INTRODUCTION OF INACTIVATED POLIO VACCINE (IPV) IN NEPAL

A PUBLIC HEALTH MILESTONE FOR POLIO FREE NEPAL

DECEMBER, 2015
# Table of Contents

**Acknowledgement**

**Introduction**

**Phase 1: Establish and organize evidence**

1.1 Process for review of evidence
   1.1.1 Disease burden
   1.1.2 Global Polio Eradication Initiative (GPEI)
   1.1.3 Polio endgame strategy
1.2 National endorsement process
1.3 Rationale for IPV introduction in Nepal
1.4 Evidence Review

**Phase 2: Establish Supportive National Strategy**

2.1 Process for creation of supportive national strategies and policies
   2.1.1 National Polio endgame strategy (April 10, 2014)
2.2 National Immunization Programme (NIP)
   Table 1: Immunization Schedule
2.3 SWOT analysis: Nepal IPV Introduction
2.4 GAVI Application
   2.4.1 Budget (Government and GAVI commitment)

**Phase 3: Translating policies into local actions**

3.1 Process for translating policies into local action
3.2 Formative research
3.3 Baseline KAP survey
3.4 Development of communication strategy
   3.4.1 Development of Communication and Implementation Action Plan
3.5 Pre-testing of communication products
3.6 Distribution plan for communication products
3.7 Technical guideline
3.8 Training
3.9 Cold chain and Logistics
3.10 Orientation meetings with stakeholders (MoHP, media, NEPAS, SOPHYN)
3.11 Media Briefing
3.12 Launch Event
3.13 Media Coverage (including SNS)
3.14 Monitoring and evaluation
   3.14.1 Plan for evaluation
### Phase 4: Issues/Lessons Learned

| 4.1 Partnership is a key to success for new vaccine introduction | 32 |
| 4.2 Political commitment creates conducive environment to move things faster | 32 |
| 4.3 Concerns with Multiple Injections | 32 |
| 4.4 OPV should not be forgotten, but should be reemphasized to maintain polio free status | 33 |
| 4.5 Distribution of communication materials to community level takes time | 33 |
| 4.6 Start early and start with baseline KAP survey to guide the whole process | 33 |

### REFERENCES

| REFERENCES | 35 |

### ANNEX

| ANNEX | 37 |
| Annex 1: KAP Baseline findings | 37 |
| Annex 2: IEC materials | 39 |
| Annex 3: Specification of IEC materials | 41 |
| Annex 4: FAQ for media | 42 |
| Annex 5: Agenda for IPV launching ceremony | 44 |
| Annex 6: Press release | 45 |
| Annex 7: Media Coverage | 46 |
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INTRODUCTION OF INACTIVATED POLIO VACCINE (IPV) IN NEPAL
INTRODUCTION
This document describes the process leading to the introduction of IPV in Nepal. Introduction of a new vaccine into a country consists of numerous steps and support/endorsement from multiple stakeholders at the policy level. In addition to lessons from previous introductions, Nepal utilized a policy framework developed by Orin, et al. (2010) which is based on the existing set of WHO guidelines for new vaccine introduction and the experience with acceleration the introduction of Hib, pneumococcal and rota virus vaccine. The proposed framework is based on observations of the process and drivers of new vaccine adoption in GAVI-eligible countries such as Nepal. The following diagram illustrates the process:

The framework organizes major steps in the process into a continuum from evidence to policy through implementation. Even before the consensus of introduction a certain vaccine in to the country, a robust evidence base of the effectiveness of the vaccine for preventing the target disease needs to be established. After evidence has been established, the next step consists of policy makers understanding the cost involved and the likely health impact overtime. Consequently, specific, actionable policies with timeline should be developed which usually requires linking with formal policy making bodies like the National Committee on Immunization Practices (NCIP). In this step, communication strategy, an integral part of reaching to the community should be developed to roll out the policy into action.

A framework developed by Orin et al (2010) was adapted and catered into Nepal’s context. In addition to this framework, a component of an article titled “Introduction of new vaccines: decision making process in Bangladesh” was also used for reference (Uddin, et al., 2013). The study focuses primarily on the decision making process of establishing why vaccines are adopted (or not).

Based on the framework, Nepal also developed a framework of new vaccine introduction with detailed activities as displayed in Figure 2.

Figure 1. Strategic framework in new vaccine introduction

Figure 2. Steps of IPV introduction in Nepal
PHASE 1
Establish and organize evidence
1.1 Process for review of evidence

The NCIP consists of 11 regular members, 8 of whom were appointed by title in governmental or nongovernmental organizations and three are independent experts. The NCIP serves to advise the MoHP on the following: Optimal immunization policy and strategies for public and private settings; impact of the immunization program; the need for further data and research and development in new vaccines for policy making; and special policy and strategy direction in emergency situations to control and imminent or identified epidemic of vaccine preventable diseases.

In August 2014, NCIP recommended that IPV should be included in routine immunization at 14 weeks and in case of missed dose at the recommended age, IPV should be given at first contact after 14 weeks until 1 year of age. In the same meeting, PCV 10 was also scheduled to be given in three doses at six weeks, ten weeks and nine months. This decision was aligned with recommendations from National Committee on Immunization Practices (NCIP) and was seconded by further studies in areas such as multiple injectable vaccines and immunogenic studies. Based on the research findings and programmatic considerations, NCIP decided to change the PCV schedule to 6, 14 weeks and 9 month.

