VACCINE DELIVERY RESEARCH DIGEST

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

REPORT TO THE BILL & MELINDA GATES FOUNDATION

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8 The role of National Immunisation Technical Advisory Groups (NITAGs) in strengthening national vaccine decision-making: A comparative case study of Armenia, Ghana, Indonesia, Nigeria, Senegal and Uganda.

{Abstract & START Commentary} {Full article}

- A mixed-method case series assessing NITAG implementation in six countries within the themes of functionality, quality of processes and outputs, and integration with national decision-making.

9 Strengthening routine immunization through measles-rubella elimination

{Abstract & START Commentary} {Full article}

- A report summarizing examples of Measles-Rubella elimination program activities that strengthen routine immunization service delivery obtained from a survey administered to WHO and partner agency immunization staff in all six WHO Regions.

10 Assessment of select electronic health information systems that support immunization data capture – Kenya, 2017

{Abstract & START Commentary} {Full article}

- A rapid assessment of electronic health information systems (EHIS) that collect immunization data in Kenya in 2017 to inform future planning of EHIS as a tool to support the needs of Kenya's National Vaccine and Immunization Program.

Appendix

Details of Articles

1. Ethnic group inequalities in coverage with reproductive, maternal and child health interventions: cross-sectional analyses of national surveys in 16 Latin American and Caribbean countries

Mesenburg MA, Restrepo-Mendez MC, Amigo H, Balandrán AD, Barbosa-Verdun MA, Caicedo-Velásquez B, et al.

Lancet Glob Health. 2018 Aug;6(8):e902–e913.

PubMed ID: 30012271

ABSTRACT

BACKGROUND:

Latin American and Caribbean populations include three main ethnic groups: indigenous people, people of African descent, and people of European descent. We investigated ethnic inequalities among these groups in population coverage with reproductive, maternal, newborn, and child health interventions.

METHODS:

We analysed 16 standardised, nationally representative surveys carried out from 2004 to 2015 in Latin America and the Caribbean that provided information on ethnicity or a proxy indicator (household language or skin colour) and on coverage of reproductive, maternal, newborn, and child health interventions. We selected four outcomes: coverage with modern contraception, antenatal care coverage (defined as four or more antenatal visits), and skilled attendants at birth for women aged 15-49 years; and coverage with three doses of diphtheria-pertussis-tetanus (DPT3) vaccine among children aged 12-23 months. We classified women and children as indigenous, of African descent, or other ancestry (reference group) on the basis of their self-reported ethnicity or language. Mediating variables included wealth quintiles (based on household asset indices), woman's education, and urban-rural residence. We calculated crude and adjusted coverage ratios using Poisson regression.

FINDINGS:

Ethnic gaps in coverage varied substantially from country to country. In most countries, coverage with modern contraception (median coverage ratio 0·82, IQR 0·66-0·92), antenatal care (0·86, 0·75-0·94), and skilled birth attendants (0·75, 0·68-0·92) was lower among indigenous women than in the

reference group. Only three countries (Nicaragua, Panama, and Paraguay) showed significant gaps in DPT3 coverage between the indigenous and the reference groups. The differences were attenuated but persisted after adjustment for wealth, education, and residence. Women and children of African descent showed similar coverage to the reference group in most countries.
INTERPRETATION:
The lower coverage levels for indigenous women are pervasive, and cannot be explained solely by differences in wealth, education, or residence. Interventions delivered at community level-such as vaccines-show less inequality than those requiring access to services, such as birth attendance. Regular monitoring of ethnic inequalities is essential to evaluate existing initiatives aimed at the inclusion of minorities and to plan effective multisectoral policies and programmes.

