduct of community surveys by volunteers to inform interventions has shown an improvement in the vaccination status of children 0-11 months in Kaduna state and remains a useful tool in addressing administrative data quality issues.

START COMMENTARY

Volunteers conducted surveys in 255 wards in Kaduna state, with a survey conducted in at least one community a month, sampling 10 children per settlement. In both administrative data and survey

data, the trend of increasing coverage was observed, but the survey data showed a lower proportion of coverage than the administrative data. Methods of sampling may lead to sampling bias. Authors noted that field staff may have focused on settlements with poor performance and that surveys were conducted in communities close to health facilities, potentially biasing results. Authors commented that buy-in from local governments to provide more funding for community surveys could increase survey coverage and assist with travel expenses, which was a noted barrier to survey administration.

This article was part of a *BMC Public Health* supplement "Experiences and lessons learned in polio eradication in Nigeria."

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5. Micro-planning for immunization in Kaduna State, Nigeria: Lessons learnt, 2017

Umeh GC, Madubu DM, Korir C, Loveday N, Ishaku S, Iyal H, et al.

ABSTRACT

BACKGROUND:

The OPV 3 coverage for Kaduna State, 12-23 months old children was 34.4%. The low OPV 3 coverage, due mainly to weak demand for routine antigens and the need to rapidly boost population immunity against the disabling Wild Polio Virus (WPV), led the Global Polio Eradication Initiatives (GPEI) to increase supplemental OPV campaigns in Kaduna State, despite the huge cost and great burden on personnel. The OPV campaigns, especially in high risk (low vaccine uptake, <80% OPV 3 coverage and high vaccines refusal rate) states of northern Nigeria with poliovirus transmission has resulted in overestimated denominators or target population, as the highest ever vaccinated is used to set OPV campaign targets.

METHODS:

We utilized a cross-sectional study that assessed the impacts and possible solutions to the challenges of overestimated denominators in immunization services planning, delivery and performance evaluation in Kaduna State, Nigeria. We used both descriptive and quantitative approaches. We enumerated households and obtained the target populations for routine immunization (<1 year), polio campaign (<5 years) and acute flaccid paralysis surveillance (<15 years).

RESULTS:

We found a significant difference in mean scores between the micro-planning and supplemental vaccination data on a number of <5 years (M = 102967, SD = 62405, micro-planning compared to M = 157716, SD = 72212, supplemental vaccination, p < 0.05). We also found a significant difference in mean scores between the micro-planning and projected census data on a number of <1 year (M = 26128, SD = 16828, micro-planning compared to M = 14154, SD = 4894, census, p < 0.05).

CONCLUSION:

Periodic household-based micro-planning, aided with the use of technology for validation remains a useful tool in addressing gaps in immunization planning, delivery and performance evaluation in developing countries, such as Nigeria with overestimated denominators.

CITED HALF-LIFE: 5.50

START COMMENTARY

Investigators had redefined households as a woman and her child to avoid missing children in polygamous households. E-Health configured and deployed trackers used by the enumeration teams. Supervision was conducted via Open Data Kits aided by social media groups (e.g., "WhatsApp"). Both tracking and supervision were conducted in real-time. Authors noted the large demand for resources and manpower to conduct the study as a particular challenge. However, micro-planning was demonstrated to provide useful denominator information and could have cost-saving implications for vaccine delivery.

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6. [Introduction of inactivated poliovirus vaccine in the Philippines: Effect on health care provider and infant caregiver attitudes and practices](#)

ABSTRACT

BACKGROUND:

The introduction of inactivated poliovirus vaccine (IPV) to the Philippines' national immunization schedule meant the addition of a third injectable vaccine at a child's 14-week immunization visit. Although previous studies have shown that providing multiple vaccines at the same time affected neither the risk of severe adverse events nor vaccine efficacy, concerns were raised that providing three injections at a single visit, with two injections in one leg, might be unacceptable to health care providers (HCP) and infant caregivers.

