VACCINE DELIVERY RESEARCH DIGEST

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

REPORT TO THE BILL & MELINDA GATES FOUNDATION

PRODUCED BY: ARAKAKI L, BABIGUMIRA JB

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1. The Euvichol story - Development and licensure of a safe, effective and affordable oral cholera vaccine through global public private partnerships

Odevall L, Hong D, Digilio L, Sahastrauddhe S, Mogasale V, Baik Y, et al.

Vaccine. 2018 Oct 29;36(45):6606-6614.

PubMed ID: 30314912

ABSTRACT

Cholera, a diarrheal disease primarily affecting vulnerable populations in developing countries, is estimated to cause disease in more than 2.5 million people and kill almost 100,000 annually. An oral cholera vaccine (OCV) has been available globally since 2001; the demand for this vaccine from affected countries has however been very low, due to various factors including vaccine price and mode of administration. The low demand for the vaccine and limited commercial incentives to invest in research and development of vaccines for developing country markets has kept the global supply of OCVs down. Since 1999, the International Vaccine Institute has been committed to make safe, effective and affordable OCVs accessible. Through a variety of partnerships with collaborators in Sweden, Vietnam, India and South Korea, and with public and private funding, IVI facilitated development and production of two affordable and WHO-prequalified OCVs and together with other stakeholders accelerated the introduction of these vaccines for the global public-sector market.

WEB: 10.1016/j.vaccine.2018.09.026

IMPACT FACTOR: 3.29

CITED HALF-LIFE: 5.50

START COMMENTARY

Odevall et al. described the International Vaccine Institute's (IVI) role in the development of two WHO-prequalified oral cholera vaccines (OCV), Shanchol and Euvichol. Through partnerships with Vietnam and India, IVI expeditated the development and approval of Shanchol. IVI facilitated a vaccine reformulation that resulted in a higher yield and lower production costs, as well as facilitated a technology transfer to enable WHO-prequalification, allowing the vaccine to enter the global public market at $1.85 per dose. Outbreaks, discussions about stockpiling OCV, and an OCV demand

forecast highlighted the need for additional supply. IVI partnered with EuBiologics to help meet the demand. EuBiologics, which had no experience in vaccine production, received a technology transfer from IVI and eventually created Euvichol. Euvichol received WHO-prequalification in 2015 and in 2016 for a reformulation. The improved, Euvichol-Plus delivers the vaccine in plastic vials instead of glass vials. For a depiction of the Shanchol, Euvichol, and Euvichol-Plus vaccines see Figure 3. Authors highlighted key lessons learned from the partnerships including the benefit of leadership from an “external non-commercial entity” and making “early contact with regulatory agencies” (see Figure 4). Twenty-five million doses of OCVs have been delivered in 19 different countries from 2013 to 2018. However, the OCV stockpile is constrained and, therefore, IVI is currently seeking other OCV suppliers.

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2. The impact and cost-effectiveness of controlling cholera through the use of oral cholera vaccines in urban Bangladesh: A disease modeling and economic analysis

Khan AI, Levin A, Chao DL, DeRoeck D, Dimitrov DT, Khan JAM, et al.

PLoS Negl Trop Dis. 2018 Oct 9;12(10):e0006652.

PubMed ID: 30300420

ABSTRACT

BACKGROUND:

Cholera remains an important public health problem in major cities in Bangladesh, especially in slum areas. In response to growing interest among local policymakers to control this disease, this study estimated the impact and cost-effectiveness of preventive cholera vaccination over a ten-year period in a high-risk slum population in Dhaka to inform decisions about the use of oral cholera vaccines as a key tool in reducing cholera risk in such populations.