WEB: 10.1016/S2214-109X(18)30300-0
IMPACT FACTOR: 18.71
CITED HALF-LIFE: 1.00

START COMMENTARY

In the largest multi-country analysis of health services coverage among ethnic groups to date, Mesenburg et al. used 16 national surveys, including Demographic and Health Surveys, Multiple Indicator Cluster Surveys, and Reproductive and Health Surveys, to assess disparities between three ethnic groups in the coverage of four reproductive, maternal, newborn, and child health (RMNCH) interventions: modern contraceptives, antenatal care, skilled birth attendants at birth, and diphtheria-tetanus-pertussis vaccination. Categorizing ethnicity, the predictor of interest, is a known challenge in studies. For the purposes of this study, individuals from different indigenous groups or different groups of African descent were categorized as either “indigenous” or “African descent,” respectively, and individuals of mixed ethnicity were categorized as “other ancestry” (the reference group; see Table and Appendix for ethnicity definitions for each country). Authors noted that the aggregation of these groups could hide potential heterogeneities within each ethnic group. A breakdown of the three ethnic groups by wealth quintiles was depicted in Figure 1 for each country. Figures 2 and 3 summarized crude and adjusted coverage ratios for each RMNCH intervention among indigenous women and children and women and children of African descent, respectively. An important finding of the study was that while people of African descent were on average poorer than the reference group their intervention coverage was on average not markedly lower. Mesenburg et al. commented that unlike the indigenous population, people of African descent primarily resided in urban settings, suggesting greater access to healthcare services. This point was further expanded upon in a Comment to the article by Yuan Huang (https://doi.org/10.1016/S2214-109X(18)30332-2), suggesting geography, quality of care, and prominence of traditional beliefs as three factors that could influence different health service utilization behaviors between rural and urban settings

(though these factors were not explored in the study). Results were not pooled across countries due to heterogeneity among countries, highlighting the importance of country context in studies of ethnic inequity. This study highlighted heterogeneities between different ethnic groups (i.e., indigenous and African descent) and the need for informative disaggregation of data as outlined in the Sustainable Development Goals (2015–2030). Mesenburg et al. called for continued monitoring of ethnic inequities to measure the impact of policy and interventions seeking to close gaps and improve the health of women and children.

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2. Collecting and using reliable vaccination coverage survey estimates: Summary and recommendations from the "Meeting to share lessons learnt from the roll-out of the updated WHO Vaccination Coverage Cluster Survey Reference Manual and to set an operational research agenda around vaccination coverage surveys", Geneva, 18-21 April 2017

Danovaro-Holliday MC, Dansereau E, Rhoda DA, Brown DW, Cutts FT, Gacic-Dobo M.

Vaccine. 2018 Aug 16;36(34):5150–5159.

PubMed ID: 30041880

ABSTRACT

Household surveys are frequently used as means of vaccination coverage measurement, but obtaining accurate survey estimates present several challenges. In 2015, the World Health Organization (WHO) released a working draft of its updated Vaccination Coverage Survey Reference Manual that moved well beyond the traditional Expanded Program on Immunization (EPI) survey design. In April 2017, WHO convened a four-day meeting, to review lessons learned using the updated manual and to define an agenda for operational research about vaccination coverage surveys. About 70 stakeholders, including EPI managers and participants from 10 countries that have used the updated Survey Manual, survey experts, statisticians, partners, representatives from WHO regional offices and headquarters, and providers of technical assistance discussed methodological issues from sampling to accurately ascertaining a person's vaccination status, optimizing data collection and data management and conducting appropriate analyses. Participants also discussed data sharing and how to best survey data for immunization decision-making. The lessons learned from the use of the updated WHO Survey Manual related mainly to operational issues to implement better quality vaccination coverage surveys. It resulted in a list of 23 recommendations for WHO, donors and partners, immunization programs, and household surveys that collect immunization data. Similarly, 14 research topics, categorized in six themes (overall survey conduction, sampling, vaccination ascertainment, data collection, data analysis and use, and inclusion of questions on knowledge, attitudes and practices) were prioritized. Top areas of further work included improving our understanding of the accuracy of caregiver recall when documented evidence of vaccination is not available, improving engagement and coordination between immunization programs and entities conducting multi-purpose household surveys such as

Demographic and Health Survey and Multiple Cluster Indicator Survey, improving mechanisms for sharing vaccination survey datasets and documentation, and making better use of survey results to translate data into knowledge for decision-making. This manuscript summarizes the meeting proceedings and provides an update of actions taken by WHO since this meeting.