1.1.1 Disease burden

Polio is a highly infectious disease, which is caused by a virus that invades the nervous system and causes paralysis. The virus is transmitted through person-to–person, mainly through the fecal-oral route. Initial symptoms include fever, fatigue, headache, vomiting, stiffness of the neck, and pain in the limbs. One out of approximately 200 infections results in irreversible paralysis, typically with ca. 5-10% mortality rate. Polio mainly affects children under the age of five and there is no cure for polio although the disease can be prevented through vaccination.

In the early 20th century, polio was one of the most feared diseases that paralyzed hundreds of thousands of children every year. Since 1988 when the global polio eradication initiative began, more than 2.5 billion children have been immunized against polio. In 2013, there were 416 cases reported for the entire year as opposed to over 350,000 cases in 1988. Two of the polio strains of the virus have been since eradicated (Type 2 and 3, 1999 and 2012 respectively). Although the incidence of polio cases has decreased by 99%, there are currently three countries that have never stopped polio transmission (Nigeria, Afghanistan and Pakistan). Although the global burden of polio has been significantly reduced, tackling the last 1% of polio cases has been proven to difficult due to various reasons such as conflict, political instability, hard to reach population and poor infrastructure. Therefore in 2103, the global polio eradication initiative was launched with its most comprehensive and ambitious plan to completely eradicate polio (The Global Polio Eradication Initiative, 2010)

Nepal saw its last case of polio paralysis caused by an indigenous wild poliovirus (WPV) in 2000, and there were no polio cases at all reported between then and 2004. However, poliovirus was imported from India in 2005 and there were four to six polio cases every year until 2008, and again in 2010.
1.1.2 Global Polio Eradication Initiative (GPEI)
After the World Health Assembly passed a resolution to eradicate polio, the Global Polio Eradication Initiative was launched in 1988. As a result, the global incidence of polio has decreased by 99% and now the task remains to tackle the remaining 1%. The GPEI is a five-year strategic plan that outlines measures for eliminating polio and maintaining a polio free world (GPEI, 2010). The initiative is spearheaded by WHO, Rotary international, the US Centers for Disease Control and Prevention (CDC), UNICEF and is led by the national governments.

1.1.3 Polio endgame strategy
The four pillars of polio eradication are:
1. Routine immunization
2. Supplementary immunization
3. Surveillance
4. Targeted “mop-up” campaigns

These pillars are translated into the Polio Eradication and Endgame strategic plan 2013-2018, which consists of a comprehensive long-term strategy that addresses what is needed to deliver a polio free world by 2018. The Polio Eradication and Endgame strategy was endorsed by the World Health Assembly, calling on countries to strengthen routine immunization programmes and introduce at least one dose of IPV as a lead up to the phased removal of the oral polio vaccine (GAVI, 2014). The goal of the Polio Eradication & Endgame Strategic Plan (2013-2018) is to complete the eradication and containment of all polioviruses, such that no child ever again suffers paralytic poliomyelitis. With full implementation of the Eradication and Endgame Strategic Plan, polio will become the first disease of humans to be eradicated in the twenty-first century (World Health Organization, 2013).

1.2 National endorsement process
In 2013, Nepal endorsed the Global Polio Eradication Initiative’s (GPEI) Polio Eradication and Endgame Strategic Plan (2013-2018) to support efforts for global polio eradication. The Ministry of Health in Nepal has endorsed polio endgame strategic plan (2014-2018) to support its efforts for global polio eradication (Child Health Division, 2014). As outlined in the endgame strategic plan, Nepal planned to introduce one dose of IPV in the routine immunization programs by 2014 and switch from tOPV to bOPV by 2015, in line with the Global Polio Eradication Initiative (GPEI) Endgame Plan. As outlined in the strategic plan, Nepal was required to introduce one dose of IPV into the National Immunization Programme at 14 weeks in addition to third dose of OPV into the routine immunization programs by 2014 and switch from tOPV to bOPV by 2015. It is important to note that the new vaccine introduction such as IPV is part of strengthening routine immunization system. In order to request for support for the IPV introduction, the government of Nepal submitted an application to GAVI on 25 March 2014.

1.3 Rationale for IPV introduction in Nepal
The vaccine was introduced to mitigate risks of new polio cases in Nepal and to contribute to the global eradication of the poliovirus. Evidence shows that IPV administered in addition to OPV provides better immunity in vaccinated children, reducing the risks of re-introduction from polio outbreak areas (Jafari et al., 2014). Combined with continued use of OPV, the introduction of IPV will therefore bolster children’s immunity to poliovirus.

In addition to wild type poliovirus, polio paralysis can be caused by so-called vaccine-derived poliovirus. Vaccine derived poliovirus occurs when the live attenuated virus contained in OPV (mainly poliovirus type 2) mutates into a virulent form, which in rare cases can cause paralysis. However, inactivated poliomyelitis vaccine (IPV) contains only fully inactivated or killed strains of the poliovirus, therefore IPV mitigates the risks posed by OPV. In accordance with the Polio Endgame Plan, all countries will switch from trivalent type of OPV to bivalent OPV (which does not contain type 2 attenuated virus) in April 2016. Once virus circulation has been stopped everywhere, OPV will be withdrawn completely (Hasman, Raaijmakers & Noble, 2013).

1.4 Evidence Review
Nepal did not have to generate evidence for the introduction of IPV as it is already recommended by WHO and the strategic advisory group of experts (SAGE) on immunization. SAGE has recommended that all countries introduce at least one dose of IPV into the routine immunization
schedule before the end of 2015 as IPV will mitigate the risks of type 2 re-introduction in association with the withdrawal of type 1 OPV. Because OPV can cause paralysis, OPV cessation must occur to achieve global polio eradication. Therefore, the introduction of IPV before the switch from tOPV to bOPV will ensure substantial proportion of the population is protected against type 2 polio after the withdrawal of type 2 OPV. Unlike OPV, IPV is not a “live” vaccine and thus carries no risk of vaccine-associated polio paralysis.