METHODOLOGY/PRINCIPAL FINDINGS:

Assuming use of a two-dose killed whole-cell oral cholera vaccine to be produced locally, the number of cholera cases and deaths averted was estimated for three target group options (1-4 year olds, 1-14 year olds, and all persons 1+), using cholera incidence data from Dhaka, estimates of vaccination coverage rates from the literature, and a dynamic model of cholera transmission based on data from Matlab, which incorporates herd effects. Local estimates of vaccination costs minus savings in treatment costs, were used to obtain incremental cost-effectiveness ratios for one- and ten-dose vial sizes. Vaccinating 1-14 year olds every three years, combined with annual routine vaccination of children, would be the most cost-effective strategy, reducing incidence in this population by 45% (assuming 10% annual migration), and costing was $823 (2015 USD) for single dose vials and $591 (2015 USD) for ten-dose vials per disability-adjusted life year (DALY) averted. Vaccinating all ages one year and above would reduce incidence by >90%, but would be 50% less cost-effective ($894-1,234/DALY averted). Limiting vaccination to 1-4 year olds would be the least cost-effective strategy (preventing only 7% of cases and costing $1,276-$1,731/DALY averted), due to the limited herd effects of vaccinating this small population and the lower vaccine efficacy in this age group.

CONCLUSIONS/SIGNIFICANCE:

Providing cholera vaccine to slum populations in Dhaka through periodic vaccination campaigns would significantly reduce cholera incidence and inequities, and be especially cost-effective if all 1-14 year olds are targeted.

WEB: 10.1371/journal.pntd.0006652
IMPACT FACTOR: n/a
CITED HALF-LIFE: 3.20

START COMMENTARY

The Matlab model incorporated herd effects and seasonality, as well as adjusted for migration factors of Dhaka. Adjustments were also made to include age group-specific vaccine efficacy. There was uncertainty with several parameters, such as case fatality ratio, vaccine price, delivery cost, treatment costs, and cholera incidence. Authors conducted sensitivity analyses to determine whether and to what extent different values of the parameters would impact results. They found that cost per DALY were most impacted by variation in case fatality ratio, incidence rates, and cost of treatment, but overall conclusions did not change. Authors also investigated an additional scenario of a vaccination campaign every 5 years (assuming 5 years of protection) and found there were more cases after 4 or 5 years compared to a 3-year vaccination campaign, but only modest decreases in average effectiveness over a 10-year period. Authors suggested a 5-year strategy to increase affordability, however, cautioned decreased effectiveness if the population is highly migratory (as out-migration would reduce the number of individuals protected). Authors noted that while many vaccination campaigns target children less than 5 years as the most vulnerable population, this vaccination scenario was found to be less effective because of the small population size and lower vaccine efficacy. However, authors also noted that if children less than 5 years have a greater impact on transmission, then vaccinating this group may have more impact.

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3. Oral cholera vaccine coverage during a preventive door-to-door mass vaccination campaign in Nampula, Mozambique

Semá Baltazar C, Rafael F, Langa JPM, Chicumbe S, Cavailler P, Gessner BD, et al.

PLoS One. 2018 Oct 3;13(10):e0198592.

PubMed ID: 30281604

ABSTRACT

BACKGROUND:

In addition to improving water, sanitation and hygiene (WASH) measures and optimal case management, the introduction of Oral cholera vaccine (OCV) is a complementary strategy for cholera prevention and control for vulnerable population groups. In October 2016, the Mozambique Ministry of Health implemented a mass vaccination campaign using a two-dose regimen of the Shanchol™ OCV in six high-risk neighborhoods of Nampula city, in Northern Mozambique. Overall 193,403 people were targeted by the campaign, which used a door-to-door strategy. During campaign follow-up, a population survey was conducted to assess: (1) OCV coverage; (2) frequency of adverse events following immunization; (3) vaccine acceptability and (4) reasons for non-vaccination.