WEB: 10.1016/j.vaccine.2018.07.019
IMPACT FACTOR: 3.29
CITED HALF-LIFE: 5.50

START COMMENTARY

Danovaro-Holliday et al. summarized a four-day WHO convening on improving the estimation of vaccination coverage in low- and middle-income countries. Insights from countries using the updated survey manual were included in the discussion, including a coverage study in Kenya, which was featured in last month's digest. Differences between the "30x7" Expanded Program on Immunization (EPI) survey design and the updated manual were highlighted in Table 1. A notable difference was the recommendation to use a probabilistic sampling methodology versus a non-probabilistic method and sampling based on survey objectives (e.g., estimation versus classification) versus quota sampling (i.e., 30 clusters of 7 children each). Of interest, participants agreed that coordination and harmonization of the large national surveys, Demographic and Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS), should be prioritized in order to avoid duplication of work and resources and ensure alignment on methods and measures. Doing so would prevent uncertainty around a course of action based on discordant results. Successful examples of spatial sampling in Pakistan and Lusaka were discussed during the meeting and is an area of ongoing research. Danovaro-Holliday et al. highlighted a call for agreements and protocols for data sharing, as modeled by DHS, MICS, and the Bill and Melinda Gates Foundation, as well as, ongoing work to tie vaccination coverage survey data to potential actions for decision-makers. A list of recommendations to WHO are summarized in Table 3. The final version of the updated manual is available at http://www.who.int/immunization/documents/who_ivb_18.09/en/.

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3. Safety monitoring of ROTAVAC vaccine and etiological investigation of intussusception in India: study protocol

Reddy S, Nair NP, Giri S, Mohan VR, Tate JE, Parashar UD, et al.

BMC Public Health. 2018 Jul 20;18(1):898.

PubMed ID: 30029630

ABSTRACT

BACKGROUND:

ROTAVAC, an indigenous rotavirus vaccine, was introduced in the universal immunization program of India in four states in 2016 and expanded to five more states in 2017. The clinical trial on efficacy of ROTAVAC did not detect an increased risk of intussusception, but the trial was not large enough to detect a small risk. This protocol paper describes the establishment and implementation of a surveillance system to monitor the safety of rotavirus vaccine and investigate the potential infectious etiologies of intussusception.

METHODS:

This is a multi-centric hospital-based active surveillance being conducted at 28 hospitals in nine states of India. Data gathered from surveillance will be used to assess the risk of intussusception after ROTAVAC administration and to determine the infectious etiologies of intussusception. For safety assessment of ROTAVAC vaccine, children aged less than two years with intussusception admitted at the sentinel hospitals are enrolled into surveillance, a case report form completed, and a copy of the vaccination card obtained. The risk of intussusception following rotavirus vaccination will be assessed using a self-controlled case-series design. The investigation for potential infectious etiologies of intussusception is through a matched case-control design. Children enrolled for the safety assessment serve as cases and for each case, an age, gender and location matched control is enrolled within 30 days of case enrollment. Stool specimens are obtained from cases and controls. All forms and specimens are sent to the referral laboratory for data entry, analysis, multiplexed molecular testing, and storage.

DISCUSSION:

Anticipated public health benefits of this surveillance include the generation of information useful to national government on safety of vaccine and to make future decisions on vaccine use through risk-benefit analysis. Investigating infectious agents may help to determine the potential infectious etiologies of intussusception.

WEB: 10.1186/s12889-018-5809-7

IMPACT FACTOR: 2.42

CITED HALF-LIFE: 2.90

START COMMENTARY

To monitor the safety of ROTAVAC after its phased introduction to India's universal immunization program, Reddy et al. described a protocol to establish an intussusception surveillance system in nine states in India. Investigators improved hospital buy-in by meeting with site investigators to discuss the significance and design of the project. Reddy et al. described extra measures to obtain vaccination cards and follow-up with government immunization records when immunization cards are not available to ensure accurate capture of exposure data. Using a self-controlled case series design allows for adjustment of time-invariant confounders, though the study is still subject to time-varying confounders. The results of the case-control study is a promising addition to literature on the association between pathogens and intussusception as there are few studies comparing intussusception stool samples in age-matched healthy controls.

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4. World hepatitis day in Burkina Faso, 2017: seroprevalence and vaccination against hepatitis B virus to achieve the 2030 elimination goal

Diarra B, Yonli AT, Ouattara AK, Zohoncon TM, Traore L, Nadembega C, et al.

Virol J. 2018 Aug 6;15(1):121.

PubMed ID: 30081915

ABSTRACT

BACKGROUND:

Burkina Faso is a high endemicity country for HBV infection. However, there are few data on vaccine coverage against HBV. The aim of this study was to contribute to the improvement of HBV vaccine coverage in Ouagadougou through HBV screening.

METHODS:

Awareness campaigns and voluntary hepatitis B screening were organized in the twelve districts of Ouagadougou by the "SOS Hepatitis Burkina" association. A rapid HBsAg detection test (Abon Biopharma Guangzhou, Co., Ltd. Chine) was performed on 2216 individuals, who voluntarily answered a series of questions. Vaccination against hepatitis B was proposed to HBV negative participants.