The burden of invasive pneumococcal disease in Nepal has been assessed in country specific studies (M Hamaluba 2015). Nepal planned to introduce PCV based on a study comparison of two-dose priming plus 9-month booster (2+1) with a standard three-dose priming schedule (3+0) for a ten-valent pneumococcal conjugate vaccine in Nepalese infants: a randomised, controlled, open-label, non-inferiority trial (Hamaluba, et al., 2015). However with the fear of multiple vaccines injection (IPV, PCV, DPT-HepB-Hib) at 14 weeks, PCV 10 is scheduled to be given in three doses at six weeks, ten weeks and nine months. This decision was aligned with recommendations from National Committee on Immunization Practices (NCIP) and will be explored by further studies in areas such as multiple injectable vaccines and immunogenic studies.
PHASE 2
Establish Supportive National Strategy
2.1 Process for creation of supportive national strategies and policies

2.1.1 National Polio endgame strategy (April 10, 2014)

In 2013, Nepal endorsed the Global Polio Eradication Initiative’s (GPEI) Polio Eradication and Endgame Strategic Plan (2013-2018) to support efforts for global polio eradication. The Ministry of Health and Population (MoHP) in Nepal has endorsed polio endgame strategic plan (2014-2018) to support its efforts for global polio eradication (Child Health Division, 2014). Society of Public Health Physicians Nepal (SOPHYN) provided key support to MoHP and Child health division (CHD) for the development of the national polio endgame strategy. The process of engaging and advocating with the Government of Nepal started 5 years ago. The national polio endgame strategy is a tangible result of SOPHYN’s advocacy efforts and the Government’s readiness to introduce the IPV vaccine.

As outlined in the end game strategic plan, Nepal planned to introduce one dose of IPV in the routine immunization programs by 2014 and switch from tOPV to bOPV in line with the Global Polio Eradication Initiative (GPEI) Endgame Plan. In order to request for support for the IPV introduction, the government of Nepal submitted an application to GAVI on 25 March 2014.

A quarter of the world population lives in the 11 countries of the Region – Bangladesh, Bhutan, Democratic People’s Republic of Korea, India, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka, Thailand and Timor-Leste. With this certification on 27 March 2014, 80% of the world’s population now lives in polio-free certified Regions. Nepal has achieved this feat in a period of seventeen years since the National Polio Eradication Campaign was begun in 1996. The polio eradication campaign was part of a global campaign of the World Health Organisation to free the world of polio.

On the 18th of March at the Department of Health Services (DoHS), participants including the Director General of DoHS held a meeting to update members on polio free certification of SEAR countries and to brief members on the submission of the proposal on the introduction of IPV to GAVI. Application
to GAVI was shared with the ICC members, subsequently the endorsement of the proposal to GAVI. Among the many responsibilities of the ICC, some are to provide technical support to national immunization programme (NIP), coordinate with other health programs, coordinate with GoN/NGOs to mobilize resources for immunization program. At the meeting, all the participants declared their full support in ensuring smooth introduction of IPV in the country. Furthermore, the EPI Manager provided details on the IPV introduction plan including the training plan for 8000 health staff. Furthermore, the EPI manager presented on the IPV vaccine and when it will be administered as well as the plan of training 8,000 health staffs on injection safety, cold chain and vaccine management, and new vaccine introductions (including IPV).

NIP currently provides nine antigens, including polio (OPV and IPV since September 2014) for free in health facilities including hospitals, health centers, health posts, and sub health posts and private health delivery institutions. Periodic campaigns and other supplementary immunization activities are carried out periodically for polio and measles.

### Table 1: Immunization Schedule

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Age of administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCG</td>
<td>At birth</td>
</tr>
<tr>
<td>DTP-Hib-HepB</td>
<td>6 weeks, 10 weeks, 14 weeks</td>
</tr>
<tr>
<td>OPV</td>
<td>6 weeks, 10 weeks, 14 weeks</td>
</tr>
<tr>
<td>PCV</td>
<td>6 weeks, 10 weeks, 9 months</td>
</tr>
<tr>
<td>IPV</td>
<td>14 weeks</td>
</tr>
<tr>
<td>MR</td>
<td>9 months</td>
</tr>
<tr>
<td>JE</td>
<td>12 months (high risk districts)</td>
</tr>
<tr>
<td>TT</td>
<td>During pregnancy</td>
</tr>
</tbody>
</table>

### 2.3 SWOT analysis: Nepal IPV Introduction

Below is a SWOT matrix of the immunization system in Nepal, prior to the introduction of IPV in the country.

The SWOT analysis process greatly informed the strategic planning process for the IPV introduction in Nepal. The SWOT analysis process also served as an opportunity for reflection, to identify gaps in the routine immunization system of Nepal and thus use IPV introduction to address some key concerns. The strong political will for IPV introduction was identified as a key strength, and this was aided by the support of development partners and professional associations in the country. The planning process took notice of the weaknesses and potential threats identified, particularly the limited awareness about IPV in the general population and the short timeline for implementation. With this in mind, communication activities focused on the engagement of the Female Community Health Volunteers (FCHVs) and clear messaging on IPV, IPV and OPV and Routine Immunization.