METHODS:

We conducted pre- and post-IPV introduction surveys on the acceptance and acceptability of the additional injectable vaccine in three of the Philippines' 17 administrative regions. Regions 3 and 6 were included in the pre-introduction phase and Regions 3, 6 and 10 were included in the post-introduction phase. Thirty public health centers (PHCs) were randomly sampled from each region. HCPs and infant caregivers were interviewed. In addition, vaccination records from a minimum of 20 eligible children pre-introduction and 10 children post-introduction per PHC were reviewed.

RESULTS AND DISCUSSION:

We interviewed 89 HCPs and 286 infant caregivers during the pre-introduction phase and 137 HCPs and 455 caregivers during the post-introduction phase. Among 986 vaccination records reviewed post-introduction, 84% (n = 826) of children received all three recommended injections at one visit, with a range from 61% (209/342) in Region 10 to 100% (328/328) in Region 3. The proportion of HCPs reporting that they had administered three or more injectable vaccines and the proportion of caregivers that would be comfortable with their child receiving three or more injectable vaccines at one visit increased from pre- to post-introduction (p < 0.0001 for both). Eighty-seven percent of HCPs that had administered three or more injectable vaccines post-introduction reported being comfortable or very comfortable with the number of vaccines they had administered.

WEB: 10.1016/j.vaccine.2018.09.028

IMPACT FACTOR: 3.29
CITED HALF-LIFE: 5.50

START COMMENTARY

Authors noted limitations of the study, including stockouts preventing measure of change from pre- to post-IPV introduction, inability to conduct a pre-introduction survey in Region 10, inconsistency of public health centers, and loss of data due to poor internet connectivity. Despite these challenges, authors found administration of three injectable vaccines in one visit was generally accepted in the regions surveyed, though there was large variability in complete vaccination coverage by region. Authors highlight the impact of health care provider influence on incomplete or delayed administration of vaccines and suggest training and guideline enforcement. Nonetheless, general acceptance of three injections at one visit could assuage policymaker concerns about public acceptability. Interestingly, authors noted some misalignment of survey responses and behaviors, with caregivers and health care providers stating comfort in receiving or administering only 1 or 2 injections at a visit but receiving or administering all 3 injections and it is unclear what was driving the misalignment.

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7. [Improving immunization capacity in Ethiopia through continuous quality improvement interventions: a prospective quasi-experimental study](#)

Manyazewal T, Mekonnen A, Demelew T, Mengestu S, Abdu Y, Mammo D, et al.

ABSTRACT

BACKGROUND:

Strong scientific evidence is needed to support low-income countries in building effective and sustainable immunization programs and proactively engaging in global vaccine development and implementation initiatives. This study aimed to implement and evaluate the effectiveness of system-wide continuous quality improvement (CQI) interventions to improve national immunization programme performance in Ethiopia.

METHODS:

The study used a prospective, quasi-experimental design with an interrupted time-series analysis to collect data from 781 government health sectors (556 healthcare facilities, 196 district health offices, and 29 zonal health departments) selected from developing and emerging regions in Ethiopia. Procedures included baseline quality assessment of immunization programme and services using structured checklists; immunization systems strengthening using onsite technical support, training, and supportive supervision interventions in a Plan-Do-Check-Act cycle over 12 months; and collection and analysis of data at baseline and at the 6th and 12th month of interventions using statistical process control and the t-test. Outcome measures were the coverage of the vaccines pentavalent 3, measles, Bacillus Calmette-Guérin vaccine (BCG), Pneumococcal Conjugate Vaccine (PCV), as well as full vaccination status; while process measures were changes in human resources, planning, service delivery, logistics and supply, documentation, coordination and collaboration, and monitoring and evaluation. Analysis and interpretation of data adhered to SQUIRE 2.0 guidelines.

RESULTS:

Prior to the interventions, vaccination coverage was low and all seven process indicators had an aggregate score of below 50%, with significant differences in performance at healthcare facility level between developing and emerging regions (P = 0.0001). Following the interventions, vaccination coverage improved significantly from 63.6% at baseline to 79.3% for pentavalent (P = 0.0001), 62.5 to 72.8% for measles (P = 0.009), 62.4 to 73.5% for BCG (P = 0.0001), 65.3 to 81.0% for PCV (P

= 0.02), and insignificantly from 56.2 to 74.2% for full vaccination. All seven process indicators scored above 75% in all regions, with no significant differences found in performance between developing and emerging regions.