RESULTS:

In a sample of 2216 participants, aged 1 to 78 years (mean age 29.7 ± 14.7 years); a prevalence of 10.4% (230/2216) of HBsAg was obtained. This prevalence was high in the age groups 31 to 40 years (14.5%) and 41 to 50 years (15.0%). The prevalence of HBV was higher in the sixth district (14.3%) of Ouagadougou. At the end of the screening, 1202/1986 HBV negative participants were vaccinated, resulting in a vaccination rate of 60.5%. Vaccination coverage ranged from 44.5 to 73.7% all twelve districts.

CONCLUSIONS:

This study still reports a high prevalence of HBV infection among young people with a peak in the sixth district of Ouagadougou. The study achieved high vaccination coverage in all age groups and districts of Ouagadougou.

TRIAL REGISTRATION:

The present study has been approved by the Ethics Committee for Health Research of Burkina Faso. CERS201501006 Registered 14 January 2015.

WEB: 10.1186/s12985-018-1032-5

IMPACT FACTOR: 2.47

CITED HALF-LIFE: 3.90

START COMMENTARY

Diarra et al. conducted an examination of the 2017 World Hepatitis B awareness, testing, and vaccination campaign in Ouagadougou, Burkina Faso to measure hepatitis B prevalence and vaccination coverage by the city's 12 districts. Results were obtained from a convenience sample of participants screened and vaccinated (if HBsAg negative) at the campaign. The 10.4% seroprevalence of HBsAg in Ouagadougou was roughly consistent with, if not lower than, previous estimates, and ranged from 4.2% to 14.3% by district. Authors attributed lack of funding and vaccine subsidies to preventing some vaccinations from occurring. However, it is unclear to what extent lack of vaccine subsidies impacted vaccination coverage. The study was subject to self-selection bias as testing and subsequent vaccination for susceptible individuals was on a voluntary basis. Therefore, results may not reflect true seroprevalence of districts and the greater Ouagadougou population.

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5. Incomplete immunization among children aged 12-23 months in Togo: a multilevel analysis of individual and contextual factors

Ekouevi DK, Gbeasor-Komlanvi FA, Yaya I, Zida-Compaore WI, Boko A, Sewu E, et al.

BMC Public Health. 2018 Aug 2;18(1):952.

PubMed ID: 30071824

ABSTRACT

BACKGROUND:

Inadequate immunization coverage remains a public health problem in Africa. In Togo, only 62% of children under one year of age were fully immunized in 2013. This study aimed to estimate the immunization coverage among children aged 12-23 months, and to identify factors associated with incomplete immunization status in Togo.

METHODS:

A cross-sectional survey was conducted in the six health regions of Togo. Children aged 12 to 23 months who were living with one of their parents or guardians from selected households were recruited for the study. Data was collected using a pre-tested questionnaire through face-to-face interviews. Multilevel logistic regression analyses were performed to assess factors associated with incomplete immunization coverage.

RESULTS:

A total of 1261 households were included. Respondents were predominantly women (91.9%) and 22.8% had secondary or higher education level. Immunization cards were available for 85.3% of children. Complete immunization coverage was 72.3%, 95% confidence interval (CI): [69.7-74.8]). After controlling for both individual and contextual level variables, children whose mothers attended secondary school or above were 33% (adjusted Odds Ratio (aOR) = 0.67, CI [0.47-0.94]) less likely to have an incomplete immunization coverage compared to those with no education. The likelihood of incomplete immunization in children decreased with the increase in household's income (aOR = 0.73, 95% CI [0.58-0.93]), children who did not have an immunization card (aOR = 13.41, 95% CI [9.19-19.57]) and those whose parents did not know that children immunization was free of charge (aOR = 1.82, 95% CI [1.00-3.30]) were more likely to have an incomplete immunization. Finally, children whose parents had to walk half an hour to one hour to reach a healthcare center were 57% (aOR = 1.57, 95% CI [1.15-2.13]) more likely to have an incomplete immunization coverage than those whose parents had to walk less than half an hour.

CONCLUSION:
The goal of 90% coverage at the national level has not been achieved in 2017. Innovative strategies such as using electronic cards and strengthening sensitization activities must be initiated in order to attain a complete immunization coverage in Togo.