METHODOLOGY/PRINCIPAL FINDINGS:

In the absence of a household listing and clear administrative neighborhood delimitations, we used geospatial technology to select households from satellite images and used the support of community leaders. One person per household was randomly selected for interview. In total, 636 individuals were enrolled in the survey. The overall vaccination coverage with at least one dose (including card and oral reporting) was 69.5% (95%CI: 51.2-88.2) and the two-dose coverage was 51.2% (95%CI: 37.9-64.3). The campaign was well accepted. Among the 185 non-vaccinated individuals, 83 (44.6%) did not take the vaccine because they were absent when the vaccination team visited their houses. Among the 451 vaccinated individuals, 47 (10%) reported minor and non-specific complaints, and 78 (17.3%) mentioned they did not receive any information before the campaign.

CONCLUSIONS/SIGNIFICANCE:

In spite of overall coverage being slightly lower than expected, the use of a mobile door-to-door strategy remains a viable option even in densely-populated urban settings. Our results suggest that campaigns can be successfully implemented and well accepted in Mozambique in non-emergency contexts in order to prevent cholera outbreaks. These findings are encouraging and complement the previous Mozambican experience related to OCV.

WEB: 10.1371/journal.pone.0198592

IMPACT FACTOR: 2.77

CITED HALF-LIFE: 2.70

START COMMENTARY

The two-dose oral cholera vaccine (OCV) campaign targeted individuals older than one year of age in six high-risk neighborhoods of Nampula. Cholera immunization status was obtained through vaccination cards or self-report. Efforts were made to obtain responses for an absent person, with protocol dictating another house be selected after the third attempt to survey an individual. A strength of the study was the use of satellite images and community leaders to inform household selection in the absence of household lists. Authors suggested increased awareness and planning to improve coverage, as well as an additional vaccine delivery approach of stationary posts to capture those who may not be home at a door-to-door visit.

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4. EBOVAC-Salone: Lessons learned from implementing an Ebola vaccine trial in an Ebola-affected country

Mooney T, Smout E, Leigh B, Greenwood B, Enria L, Ishola D, et al.

Clin Trials. 2018 Oct;15(5):436-443.

PubMed ID: 29895178

ABSTRACT

Background/aims During the 2014-2016 West African Ebola epidemic, clinical trials were fast-tracked in order to identify prophylactic vaccines and experimental treatments that might be useful in preventing or treating Ebola. These trials included the ongoing EBOVAC-Salone study, which was established and implemented in Sierra Leone to assess the safety and immunogenicity of the Ad26.ZEBOV/MVA-BN-Filo prime-boost Ebola vaccine regimen. Methods This article describes the experiences of the EBOVAC-Salone research team in setting up and implementing the trial, and provides recommendations for research teams aiming to conduct clinical trials in future outbreak situations. Results Establishing a clinical trial during an outbreak brought some unique challenges, including those related to trial design and the regulatory environment, operational issues, and community engagement. The situation was further complicated by the weak infrastructure and limited experience of clinical trials in Sierra Leone. However, operating in an outbreak context also brought some benefits to the research team, including strong stakeholder support. The EBOVAC-Salone study recruited participants both during and after the outbreak, leading to additional challenges to trial implementation during the post-outbreak transition. Conclusion Many lessons have been learned about setting up and implementing a clinical trial during a devastating Ebola epidemic, and some of the experiences of the EBOVAC-Salone team were mirrored by those of other researchers operating in the region. Common to several of these research groups is a recommendation that research should be more closely incorporated into outbreak response planning, which could expedite the establishment of timely and appropriate research projects. We recommend that the lessons learned by researchers during the West African Ebola epidemic are built into programmes and strategies to improve the responses to future epidemics, wherever they occur.

WEB: 10.1177/1740774518780678

IMPACT FACTOR: 2.71

CITED HALF-LIFE: n/a

START COMMENTARY

Authors highlighted the complexity and dynamic nature of setting up a clinical trial during the 2014–2016 Ebola outbreak. Authors described the shift in trial study design and aims when the outbreak rapidly declined and it was clear the necessary sample size would not be achieved. The study team comprised of outside investigators and junior national staff to avoid pulling healthcare workers from the Ebola response. Authors described several ethical considerations, including the use of a placebo control, and how the team addressed them. Of note, authors stressed the importance of social scientists to ensure appropriate engagement with the community.