### 2.2 National Immunization Programme (NIP)

The National Immunization Programme (NIP) is a high priority programme for the Government of Nepal. The programme is performing well, with coverage rising from 43% to 90% between 1990 and 2012 (UNICEF South Asia, 2014). NIP has contributed significantly to reductions in child and maternal mortality from vaccine preventable diseases (VPDs). Between 1990 and 2011, the infant mortality rate (IMR) declined from 108 to 46 and the Under-Five Child Mortality Rate (U5MR) from 162 to 38 per 1,000 live births. Nepal is now on track to achieve Millennium Development Goals (MDGs) 4 and 5.

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# Introduction of Inactivated Polio Vaccine (IPV) in Nepal

## Weaknesses

- Limited awareness on IPV among public and health workers
- Cold chain supply and AEFI surveillance system constrained with the introduction of new vaccines.
- Frequent turnover of trained health staff
- High wastage; as per session/vial on use for IPV

## Opportunities

- Immunisation a high priority programme of the Government and immunization coverage high.
- National pride as the first country in the region to introduce IPV
- International partners’ support and attention on Nepal’s IPV introduction from GAVI, UNICEF, WHO.
- Effective partnerships between government, civil society, and international organizations - WHO, UNICEF, Rotary International, GAVI, and USAID.
- Strong presence of professional associations like Nepal Pediatric Society (NEPAS) and the Society of Public Health Physicians Nepal (SOPHYN)
- Recognized need for training and capacity building of health workers.
- Increasing incidence of AEFI cases from districts has recognition of importance of immunization safety.
- Media interest in new vaccines, immunization and child health.

## Threats

- Conflicting and possible replacement with OPV for the same disease (Polio)
- Possible misconceptions among caregivers and health workers on the new vaccine introduction
- Short timeline for planning and implementation
- Long gap between training and introduction could threaten quality of service.
- Limited awareness among providers and parents on AEFI.
- Lack of institutional development process for post introduction surveillance.
- New vaccines introduction means either more injections in a given immunization session, or more sessions. Multiple injections at the same time could be viewed as a challenge.

## Strengths

- Immunization is one of Government of Nepal’s high priority programmes.
- Favorable policy environment– Immunisation Act and Immunisation Fund in place.
- Strong political will on polio eradication after polio-free Nepal declaration in May 2014.
- Existence of national polio endgame strategy.
- Functional National advisory committees for ensuring coordination, technical support and vaccine safety for currently and newly offered vaccines (these committees are: NCIP, ICC, NCCPE, AEFI).
- High routine immunization coverage.
- Sufficient funding for IPV introduction.
- Disseminated new vaccines guidelines on IPV, PCV and MRSD and IEC materials, incorporated in health worker trainings and community communication.
- Strong Female Community Health Volunteer (FCHV) network, a very influential group spread out across the country. FCHVs supported by mothers groups and health watch groups.
- Public and caregiver support for vaccination – caregivers want to vaccinate their children against disease.
- Strong engagement of professional associations like Nepal Pediatric Society (NEPAS) and the Society of Public Health Physicians Nepal (SOPHYN)
- Immunization is one of Government of Nepal’s high priority programmes.
- Favorable policy environment– Immunisation Act and Immunisation Fund in place.
- Strong political will on polio eradication after polio-free Nepal declaration in May 2014.
- Existence of national polio endgame strategy.
- Functional National advisory committees for ensuring coordination, technical support and vaccine safety for currently and newly offered vaccines (these committees are: NCIP, ICC, NCCPE, AEFI).
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- Public and caregiver support for vaccination – caregivers want to vaccinate their children against disease.
- Strong engagement of professional associations like Nepal Pediatric Society (NEPAS) and the Society of Public Health Physicians Nepal (SOPHYN)
2.4 GAVI Application

In its application to GAVI, the Government of Nepal acknowledged that IPV introduction is intended to contribute to the eradication of polio as reflected in the Endgame Strategic Plan and committed to strengthening routine immunization services on a sustainable basis. The Government requested that the GAVI and its partners contribute financial and technical assistance to support immunization of the targeted population with one dose of IPV.

In March 2014, the draft GAVI proposal was presented to the ICC for endorsement. The ICC approved the submission of proposal to GAVI for introduction of IPV, with the members declaring their full support in ensuring smooth introduction of IPV. Approval from GAVI was received with a recommendation for Nepal to maximise synergies for IPV introduction with the introduction of PCV and to include IPV in the comprehensive multiyear plan (Child Health Division, 2011).

2.4.1 Budget

A request for a vaccine introduction grant (VIG) of $0.80 per child in the birth cohort amounting to US$ 510,195, intended to cover a share of the additional costs related to the new vaccine introduction, with the remainder funded by the Government was also included. For IPV, the yearly total vaccine requirement was calculated based on [the target number of individuals to be immunized] + [Doses for wastage 50%] + [Buffer stock doses 25% year 1].
PHASE 3
Translating policies into local actions
3.1 Process for translating policies into local action

Following the approval of GAVI application, Child Health Division (CHD) set up a committee consisting of representatives from WHO, UNICEF and CHD. This committee led the planning process towards introduction.

Based on the GAVI proposal, a detailed plan for IPV introduction was developed including a training plan for building the skills and capacities of 8,000 health staffs on injection safety, cold chain and vaccine management, and new vaccine introductions (including IPV). A detailed communications plan was also developed, based on the formative research conducted by UNICEF.

Technical guidelines for vaccinators were issued and discussions were organized with the CHD and regional directors, vaccinators, FCHVs and health workers in order to get their feedback and views on the planning process to make it as inclusive as possible.