WEB: 10.1186/s12889-018-5881-z
IMPACT FACTOR: 2.42
CITED HALF-LIFE: 3.90

START COMMENTARY

Despite efforts to improve immunization coverage, coverage does not meet WHO targets in Togo. Ekouevi et al. conducted a cross-sectional household survey in all six health districts of Togo in 2017 to estimate vaccine coverage among children 12 to 23 months and assess potential factors associated with incomplete immunization. Sampling was conducted based on guidance from the World Health Organization cluster survey methodology (December 2015 draft, in French). Using a pre-tested questionnaire, individual factors (e.g., sociodemographic characteristics of the parents/guardians and possession of immunization cards) and contextual factors (e.g., walking time to immunization centers) were analyzed to determine their association with incomplete immunization, defined as unimmunized or partially immunized children. Completion of immunization was determined by immunization card or recall of parents or guardians. With 15% of children without immunization cards, recall bias is a potential limitation of the study. Assessment of coverage across all six health districts was a strength of the study; observed variation in coverage between health districts could inform geographic- and context-specific interventions. Results from the multivariate logistic regression should be interpreted with caution (i.e., casual inference) given the cross-sectional study design. Authors noted that absence of a vaccination card “could be endogenous of immunization status.”

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6. A Pilot Study: Factors Influencing Compliance With Tetanus-Diphtheria Vaccine in Katsina State, Northwestern Nigeria

Nass SS.

Health Serv Res Manag Epidemiol. 2018 Aug 1;5: 2333392818789585.

PubMed ID: 30083576

ABSTRACT

BACKGROUND:

Tetanus-diphtheria vaccine (Td+) coverage has been steadily declining in Katsina State, Nigeria. The pilot study was guided by The Andersen and Newman Framework of Health Services Utilization. The goal of the pilot study was to identify the Td+ vaccination coverage and identify any association between maternal residence, educational status, occupational status, access to routine immunization services, availability of routine immunization services, perceived need for Td+, perceived severity of maternal and neonatal tetanus (MNT), and compliance with Td+ in Katsina State.

METHODS:

A cross-sectional survey of 309 randomly selected women in Charanchi district of Katsina State, Nigeria, was conducted. Data were collected using structured questionnaire and analyzed using logistic regression model.

FINDINGS:

The Td+ coverage was low at 23%. Bivariate analysis showed that age, maternal residence, educational status, availability of Td+, perception of Td+, and perception of MNT significantly affected compliance with Td+ ($P < .05$, $P < .05$, $P < .05$, $P < .001$, $P < .001$, $P < .001$, respectively). Multiple logistic regression findings were inconclusive.

CONCLUSION:

Effective strategies to improve compliance were awareness creation on Td+ immunization schedule, risk factors associated with MNT, vaccine availability, and safety. Additionally, improving access to routine immunization services, especially in underserved communities, and effective use of Td+ coverage data were used as strategies.

IMPLICATIONS:

The pilot study suggests that the design can be used to realize more conclusive and generalizable multivariate findings in future studies.

WEB: 10.1177/2333392818789585

IMPACT FACTOR: none

CITED HALF-LIFE: none

START COMMENTARY

Maternal and neonatal tetanus continues to be a significant public health problem in sub-Saharan African countries. To investigate declining coverage of second-dose tetanus-diphtheria (Td2+) immunization in Katsina State, Nigeria, Nass conducted a pilot study in the Charanchi district of Katsina State to assess current coverage of Td2+ and, using the Andersen and Newman Framework of Health Services Utilization, to investigate factors associated with Td2+ immunization. The framework hypothesizes that utilization of healthcare services is dependent upon predisposing factors, enabling factors, and need factors. For this study, Nass included residence, educational status, occupational status (predisposing factors); access to routine immunization services and availability of routine immunization services (enabling factors); and perceived need for Td vaccine and perceived severity of maternal and neonatal tetanus (need factors) as potential factors associated with Td2+ immunization (see Figure 1). Nass used the 2015 working draft of the World Health Organization vaccination coverage cluster survey sampling protocol to inform sample size calculations; however, it appears the sample size was not necessarily powered to conduct subsequent analyses, which might explain some of the empty cells (i.e., zero vaccinated or unvaccinated individuals for some categories of the predictors; see Table 2) and impact the multiple logistic regression results. Given an inconclusive multiple logistic regression, the conclusions made by the author were not fully supported by the results. Despite an inconclusive multiple logistic regression analysis, the descriptive information on perceptions of Td+ and maternal and neonatal tetanus are noteworthy. Information gathered from questionnaire implementation and the study population in this pilot study will be helpful in the design of a full study.