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5. Revealing Measles Outbreak Risk With a Nested Immunoglobulin G Serosurvey in Madagascar

Winter AK, Wesolowski AP, Mensah KJ, Ramamonjiharisoa MB, Randriamanantena AH, Razafindratsimandresy R, et al.

Am J Epidemiol. 2018 Oct 1; 187(10):2219-2226.

PubMed ID: 29878051

ABSTRACT

Madagascar reports few measles cases annually and high vaccination campaign coverage. However, the underlying age profile of immunity and risk of a measles outbreak is unknown. We conducted a nested serological survey, testing 1,005 serum samples (collected between November 2013 and December 2015 via Madagascar's febrile rash surveillance system) for measles immunoglobulin G antibody titers. We directly estimated the age profile of immunity and compared these estimates with indirect estimates based on a birth cohort model of vaccination coverage and natural infection. Combining these estimates of the age profile of immunity in the population with an age-structured model of transmission, we further predicted the risk of a measles outbreak and the impact of mitigation strategies designed around supplementary immunization activities. The direct and indirect estimates of age-specific seroprevalence show that current measles susceptibility is over 10%, and modeling suggests that Madagascar may be at risk of a major measles epidemic.

WEB: 10.1093/aje/kwy114

IMPACT FACTOR: 4.32

CITED HALF-LIFE: 0.00

START COMMENTARY

The indirect estimate of immunity included a natural infection estimate from the literature and WHO vaccination coverage estimates for routine immunization and 16 supplementary immunization activities (SIA). Authors attempted to minimize the bias of obtaining serum samples from a passive febrile-rash surveillance system by excluding samples that tested positive for measles immunoglobulin M (indicating natural measles infection). Authors also age-adjusted their analysis since samples overrepresented younger ages. Figure 2 shows the proportion of seropositive individuals from the direct and indirect estimates of seropositivity by age. Figure 3 shows the impact of SIA on effective reproductive number, proportion of susceptibles, and the potential for an outbreak. Authors highlighted the following limitations in their study: biased measles seroprevalence

since fever or rash are side-effects of vaccination, non-generalizability of samples, differential sampling based on medical history (i.e., physicians may or may not order tests based on whether individuals previously had measles or an immunization).

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6. The need to improve access to rabies post-exposure vaccines: Lessons from Tanzania

Changalucha J, Steenson R, Grieve E, Cleaveland S, Lembo T, Lushasi K, et al.

Vaccine. 2018 Oct 8 [Epub ahead of print].

PubMed ID: 30309746

ABSTRACT

BACKGROUND:

Rabies is preventable through prompt administration of post-exposure prophylaxis (PEP) to exposed persons, but PEP access is limited in many rabies-endemic countries. We investigated how access to PEP can be improved to better prevent human rabies.

METHODS:

Using data from different settings in Tanzania, including contact tracing (2,367 probable rabies exposures identified) and large-scale mobile phone-based surveillance (24,999 patient records), we estimated the incidence of rabies exposures and bite-injuries, and examined health seeking and health outcomes in relation to PEP access. We used surveys and qualitative interviews with stakeholders within the health system to further characterise PEP supply and triangulate these findings.

RESULTS:

Incidence of bite-injury patients was related to dog population sizes, with higher incidence in districts with lower human:dog ratios and urban centres. A substantial percentage (25%) of probable rabies exposures did not seek care due to costs and limited appreciation of risk. Upon seeking care a further 15% of probable rabies exposed persons did not obtain PEP due to shortages, cost barriers or misadvice. Of those that initiated PEP, 46% did not complete the course. If no PEP was administered, the risk of developing rabies following a probable rabies exposure was high (0.165), with bites to the head carrying most risk. Decentralized and free PEP increased the probability that patients received PEP and reduced delays in initiating PEP. No major difficulties were encountered by health workers whilst switching to dose-sparing ID administration of PEP. Health infrastructure also includes sufficient cold chain capacity to support improved PEP provision. However, high costs to governments and patients currently limits the supply chain and PEP access. The cost barrier was exacerbated by decentralization of budgets, with priority given to purchase of cheaper medicines for other conditions. Reactive procurement resulted in limited and unresponsive PEP supply, increasing costs and risks to bite victims.