CONCLUSIONS:

The CQI interventions improved immunization capacity and vaccination coverage in Ethiopia, where the unstable transmission patterns and intensity of infectious diseases necessitate for a state of readiness of the health system at all times. The approach was found to empower zone, district, and facility-level health sectors to exercise accountability and share ownership of immunization outcomes. While universal approaches can improve routine immunization, local innovative interventions that target local problems and dynamics are also necessary to achieve optimal coverage.

WEB: 10.1186/s40249-018-0502-8
IMPACT FACTOR: 2.71
CITED HALF-LIFE: 1.50

START COMMENTARY

Study sites were selected using stratified multi-stage sampling. Table 1 outlines process measures and scores. Table 3 shows results of process measures at baseline, 6 months, and 12 months. Authors noted limitations to the study were not including all regions of Ethiopia in the study and limiting analyses to just 12 months of follow-up. However, strengths of the study included the large number of sites included in the study and the mix of developing and emerging regions. While authors found improvements in process and outcome measures following the interventions, authors did not comment on the sustainability of the interventions.

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8. [Human papillomavirus vaccine delivery in Mozambique: identification of implementation performance drivers using the Consolidated Framework for Implementation Research (CFIR)](#)

Soi C, Gimbel S, Chilundo B, Muchanga V, Matsinhe L, Sherr K.

ABSTRACT

BACKGROUND:

Since 2012 Gavi, the Vaccine Alliance has provided financial support for HPV vaccine introduction in low- and middle-income countries (LMICs); however, funding has been contingent on establishing a demonstration project prior to national scale-up, in order to gauge effectiveness of delivery models. Although by 2016, most beneficiary countries had completed demonstration projects, few have scaled up delivery nationwide. An important barrier was the dearth of published, country-specific implementation recommendations. We employed the Consolidated Framework for Implementation Research (CFIR) as a lens to identify drivers of heterogeneous (dissimilar) implementation performance during Mozambique's 2-year demonstration project. Mozambique presents a compelling example as the country conducted demonstration projects in three different districts with extremely different economic resources and sociocultural practices.

METHODS:

A post implementation interpretive evaluation was undertaken. Forty key informant interviews were conducted with district and health facility immunization staff, Ministry of Education managers, and teachers across the three demonstration districts, central level informants from MOH, research institutes, and immunization program partners. We compared valence and strength ratings of CFIR constructs, across diverse implementation sites, so as to explain drivers and barriers to implementation success. Two researchers coded separately, and subsequent content analysis followed pre-defined CFIR construct themes.

RESULTS:

Eighteen constructs emerged from informants' responses as implementation influencers. Adaptability was identified as an important construct because delivery modalities needed to meet differing levels of girls' school attendance. Expanding outside of school-based delivery was needed in the low-performing district, making the vaccine delivery process more complex. Available resources varied across the three sites, with one site receiving direct Gavi support, while others received primarily

state-based support. These latter sites reported considerably more implementation bottlenecks, in part related to weaker infrastructural characteristics and insufficient organizational incentives. Health workers' beliefs in importance of vaccines and an organizational culture of making personal sacrifice for immunization program activities drove implementation performance. Advocacy and social mobilization through the right opinion leaders and champions generated higher demand.
CONCLUSION:
HPV vaccination presents a pertinent opportunity for the prevention of cervical cancer in Mozambique, sub-Saharan Africa, and other LMICs. However, important barriers to broad-scale implementation exist. We recommend the development of local and global strategies to overcome barriers and facilitate its expanded utilization.