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7. Factors influencing vaccine acceptance and hesitancy in three informal settlements in Lusaka, Zambia

Pugliese-Garcia M, Heyerdahl LW, Mwamba C, Nkwemu S, Chilengi R, Demolis R, et al.
Vaccine. 2018 Aug 4 [Epub ahead of print].
PubMed ID: 30087047

ABSTRACT

INTRODUCTION:
Heterogeneous coverage threatens to compromise the effectiveness of immunization programs in Zambia. Demand-creation initiatives are needed to address this; however, there is incomplete understanding of why vaccine coverage is suboptimal. We investigated overarching perceptions on vaccine acceptability, hesitancy, and accessibility at three informal settlements in Lusaka, Zambia.
METHODS:
Nested within a cholera vaccination uptake study, we sought to understand overarching perceptions on vaccines' hesitancy in three informal settlements in Lusaka, Zambia. We conducted 48 focus group discussions with a convenience sample of laypersons, lay healthcare workers, neighbourhood health committee members and vaccinators.
RESULTS:
Both laypersons and community-based health actors reported high vaccine acceptance though several sources of hesitancy were reported. Traditional remedies, alcohol use and religious beliefs emerged as drivers of vaccine hesitancy, likely reinforced by a background of distrust towards western medicine. Also mentioned were previous adverse events, fear of injections and low perceived need for immunization. Limited understanding of how vaccines work and overlapping local terms for vaccine and other medical concepts created confusion and inaccurate views and expectations. Some reported refusing injections to avoid pain and perceived risk of infection. Discussants emphasised the importance of education and preferred mobile immunization campaigns, with weekend to reach those with poor access and delivered by a combination of professional and volunteer workers.
CONCLUSIONS:
Vaccine hesitancy in Zambia is underpinned by many factors including personal experiences with vaccinations, alternative belief models, limited knowledge, deep misunderstanding about how vaccines work, and barriers to access. To overcome these, community-driven models that incorporate factual communication by professionals and operate outside of traditional hours, may help. Better research to understand community preferences for vaccine uptake could inform interventions to improve immunization coverage in Zambia.

WEB: 10.1016/j.vaccine.2018.07.042
IMPACT FACTOR: 3.29
CITED HALF-LIFE: 5.50

START COMMENTARY

During an oral cholera vaccine campaign following a cholera outbreak, Pugliese-Garcia et al. conducted a qualitative study to assess perceptions around vaccines in three “compounds,” which authors described as “informal settlements characterized by crowding, poor housing, inadequate water and sanitation and large transient populations for rural areas,” in Lusaka, Zambia. Pugliese-Garcia et al. used latent content analysis to find the underlying meaning of data collected in the focus group discussions and summarized findings into three themes—acceptability and perceived safety, misconception and perceived effectiveness, and preferences for vaccine delivery—and six sub-themes. Authors highlighted the following limitations of the study: an inability to quantify the prevalence of reasons for vaccine hesitancy, potential non-generalizability if hard-to-reach populations (and those distrusting of vaccines) were not captured in the convenience sample, and the inability to discuss sensitive topics, such as HIV status, that might contribute to vaccine hesitancy. Additionally, it is unclear whether readers should be concerned about interviewer bias as authors did not provide sufficient detail on how discussions were conducted (e.g., initial prompts/questions). This study identified several factors related to vaccine hesitancy that could inform more in-depth study and potential interventions to better understand and improve vaccine uptake.

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8. The role of National Immunisation Technical Advisory Groups (NITAGs) in strengthening national vaccine decision-making: A comparative case study of Armenia, Ghana, Indonesia, Nigeria, Senegal and Uganda

Howard N, Walls H, Bell S, Mounier-Jack S.

Vaccine. 2018 Jul 31 [Epub ahead of print].

PubMed ID: 30076103

ABSTRACT

INTRODUCTION:

Improving evidence informed decision-making in immunisation is a global health priority and many low and middle-income countries have established National Immunisation Technical Advisory Groups (NITAGs) as independent technical advisory bodies for this purpose. NITAG development and strengthening has received financial and technical support over the past decade, but relatively little evaluation. This study examined NITAGs in six low and middle-income countries (i.e. Armenia, Ghana, Indonesia, Nigeria, Senegal, Uganda), to examine functionality, quality of recommendation development, and integration with national decision-making bodies and processes.