3.2 Formative research

Communication planning requires in-depth understanding of audience and communication context to effectively influence individual and community behavior change. The IPV communication strategy was heavily informed by the formative research on immunization commissioned by UNICEF in 2013. Some of the key findings of the research were:

- 98% are aware of immunization
- Most popular vaccine included OPV
- OPV had full (100%) coverage
- 93% of the respondents said FCHVs were the most reliable source of information on immunization
- Respondents are aware that OPV is of significant importance to ensure health and well being of the children

However:

- Parents/caregivers are not equipped with adequate and relevant details regarding the usage, importance and benefits of the vaccines
- Take-up of follow-up dosage revealed a declining trend and correlated with awareness of follow-up doses, where people were not aware when to go for the follow up doses
- Lack of knowledge on the details of OPV

3.3 Baseline KAP survey

Since the National Immunization Programme (NIP) is going to be introducing new vaccines (IPV, HPV, Rotavirus and Measles Rubella 2nd dose), CHD felt it was necessary to build an evidence base on the knowledge and perceptions related to new vaccine introductions. Therefore, a rapid assessment of knowledge and perception of health service providers and beneficiaries on immunization program in Nepal was conducted in three districts (Rasuwa, Ilam and Bardiya) by CHD with support from WHO and UNICEF. The key findings of the rapid assessment are attached in annex 1.
3.4 Development of communication strategy

The comprehensive communication strategy was built on the findings of the formative research as well as the results of coordination meetings among key stakeholders including caregivers, health workers and policymakers. The strategy included audience differentiation, key activities and communication matrix with responsible organizations’ names.

1) The key strategic considerations are as follows:

- Strengthening Interpersonal Communication (IPC) through FCHVs and health workers
- Developing a separate briefing on IPV for FCHVs
- Providing refreshing counseling tips for HWs
- Using demonstration visual material for HW training
- Assuring IPV introduction does not replace three doses of OPV
- Emphasizing safety and reliability of the new vaccines
- Developed a new vaccine guideline for HWs
- Promoting men’s involvement in immunization
- Conforming to uniform branding of EPI messaging
- Using local languages

2) Key audience and strategic approach:

3.4.1 Development of Communication and Implementation Action Plan

Between June and September 2014, key stakeholders meetings were held under the leadership of the Child Health Division to ensure effective communication and implementation planning and coordination. The participants represented NHEICC, UNICEF, WHO, regional health director, health workers, FCHVs, and medical professional associations. Key outcome of this participatory process included:

1. Communication matrix to identify communication gaps, role distribution among the participants, and the development of an action plan in preparation for IPV introduction.
2. First draft of the IEC materials (factsheet, brochures, media kit, health workers job aid, posters, FCHV communication posters) targeting health workers and communities for IPV introduction. Timeline of activities for the IPV launch.
3. The first draft of the new vaccines guidelines (IPV, PCV, and MRSD) was presented with feedback for the need of incorporation of further inputs on communication, AEFI and new vaccine schedules.
4. Regional and district action plan for IPV introduction developed and agreed upon.
5. EPI Managers oriented on IPV Introduction.
This consultative process allowed the wider government stakeholders such as the regional director, EPI supervisors, health workers and FCHVs to endorse the plans of the IPV introduction. The IPV introduction plan was constantly reviewed and updated throughout July and was completed in early August followed by a presentation of the draft strategy at NCIP on August 18th, 2014.

3.5 Pre-testing of communication products

All communication materials were pretested with the intended audiences. The team conducted a pretest to examine if the IEC material conveys the major three points being: the vaccine is given through injection when the child is 14 weeks, IPV is effective, safe and free of cost and that it increases children’s immunity against polio.

The sample population aged 17-40 were from different locations in Kathmandu including Kapan Health post, Kanti Children Hospital, Maharajgunj, Panipokhari and New Baneshwor. The pretest exercise revealed that the messages were well conveyed and well understood. None of the participants felt there should be additions to the materials except a few minor comments including the dislike of naked children in the poster and the lack of smile and eye contact between the mother and the health facilitator.
All IEC materials for IPV are the same colors in order to build visual consistency on IPV and to avoid confusion among the general public.

<table>
<thead>
<tr>
<th>IEC Materials</th>
<th>Targeted audience</th>
<th>Key points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brochure</td>
<td>Mothers, fathers and/or caregivers</td>
<td>Reiterates that vaccines are safe and reliable.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Brochure includes both a man and a woman in the illustration to encourage men to be involved in their children’s immunization.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Includes information on polio, IPV vaccine and a timetable for immunization.</td>
</tr>
<tr>
<td>Factsheet</td>
<td>More informed audiences (health worker, medical</td>
<td>Technical information including statics and the polio endgame strategy</td>
</tr>
<tr>
<td></td>
<td>practitioner, leaders, caregivers)</td>
<td>Identifies roles in IPV introduction for medical practitioner, health worker, religious leader/community leader/women’s group and caregivers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Includes the immunization schedule</td>
</tr>
<tr>
<td>Poster</td>
<td>Caregivers, community members</td>
<td>Consists of three different faces of children for ethnical representation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consists of key messages</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Poster is also a sticker for easy use in health facilities especially in the field where resources are scarce.</td>
</tr>
<tr>
<td>Job Aid</td>
<td>Health workers</td>
<td>Consists of interpersonal communication messages of four key points (which vaccine and what disease it protects from, side effects, other vaccines to be administered and when, importance of keeping the vaccination card safe).</td>
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<tr>
<td>Orientation Banner</td>
<td>FCHV</td>
<td>Information on both IPV and PCV</td>
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<td></td>
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<td>When to administer IPV and PCV</td>
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<td></td>
<td></td>
<td>Roles and responsibilities of FCHVs during immunization</td>
</tr>
<tr>
<td>Advocacy folder</td>
<td>Policy makers, media professionals</td>
<td>Contains key information including why IPV is introduced</td>
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<tr>
<td></td>
<td></td>
<td>Difference between IPV and OPV</td>
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<tr>
<td></td>
<td></td>
<td>Immunization schedule</td>
</tr>
<tr>
<td>TV/radio Public Service</td>
<td>Caregivers, general public</td>
<td>Top notch comedian duos (Hari Bansha Acharya and Madan Krishna Shrestha) were used for the PSA to convey key messages</td>
</tr>
<tr>
<td>Announcement (PSA)</td>
<td></td>
<td>TV PSA was aired through nine major TV stations in prime time</td>
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<tr>
<td></td>
<td></td>
<td>Radio PSA through 90 FM stations using 5 different local languages.</td>
</tr>
<tr>
<td>Training Video</td>
<td>Caregivers, general public</td>
<td>Includes both technical and communication content for IPV and PCV</td>
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<tr>
<td></td>
<td></td>
<td>Training video was distributed to 75 districts to ensure learning by demonstration and uniform dissemination.</td>
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<td></td>
<td></td>
<td>Showcased to 5 regional workshops for district health officers, EPI supervisors and cold chain managers</td>
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</tbody>
</table>
3.6 Distribution plan for communication products