WEB: 10.1186/s13012-018-0846-2
IMPACT FACTOR: 4.35
CITED HALF-LIFE: 3.90

START COMMENTARY

Authors outlined five steps of the evaluation: 1) defining the innovation, 2) defining the unit of analysis, site inclusion, and performance criteria, 3) initial Consolidated Framework for Implementation Research (CFIR) construct selection and data collection, 4) Final CFIR construct selection, and 5) CRIF construct valence and strength rating. Table 2 shows the construct valence ratings. Authors sought to validate data through intercoder reliability checks and feedback from stakeholders. A strength of the study was the use of CFIR which allows researchers to better understand the context of barriers and facilitators of intervention implementation and make comparisons with other studies that use CFIR. Limitations of the study included potential social desirability bias and limited generalizability of the three districts examined.

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9. The potential effect of improved provision of rabies post-exposure prophylaxis in Gavi-eligible countries: a modelling study

WHO Rabies Modelling Consortium.

ABSTRACT

BACKGROUND:

Tens of thousands of people die from dog-mediated rabies annually. Deaths can be prevented through post-exposure prophylaxis for people who have been bitten, and the disease eliminated through dog vaccination. Current post-exposure prophylaxis use saves many lives, but availability remains poor in many rabies-endemic countries due to high costs, poor access, and supply.

METHODS:

We developed epidemiological and economic models to investigate the effect of an investment in post-exposure prophylaxis by Gavi, the Vaccine Alliance. We modelled post-exposure prophylaxis use according to the status quo, with improved access using WHO-recommended intradermal vaccination, with and without rabies immunoglobulin, and with and without dog vaccination. We took the health provider perspective, including only direct costs.

FINDINGS:

We predict more than 1 million deaths will occur in the 67 rabies-endemic countries considered from 2020 to 2035, under the status quo. Current post-exposure prophylaxis use prevents approximately 56 000 deaths annually. Expanded access to, and free provision of, post-exposure prophylaxis would prevent an additional 489 000 deaths between 2020 and 2035. Under this switch to efficient intradermal post-exposure prophylaxis regimens, total projected vaccine needs remain similar (about 73 million vials) yet 17·4 million more people are vaccinated, making this an extremely cost-effective method, with costs of US$635 per death averted and $33 per disability-adjusted life-years averted. Scaling up dog vaccination programmes could eliminate dog-mediated rabies over this time period; improved post-exposure prophylaxis access remains cost-effective under this scenario, especially in combination with patient risk assessments to reduce unnecessary post-exposure prophylaxis use.

INTERPRETATION:

Investing in post-exposure vaccines would be an extremely cost-effective intervention that could substantially reduce disease burden and catalyse dog vaccination efforts to eliminate dog-mediated rabies.

WEB: 10.1016/S1473-3099(18)30512-7

IMPACT FACTOR: 25.15
CITED HALF-LIFE: 4.70

START COMMENTARY

The economic model is a static decision tree with parameters informed by literature (see Figure 1 and the appendix). The epidemiological model is a stochastic dynamic transmission model characterizing rabies circulation within dog populations and transmission from dog to human. Probabilistic sensitivity analyses were conducted for several parameters (see appendix) and alternative costing values for vaccine, rabies immunoglobulin, and introductory costs were examined. A number of simplifying assumptions were made for this analysis, including no country-variance of vaccine wastage, incremental improvement in health seeking by dog bite victims, and no spatial dependence on post-exposure prophylaxis access. A limitation of the study was lack of data to estimate parameters, though authors addressed this limitation through sensitivity analyses. Authors highlight the impact of a Gavi investment and intradermal vaccination, while stressing the need to mass dog vaccination to control and ultimately eliminate rabies.

10. Developing a seasonal influenza vaccine recommendation in Kenya: Process and challenges faced by the National Immunization Technical Advisory Group (NITAG)

ABSTRACT

BACKGROUND:

In 2014 the Kenya National Immunization Technical Advisory Group (KENITAG) was asked by the Ministry of Health to provide an evidence-based recommendation on whether the seasonal influenza vaccine should be introduced into the national immunization program (NIP).

METHODS:

We reviewed KENITAG manuals, reports and meeting minutes generated between June 2014 and June 2016 in order to describe the process KENITAG used in arriving at that recommendation and the challenges encountered.