METHODS:

A mixed-method case-series design, used semi-structured interviews, NITAG meeting observations, and document review. Data were analysed thematically.

RESULTS:

Five NITAGs had been legally established with terms of reference and appeared well functioning, with Ghana's in development. All NITAGs had standard operating procedures and nomination procedures to ensure a range of expertise, generally comprising 10-15 core, 1-5 secretariat, and several ex-officio members. Aside from economics, NITAGs reported a wide range of member expertise. Newer NITAGs had particular concerns about funding. Four used formal conflict of interest procedures, although some commented that implications were not always understood. NITAGs valued local data, and limited evidence suggested NITAG presence might reinforce data production through surveillance and local research studies. All observed meetings demonstrated due process and evidence-based decision-making processes were generally followed, with a critical role played by working-group data syntheses and assessments. NITAGs were seen as well integrated with ministry of health (MoH) decision-making and MoH interviewees were positive about NITAG contributions, indicating NITAGs had an important role. Collaboration with other bodies was more limited, but mitigated by NITAG members' cross-membership in other bodies.

CONCLUSIONS:
NITAGs have an important and valued role within national immunisation decision-making. However, their position remains insecure, with the need for sustainable technical and financial support.

WEB: 10.1016/j.vaccine.2018.07.063
IMPACT FACTOR: 3.29
CITED HALF-LIFE: 5.50

START COMMENTARY

This case series was part of an external evaluation of the SIVAC Initiative, which provided technical support for the establishment and strengthening of NITAGs in low- and middle-income countries from 2008 to 2017. Howard et al. used *NITAG Evaluation Tool* categories—functionality, quality of process and outputs, and integration with national decision-making—to analyze data collected via interviews, meeting observations, and documentation. A description of each country's NITAG and examples of recent recommendations were provided in Table 1. Overall NITAG challenges and findings were summarized in Table 2. NITAGs were described as valuable groups that evaluate evidence and provide expertise to inform and make credible, efficient vaccination strategies appropriate for a given country. Interviewees noted that NITAGs can tailor WHO-SAGE recommendations to fit the country context and explore more sustainable vaccination policies. Authors stated that findings are limited to the views of those interviewed and cannot be generalized to other countries, though many common themes were identified across the six countries included in the analysis.

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9. Strengthening routine immunization through measles-rubella elimination

Biellik RJ, Orenstein WA.

Vaccine. 2018 Jul 21 [Epub ahead of print].

PubMed ID: 30041881

ABSTRACT

The 2016 mid-term review of the Global Measles-Rubella Strategic Plan 2012-20 for achieving measles-rubella elimination concluded that the full potential of strategies and activities to strengthen routine immunization (RI) service delivery had not been met. In December 2017, we contacted WHO and partner agency immunization staff in all six WHO Regions who identified 23 countries working on measles or rubella elimination that have implemented examples of recommended activities to improve RI, adapted to their needs. Among those examples, opportunities to strengthen RI through implementing supplementary immunization activities (SIAs) were reported most frequently, including advocacy for immunization and educational activities targeted at the public and skills training targeted at health professionals. The expansion of cold chain capacity to accommodate supplies required for SIAs facilitated widening RI service delivery to reach more communities, introduce new vaccines, and reduce the risk of vaccine stock-outs. Substantial numbers of under-vaccinated children, according to the national immunization schedule, have been identified during SIAs, but it is not possible to confirm whether these children actually received missing RI doses. Micro-planning exercises for SIAs have generated data that permitted the revision of catchment populations for fixed site and outreach RI services. Some countries reported using the opportunity afforded by measles/rubella elimination to strengthen overall vaccine-preventable disease surveillance and outbreak preparedness and to introduce mandatory school-entry vaccination requirements covering other vaccines in addition to measles and rubella. Unfortunately, we were unable to obtain information regarding the cost, impact or sustainability of these activities. The evaluation of the many other strategies that have been deployed in recent years to strengthen RI systems and raise vaccination coverage was beyond the scope of this survey. We conclude by providing recommendations to encourage more countries to adapt and implement a comprehensive set of RI-strengthening activities in association with the MR elimination goal.