Communication materials (brochures, factsheet, posters, FCHV orientation banner, job aids for health workers and media folder) were distributed to all 75 districts. Additionally, five Regional Health Directorate (Doti, Surkhet, Hetauda, Pokhara & Dhankuta) received all the communication materials except FCHV orientation banner, job aid for health workers and media folder. In total, 786,500 brochures, 20,500 factsheets, 216,900 posters, 5,000 FCHV orientation banner, 5,000 job aids for health workers and 1,000 media folder were distributed throughout the country. Due to the geographical challenges in Nepal, distribution times varied from 2 weeks to 2 months for the materials to reach all 75 District Health Offices (DHO).

IPV communication products from Nepal were also shared with other countries in the South Asia region and even beyond the region as guidance and good practice examples for IPV materials production.

3.7 Technical guideline

The training guideline was developed by Nepal Public Health Association (NEPHA) with the support of CHD, WHO and UNICEF. Series of meetings took place to determine the content that should be included in the training curriculum as well as to review the training curriculum draft.

In order to effectively introduce and implement IPV into the routine immunization schedule, the government carried out training activities for health staff throughout the country. The training consisted of various practical sessions and a consensus on training all new vaccinators as they join the health services. The master trainers from centre and region attended training of trainers (TOT) during January 2013 with support from WHO and Child Health Division. Two master trainers were trained from each of the 75 districts who in turn trained 19,781 health workers (vaccinators and other immunization staff) at their respective administrative units. Training of the health workers was completed in all 75 districts by July 2014.

The training include following sections in EPI:
1. The new routine immunization schedule
2. Protocol for new vaccines administration (IPV, PCV and MRSD)
3. Fundamentals of the vaccines and logistics used in routine immunization.
4. Safe vaccine handling (IPV and PCV will be discarded within 6 hours or after the end of session whichever comes first) and injection safety.
5. Adverse Events Following Immunization (AEFI)
6. Cold chain
7. Recording and reporting
8. Social mobilization, advocacy and IPC for the new vaccine and immunization

The training guideline is titled “IPV, PCV and Measles-Rubella Vaccines Implementation Guidelines for Health Workers 2014”. When preparing for the IPV introduction plan, the...
guidelines were useful in attaining information on the technical and operational preparations. It also contains information on other new vaccines (PCV, MRSD) that are in the pipeline for Nepal.

3.8 Training

The Child Health Division of the Ministry of Health and Population conducted separate training for over 8,000 health workers (vaccinators and other immunization staffs) focusing especially on new vaccine introductions, including IPV, pneumococcal conjugate vaccine (PCV), and measles-rubella vaccine 2nd dose. The training covered updating immunization schedule, protocols for the vaccines, safe vaccine handling, injection safety, AEFI, cold chain, social mobilization and interpersonal communication skills.

3.9 Cold chain and Logistics

The current cold chain system includes a central cold store in Kathmandu, 6 regional cold rooms, 75 district cold rooms and sub-centers at the peripheral level. Effective Vaccine Management (EVM) assessment was conducted in 2014 both at central and district level in order to assess cold chain capacity and suggest actions for the new vaccine introduction. If districts did not have the capacity, a replacement plan was developed and implemented. With the replacement of old walk in cooler, the existing net storage capacity of 55,570 liters is available at the central level. There will be sufficient storage capacity IPV.

The graph above depicts the present status and the increasing storage needs at the national level for +2 to +8°C. It also elucidates the needed cold chain space for PCV-10 (2 dose presentation) in 2014, rotavirus vaccine in 2016 and IPV introduction (10 dose presentation).

As part of the EVM assessment for IPV introduction, it was confirmed that the government is currently updating the inventory of all cold chain equipment from central to district level. Based on need for additional space for each district for vaccine introductions, a replacement plan was developed and implemented.

Prior to IPV introduction, the vaccine was shipped from the national vaccines stores to five regional vaccine stores. The assessment of the cold chain found that each regional store is equipped with an 18 cubic meter volume cold room (+2 degree Celsius to +8 degree Celsius) and between three and six working freezers (-20 degree Celsius). There are 75 district stores with at least 3-7 freezers or two refrigerators and 1-2 pack freezers. From here, the IPV vaccine vials gets transferred to transport boxes and then in vaccine carriers with conditioned ice packs to the health facilities.