RESULTS:

KENITAG developed a recommendation framework to identify critical, important and non-critical data elements that would guide deliberations on the subject. Literature searches were conducted in several databases and the quality of scientific articles obtained was assessed using the Critical Appraisal Skills Programme tool. There were significant gaps in knowledge on the national burden of influenza disease among key risk groups, i.e., pregnant women, individuals with co-morbidities, the elderly and health care workers. Insufficient funding and limited work force hindered KENITAG activities. In 2016 KENITAG recommended introduction of the annual seasonal influenza vaccine among children 6 to 23 months of age. However, the recommendation was contingent on implementation of a pilot study to address gaps in local data on the socio-economic impact of influenza vaccination programs, strategies for vaccine delivery, and the impact of the vaccination program on the healthcare workforce and existing immunization program. KENITAG did not recommend the influenza vaccine for any other risk group due to lack of local burden of disease data.

CONCLUSION:

Local data are a critical element in NITAG deliberations, however, where local data and in particular burden of disease data are lacking, there is need to adopt scientifically acceptable methods of

utilizing findings from other countries to inform local decisions in a manner that is valid and acceptable to decision makers.

WEB: 10.1016/j.vaccine.2018.11.062
IMPACT FACTOR: 3.29
CITE HALF-LIFE: 5.50

START COMMENTARY

The Kenya National Immunization Technical Advisory Group (KENITAG) established a working group to create a work plan, develop a framework, and conduct research to inform the seasonal influenza recommendation. An outline of the framework, including data availability for each element is described in Table 2. The working group accepted data for each element based on a hierarchy, starting with Kenya-specific data, then data from an African country, data from low- and middle-income countries, and finally data from high-income countries. KENITAG recommended vaccination for children 6 to 23 months, conditional on a pilot study, which will inform operational costs and other gaps, but as of 2018, such a study had not yet been implemented. To address these gaps epidemiological and modeling studies are being conducted to better understand influenza burden in other high-risk groups and cost-effectiveness of vaccination. Authors noted major challenges to the process of vaccine recommendation was lack of data, personnel to conduct tasks outlined in the work plan, and funding to host meetings. Authors also noted the establishment of an influenza surveillance system in 2007 highlighted influenza burden in Kenya, facilitating the discussion of influenza vaccination. A suggested area for improvement was collaboration between countries to share data to reduce duplication of work. Authors also noted that the Ministry of Health makes the ultimate decision surrounding the adoption of influenza vaccination.

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Appendix

The literature search for the January 2019 Vaccine Delivery Research Digest was conducted on December 21, 2018. We searched English language articles indexed by the US National Library of Medicine and published between November 15, 2018 and December 14, 2018. The search resulted in 246 items.

Search Terms

((((((vaccine[tiab] OR vaccines[tiab] OR vaccination[tiab] OR immunization[tiab] OR immunisation[tiab] OR vaccine[mesh] OR immunization[mesh]) AND (logistics[tiab] OR supply[tiab] OR "supply chain"[tiab] OR implementation[tiab] OR expenditures[tiab] OR financing[tiab] OR economics[tiab] OR "Cost effectiveness"[tiab] OR coverage[tiab] OR attitudes[tiab] OR belief[tiab] OR beliefs[tiab] OR refusal[tiab] OR "Procurement"[tiab] OR timeliness[tiab] OR systems[tiab])) OR ("vaccine delivery"[tiab])) NOT ("in vitro"[tiab] OR "immune response"[tiab] OR gene[tiab] OR chemistry[tiab] OR genotox*[tiab] OR sequencing[tiab] OR nanoparticle*[tiab] OR bacteriophage[tiab] OR exome[tiab] OR exogenous[tiab] OR electropor*[tiab] OR "systems biology"[tiab] OR "animal model"[tiab] OR cattle[tiab] OR sheep[tiab] OR goat[tiab] OR rat[tiab] OR pig[tiab] OR mice[tiab] OR mouse[tiab] OR murine[tiab] OR porcine[tiab] OR ovine[tiab] OR rodent[tiab] OR fish[tiab])) AND (English[LA]) ("2018/11/15"[PDAT] : "2018/12/14"[PDAT]))