CONCLUSION:

PEP access could be improved and rabies deaths reduced through ring-fenced procurement, switching to dose-sparing ID regimens and free provision of PEP.

WEB: 10.1016/j.vaccine.2018.08.086
IMPACT FACTOR: 3.29
CITED HALF-LIFE: 5.50

START COMMENTARY

Contact tracing was conducted in Serengeti and Ngorongoro districts from 2002 to 2017 and in 14 districts in southern Tanzania from 2011 to 2017 using the WHO case definition for probable rabies. The mobile phone-based surveillance system was implemented in 28 districts in 7 regions of southern Tanzania from 2011 to 2016. Authors noted variation in rabies control and availability/access to post exposure prophylaxis (PEP) by district, which could explain differences in rates of rabies exposure, bite-injuries, and receipt of PEP. Authors also found 37.7% of patients travelled outside their home district in order to receive PEP. Limitations to the study include overestimating patients receiving PEP through the mobile surveillance system based on stockouts, if patients seek PEP elsewhere; patient recall through contact tracing; and potential biased PEP effectiveness since exposure is based on probable rabies, not confirmed rabies.

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7. Health system barriers and levers in implementation of the Expanded Program on Immunization (EPI) in Pakistan: an evidence informed situation analysis

Shaikh BT, Haq ZU, Tran N, Hafeez A.

Public Health Rev. 2018 Sep 17;39:24.

PubMed ID: 30237907

ABSTRACT

BACKGROUND:

In Pakistan, immunization coverage has been quite low since the program's inception, and the 2012-2013 population-based survey recorded it at 54%. Much has been written about the issues, challenges, and constraints in the implementation of Pakistan's immunization program. However, there is a need to better understand the health system barriers as well as levers that influence progress. This review aims to bridge the information gaps on system-level barriers that currently impede the optimal delivery and uptake of immunization services to the children of Pakistan through the Expanded Program on Immunization (EPI).

METHODS:

We conducted a comprehensive literature review, using PubMed and Google Scholar to find peer-reviewed literature, and also reviewed EPI-related international and national reports. Additionally, we consulted government reports, surveys, and publications on the health system. Employing the basic tenets of WHO's health systems framework for health system strengthening, and a socio-ecological model, this study cataloged the service delivery and the demand side perspective on various pillars of Pakistan's immunization program.

RESULTS:

Themes generated from the literature review included financing, governance, service delivery, human resources, information systems, and supplies and vaccines. Findings suggest that certain areas in the larger health system need to be improved for a more coordinated implementation of EPI in Pakistan. Moreover, it is imperative to understand community behaviors and perceptions as well as demand side issues in order to achieve the desired results.

CONCLUSION:

For better immunization coverage and ultimately a reduction in child mortality due to preventable diseases, EPI operations and performance must be improved. Further systematic implementation research could help to develop an even finer understanding of the system-wide bottlenecks encumbering the coverage and efficiency of the program.

WEB: 10.1186/s40985-018-0103-x
IMPACT FACTOR: n/a
CITED HALF-LIFE: n/a

START COMMENTARY

In this narrative review, authors summarize key findings from published and gray literature into themes. Of note, authors identified inadequate funding for cold chain, the need for programmatic coordination on all levels ranging from federal to local, an assessment of human resource capacity and skill, and engagement of the private sector, which comprises of 80% of care-seeking in Pakistan. Technological advances for better Expanded Program on Immunization (EPI) data collection and use, engagement with communities to increase demand, and conducting risk assessments were also highlighted as recommended actions to improve EPI in Pakistan.

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8. Factors that affect immunization data quality in Kabarole District, Uganda

Nsubuga F, Luzze H, Ampeire I, Kasasa S, Toliva OB, Riolexus AA.