3.10 Orientation meetings with stakeholders (MoHP, media, NEPAS, SOPHYN)

An interaction with the Nepal Pediatric Society (NEPAS) on the IPV introduction into routine immunization was held on September 12, 2014 at Hotel Himalaya. NEPAS actively participated in coordination meetings and technical discussions and as the president of NEPAS states, “we have played a stronger role in information dissemination by organizing advocacy workshops.

Picture 8. A pre-testing meeting for guideline and IEC materials with health workers at Child Health Division
for NEPAS members at the regional level. In this way, we have been able to bring pediatricians across the country on board”. Similarly, “SOPHYN’s leadership and membership also includes very senior doctors and officials, many of whom have served in the Government previously. SOPHYN was able to leverage this, and engage the Government on the issues of IPV introduction” states the president of SOPHYN. Below are the interviews conducted with the president of NEPAS and SOPHYN.

Picture 9. Orientation session on IPV introduction for Nepal Paediatric Society (NEPAS) members

Interview with Dr. Laxman Shrestha, President of NEPAS

1. Would you describe the introduction of IPV in Nepal as overall successful or not so successful? What went well and not so well?
The IPV introduction in Nepal went very well. This was largely because of Child Health Division having done its homework and being well prepared. All professional bodies and partners were involved and on board. Having the President launch the IPV in Nepal could have given a higher profile to this important intervention for the betterment of children of the country.

2. What has been NEPAS’ role in the IPV introduction?
NEPAS is 3 decades old and is involved in all child health related issues and interventions of the Government of Nepal. For the IPV introduction, NEPAS participated in the coordination meetings and technical discussions. But in addition, we have played a stronger role in information dissemination by organizing advocacy workshops for NEPAS members at the regional level. In this way, we have been able to bring pediatricians across the country on board.

3. What were the main challenges in the planning process? How were they overcome?
There were no challenges per se, but there were some concerns about how IPV introduction would be communicated to parents and caregivers, specifically the multiple injections issue. There might be concerns about why an injectable vaccine was being introduced for polio at this stage and a child receiving multiple injections in one visit. Managing logistics and cold chain was a concern as well.

4. When compared to other vaccine introductions in Nepal, was there anything that was done differently with IPV? How was the professional association able to add value to the process of introduction?
IPV planning and introduction saw greater involvement and participation of professional associations, including NEPAS. The NEPAS leadership was fully involved. Pediatricians are the first point of contact for parents on matters related to health of children. So it is very important that pediatricians have the right information and are able to inform and counsel parents. Through our advocacy workshops at the regional level, we were able to bring our members on board. This has been the value added.
1. Would you describe the introduction of IPV in Nepal as overall successful or not so successful? What went well and not so well?
The IPV introduction in Nepal has been very successful, with good planning and preparation. Child Health Division has been in the lead and the Government has been well supported by development partners and professional bodies including SOPHYN.

2. What has been SOPHYN’s role and involvement with MOHP and CHD?
SOPHYN has spearheaded the advocacy efforts with the Government of Nepal for IPV introduction. The discussions to introduce IPV in Nepal started 5 years ago, with a “Public Health Debate” convened by SOPHYN to discuss the merits and feasibility of IPV introduction. Professional bodies, senior doctors, UN agencies and Government representatives were invited to this meeting and subsequently other meetings and discussions took place under the leadership of MOHP. So SOPHYN has played a major role in presenting supporting evidence for IPV introduction and advocating with the Government.

3. What was the impact of the national polio endgame strategy? What was effective and not so effective?
The national polio endgame strategy has provided the framework for IPV Introduction in the country. It must be noted that the process of developing the Nepal polio endgame strategy was carrying on in parallel to the development of the global polio endgame strategy. Which is why Nepal was well placed to introduce the IPV vaccine, because we were ready and the momentum had been building.

4. What was SOPHYN’s role in the development of the national polio endgame strategy?
SOPHYN provided key support to MOHP and CHD for the development of the national polio endgame strategy. The process of engaging and advocating with the Government of Nepal started 5 years ago. The national polio endgame strategy is a tangible result of SOPHYN’s advocacy efforts and the Government’s readiness to introduce the IPV vaccine.

5. What were the main challenges in the process? How were they overcome?
In many of the initial meetings and discussions on IPV introduction, some high level and influential Government officials were reluctant to join and participate. But SOPHYN’s leadership

Interview with Dr. Y.V Pradhan, President of SOPHYN

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5. What were the main challenges in the process? How were they overcome?
In many of the initial meetings and discussions on IPV introduction, some high level and influential Government officials were reluctant to join and participate. But SOPHYN’s leadership
and membership also includes very senior doctors and officials, many of whom have served in the Government previously. SOPHYN was able to leverage this, and engage the Government on the issue of IPV introduction.

6. When compared to other vaccine introductions in Nepal, was there anything that was done differently with IPV – for example in engaging with the Govt on IPV introduction? How was the professional association able to add value to the process of introduction?
Professional bodies such as SOPHYN have played a stronger role in supporting the Government in decision making, planning and implementation. SOPHYN in fact played a bigger role in the decision making process, systematically presenting information and evidence so the Government could make an informed decision about IPV introduction. This was also supported by development partners and UN Agencies.