WEB: 10.1016/j.vaccine.2018.07.029

IMPACT FACTOR: 3.29

CITED HALF-LIFE: 5.50

START COMMENTARY

With the goal of encouraging National Immunization Program managers to strengthen routine immunization (RI) service delivery, Biellik et al. surveyed a convenience sample of WHO and partner agency immunization staff from 23 countries in all six WHO Regions and found 31 examples of successful instances of Measles-Rubella (MR) elimination program activities strengthening RI service delivery. Examples were categorized into activities based on the WHO Global Routine Immunization Strategic Plan (see Table 1 and 2). Recommendations included creating a protocol to assess the impact of supplementary immunization activities (SIAs); documentation of negative impacts of MR elimination activities on RI service delivery; maintaining or expanding RI-strengthening activities by including quantitative indicators to monitor those activities and collecting information on costing and sustainability; factoring in budget for follow-up activities; promoting steps that close immunity gaps such as school-entry requirement; and accelerating awareness and compliance with RI booster doses in the second year of life via a second-year-of-life (2YL) platform. Authors noted the focus of this study was to gather successful examples of RI-strengthening activities, so challenges and barriers were not included. Survey results were not representative and should not be used to make inter-regional or inter-category comparisons.

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10. Assessment of select electronic health information systems that support immunization data capture – Kenya, 2017

Namageyo-Funa A, Aketch M, Tabu C, MacNeil A, Bloland P.

BMC Health Serv Res. 2018 Aug 8;18(1):621.

PubMed ID: 30089497

ABSTRACT

BACKGROUND:

Although electronic health information systems (EHIS) with immunization components exist in Kenya, questions and concerns remain about their use and alignment with the Kenya Ministry of Health's (MOH) National Vaccine and Immunization Program (NVIP). This article reports on the findings of an assessment of select EHIS with immunization components in Kenya, specifically related to system design, development, and implementation.

METHODS:

We conducted a rapid assessment of select EHIS with immunization components in Kenya from January to May 2017 to understand the design, development, implementation of the EHIS including the lessons learned from their use. We also assessed how the data elements in the EHIS compared to the data elements in the Maternal and Child Health Booklet used in the existing paper based system in Kenya.

RESULTS:

The EHIS reviewed varied in purpose, content, and population covered. Only one system was built to focus specifically on immunization data. Substantial differences in system functionality and immunization-related data elements included in the EHIS were identified. None of the EHIS had all the data elements necessary to fully replace or operate independently from the standardized paper-based system for recording immunization data in Kenya.

CONCLUSIONS:

Overall, the findings of this assessment highlighted substantial variation in the EHIS with immunization components. The findings provide insights and lessons learned for the Kenya MOH NVIP, immunization partners, vendors of EHIS, and users of EHIS to consider as Kenya transitions from paper-based to electronic immunization information systems.

WEB: 10.1186/s12913-018-3435-9

IMPACT FACTOR: 1.84

CITE HALF-LIFE: 4.50

START COMMENTARY

Currently in Kenya, immunization records are primarily stored in standardized paper-based immunization information systems (IIS). As technology advances, the Kenyan Ministry of Health National Vaccine and Immunization Program (NVIP) seeks to utilize electronic health information systems (EHIS) to better manage and utilize immunization data. Namageyo-Funa et al. conducted a rapid review of a convenience sample of existing EHIS in Kenya to understand the development and implementation of EHIS to inform future use by NVIP. Six EHIS met the inclusion criteria of 1) collects immunization data, 2) used by immunization staff, and 3) EHIS management interest in participating in the assessment. Table 1 provides characteristics of each EHIS included in the assessment. EHIS managers selected staff and health facilities to participate in the assessment. Assessments were measured through semi-structured interviews and site visits to health facilities with EHIS. Processes and types of data (see Table 2 for data elements) were evaluated; however, data quality within the EHIS was not evaluated. Two immunization-specific barriers (see Table 3 for facilitators and barriers) were identified: “inability to update/include previously given vaccines” and “inability to generate reports required by [NVIP].” Of note, Namageyo-Funa et al. highlighted that lack of standardization of electronic IIS made sharing data difficult on the national level. Standards should be set to facilitate data sharing across multiple facilities. Authors stated potential bias as a study limitation due to the rapid, semi-structured design (e.g., convenience sample of EHIS may introduce selection bias, open nature of questions may introduce interviewer bias, etc.).

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Appendix

The literature search for the September 2018 Vaccine Delivery Research Digest was conducted on August 20, 2018. We searched English language articles indexed by the US National Library of Medicine and published between July 15, 2018 and August 14, 2018. The search resulted in 214 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]) ("2018/7/15"[PDAT] : "2018/8/14"[PDAT]))