PLoS One. 2018 Sep 21;13(9):e0203747.

PubMed ID: 30240400

ABSTRACT

INTRODUCTION:

Reliable and timely immunization data is vital at all levels of health care to inform decisions and improve program performance. Inadequate data quality may impair our understanding of the true vaccination coverage and also hinder our capability to meet the program objectives. It's therefore important to regularly assess immunization data quality to ensure good performance, sound decision making and efficient use of resources.

METHODS:

We conducted an immunization data quality audit between July and August 2016. The verification factor was estimated by dividing the recounted diphtheria, pertussis and tetanus third dose vaccination for children under 1 year (DPT3<1 year) by reported DPT3<1 year. The quality of data collection processes was measured using quality indices for the 3 different components: recording practices, storage/reporting, monitoring and evaluation. These indices were applied to the different levels of the health care service delivery system. Quality index score was estimated by dividing the total question or observation correctly answered by the total number of answers/ observations for a particular component.

RESULTS:

The mean health center verification factor was 87%. Sixty five percent (32/49) of the health centers had consistent data, 27% (13/49) over reported and 4% (2/49) under-reported. Health center 11s and 111s contributed to over-reporting and under-reporting. All the health centers' reports were complete and timely between January and June and from November to December. The mean quality indices for the 3 different components assessed were; recording practices 66%, storing/reporting 75%, monitoring and evaluation 43%. There was a weak positive correlation between the health center verification factor and quality index though this was not statistically significant ($r = 0.014$; $p = 0.92$).

CONCLUSION:

Lower level health centers contributed significantly to the inconsistencies in immunization data; there were wide variation between the quality indices of recording practices, storage/reporting, monitoring and evaluation. We recommended that District Local Governments and Ministry of Health focus on improving data quality at lower levels of health service delivery.

WEB: 10.1371/journal.pone.0203747
IMPACT FACTOR: 2.77
CITED HALF-LIFE: 2.70

START COMMENTARY

All 49 health centers conducting immunizations in Kabarole District were included in the assessment. Authors created a number of metrics to measure immunization data quality. The verification factor was calculated by comparing health facility records at time of vaccination with annual health facility reports at the district health offices, with ratios between 85% and 115% representing consistent, ratios below 85% representing over-reporting, and ratios over 115% representing under-reporting. Authors found arithmetic errors (20%) and uniqueness, defined as using tools other than the HMIS Form 073a to record immunizations (53%), to contribute to quality of data. Authors also identified "gross under-staffing […] with inadequate knowledge and skills in data management" at the parish and sub-county levels. Authors stated limitations to their study included the lack of generalizability of results to the rest of Uganda, only assessing 3 of the 5 components of the monitoring system, and the inability to assess causality.

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9. Data for decision making: using a dashboard to strengthen routine immunisation in Nigeria

Etamesor S, Ottih C, Salihu IN, Okpani AI.

BMJ Glob Health. 2018 Oct 2;3(5):e000807.
PubMed ID: 30294456

ABSTRACT

Availability of reliable data has for a long time been a challenge for health programmes in Nigeria. Routine immunisation (RI) data have always been characterised by conflicting coverage figures for the same vaccine across different routine data reporting platforms. Following the adoption of District Health Information System version 2 (DHIS2) as a national electronic data management platform, the DHIS2 RI Dashboard Project was initiated to address the absence of some RI-specific indicators on DHIS2. The project was also intended to improve visibility and monitoring of RI indicators as well as strengthen the broader national health management information system by promoting the use of routine data for decision making at all governance levels. This paper documents the process, challenges and lessons learnt in implementing the project in Nigeria. A multistakeholder technical working group developed an implementation framework with clear preimplementation; implementation and postimplementation activities. Beginning with a pilot in Kano state in 2014, the project has been scaled up countrywide. Nearly 34 000 health workers at all administrative levels were trained on RI data tools and DHIS2 use. The project contributed to the improvement in completeness of reports on DHIS2 from 53 % in first quarter 2014 to 81 % in second quarter 2017. The project faced challenges relating to primary healthcare governance structures at the subnational level, infrastructure and human resource capacity. Our experience highlights the need for early and sustained advocacy to stakeholders in a decentralised health system to promote ownership and sustainability of a centrally coordinated systems strengthening initiative.

WEB: 10.1136/bmjgh-2018-000807
IMPACT FACTOR: n/a
CITED HALF-LIFE: n/a

START COMMENTARY

Table 1 highlights the issue of varying vaccine coverage estimates by comparing the 2016 coverage of the third dose pentavalent vaccine, the third dose oral polio vaccine, and the measles across the national immunization coverage survey (NICS), District Health Information System version 2 (DHIS2), and the district vaccine data management tool (DVDMT). Pre-implementation activities included creating working groups, performing needs assessments, and building key personnel

expertise in DHIS2. At implementation, several training sessions to train trainers were conducted and trainers were then deployed to subsequently train health workers interacting with DHIS2. Following implementation, a DHIS2 Implementation Officer was assigned to each state to ensure sustainability. Figures 3 and 4 show changes in timeliness of reporting by state, with improvements in most states. Authors noted challenges in the implementation process, including unstable internet connection, the need to train health workers in basic computer skills, labor dispute interruptions, and the need for continued funding support.

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10. Challenges to sustainable immunization systems in Gavi transitioning countries

Cernuschi T, Gaglione S, Bozzani F.

Vaccine. 2018 Oct 29;36(45):6858-6866.
PubMed ID: 30268735

ABSTRACT

The Global Vaccine Action Plan 2011-2020 (GVAP) aims to extend the full benefit of vaccination against vaccine-preventable diseases to all individuals. More than halfway through the Decade of Vaccines, countries classified as Middle-Income by the World Bank struggle to achieve several GVAP targets. Countries transitioning from Gavi, the Vaccine Alliance, represent a key sub-group of Middle Income Countries. Through a review of available literature on the subject, this study documents the lack of comparative analyses on immunization system performance in countries transitioning from Gavi support. Despite increased emphasis on the importance of programmatic sustainability beyond financing through the Gavi 2016-2020 Strategy and availability of data, existing literature has predominantly documented challenges related to domestic financing of immunization. This study complements a review of current literature with an analysis of country assessments conducted by immunization partners since 2011, in an effort to document programmatic challenges related to decision-making for immunization policy, delivery of services, and access to affordable and timely supply in Gavi transitioning countries. In light of the findings, we suggest continued systematic compilation of country performance data beyond financing to inform policy-making, in particular for: (i) development of a more nuanced theory of change towards sustainable immunization programmes and (ii) measurement of progress and key areas for attention and investment.

WEB: 10.1016/j.vaccine.2018.06.012
IMPACT FACTOR: 3.29
CITE HALF-LIFE: 5.50

START COMMENTARY

Cernuschi et al. conducted a PubMed search of published literature since January 2009 onwards, identifying 13 studies for inclusion. In addition to the peer-reviewed literature, authors included 10 policy and performance committee documents, and 19 Gavi board documents in their review. They were only able to analyze 15 of the 26 Gavi-transitioning countries. India, Nigeria, and Indonesia are examples of countries not included in the review due to lack of data. As large countries were excluded from the study, results may not include findings relevant to these countries. Tables 3, 4,

and 5 provide summaries of the results, highlighting common issues found among transitioning countries. Authors noted geographic heterogeneity of issues, stressing the need for country-specific approaches, but also recognizing comparable challenges could benefit from similar types of support.

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Appendix

The literature search for the November 2018 Vaccine Delivery Research Digest was conducted on October 24, 2018. We searched English language articles indexed by the US National Library of Medicine and published between September 15, 2018 and October 14, 2018. The search resulted in 203 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]) ("2018/9/15"[PDAT] : "2018/10/14"[PDAT]))