7. How did SOPHYN engage and inform its own members about IPV introduction? Was the medical profession generally supportive of the government – why so? Should anything be done differently in future vaccine introductions?
SOPHYN has 120 members and all of them were well informed about IPV introduction through internal communications and meetings. The members were all very supportive of the IPV introduction, as SOPHYN has been advocating for the same over the last 5 years. The case of IPV introduction in Nepal should be seen as an example of evidence based advocacy and decision making. This should serve as a template for future vaccine introductions.

8. What challenges (for the country) does SOPHYN foresee in future new vaccine introductions and roll out in Nepal?
There are a few challenges for Nepal going forward. First, sustainable financing for immunization will be a major challenge. Development partners will continue to support the country for introduction of new vaccine and strengthening routine immunization, but the Government of Nepal needs to have a financing plan of its own in place. Second, cold chain capacity and its management will need to be enhanced with new vaccines in the pipeline. Third, with the vaccine package expanding the Government of Nepal needs to ensure that the surveillance system remains strong and the MOHP also builds its own capacity to manage the surveillance system.

3.11 Media Briefing
IPV interaction/press briefing with media was held on September 16, 2014 at the Radisson Hotel. The event included presentations on IPV, communication strategy and a Q&A session. CHD, NHEICC, NEPAS, UNICEF and WHO- all different partners were invited to interact with media to answer the questions around IPV introduction. The interaction consisted of most frequently questions including information on polio, IPV and its safety and side effects and the justification for introducing IPV despite the existence of OPV (Annex 2). Approximately 30 participants from more than 10 major media (TV and newspaper) attended the press meet.

Picture 10. Media interaction on IPV introduction
3.12 Launch Event

On the IPV launch day, Government of Nepal, UNICEF, WHO, and Rotary International jointly released a press release both in Nepali and English for local and international journalists. The press release reiterated the key messages including the importance of IPV in addition to OPV. The launching of the IPV took place at the Tribhuvan University Teaching Hospital on the 18th of September 2014 with approximately 300 people consisting of health workers, nursing students, FCHVs, NGOs, government staff, international organizations and private sectors. The launch began with the director general of Department of Health Services’ welcoming regards followed by the national anthem and auspicious candle lighting ceremony.

“I am extremely pleased to announce that – as the first country in South Asia – the Government of Nepal is introducing one dose of the Inactivated Polio Vaccine into routine immunization,” said Honorable Minister Khag Raj Adhikari, Ministry of Health and Population. “The introduction will provide the best possible protection against polio for children in Nepal. Moreover, IPV is an important part of the global polio endgame strategy, and the introduction in Nepal is significant not only for Nepal but for the entire world.”

3.13 Media Coverage

In order to make the wider public aware of IPV introduction in Nepal, various communication platforms were utilized. Both UNICEF Nepal and WHO websites carried stories highlighting the IPV introduction and Nepal's landmark step towards the global polio eradication effort. Information was also disseminated through UNICEF Nepal's Facebook page and Twitter handle. In the tweets, partners such as WHO, GAVI and Rotary were also tagged.

Following the media briefing on September 16, 2014, which was attended by 50 media persons, news articles about IPV introduction were carried by a number of newspapers in the following days. English language dailies Kathmandu Post, Republica and Himalayan Times as well as Nepali language newspapers such as Nepal Samarcharpatra, Himalaya Times, Naya Patrika, and Nagrik all carried articles. The tone of the newspaper coverage was positive and supportive. Key points from the media briefing were mentioned in all the articles – age at which IPV is to be administered, method of IPV administration and the rationale for the introduction of the new vaccine. A news article in Kathmandu Post erroneously noted that the IPV injection would be administered intravenously, but this was subsequently corrected after a follow up from UNICEF Nepal.

The article published in the Nepali language daily Naya Patrika (Annex 3), also mentioned the planned introduction of PCV and HPV.
vaccines apart from IPV as part of efforts by the Government of Nepal to strengthen the routine immunization system in the country.

**3.14 Monitoring and evaluation**

As stated in the previous chapter, IPV was distributed throughout the country and in order to monitor its’ uses and acceptance, multiple field visits took place. The first field visit to Dhading took place post IPV launch on the 30th of September 2014 by the vaccine introduction specialist from UNICEF (ROSA). Other field visits include: visit by WHO representative to Nepal, new vaccine officer and CDC from the 18th- 21st October, 2014. Following these visits, communication for development officer and immunization consultant from UNICEF visited Kaski and Tanahun (November 17th-19th) followed by field visit in November/December was conducted with the GAVI team.

The meetings and observations from the field visits resulted in the following key findings:

- There was generally a low level of awareness of IPV among caregivers however a good understanding of poliomyelitis and the benefits of immunization.
- Mothers and caregivers had high level of understanding on polio in general, but showed lack of knowledge on IPV.
- Strong commitment of government and partners to the accelerated timeliness.
- Acceptance of the new vaccines by caregivers and health workers.
- Good practices in immunization sessions such as: date/time written on vials, health education, good data recording and manually adding IPV to older registers.
- The healthcare providers also found multiple injections to be a minor issue, although they recalled a mother in the previous session that had rejected a second injection (pentavalent) due to concerns that the injection site would be irritated.
- HR capacity was said to be one of the most prominent challenges for EPI in the district in going forward and vaccine introductions put the systems under pressure.
- In terms of cold chain, in this district, some units are in need of replacement and as more vaccines are being introductions, the need for a plan for cold chain maintenance and replacement is essential.

- IPV posters were found to be well distributed and displayed regardless of the level of clinic (municipality clinic and outreach clinic).

**3.14.1 Plan for evaluation**

To measure the impact of the interventions, the team plans to conduct a study on IPV introduction in the second half of 2015. In particular, the study will focus on knowledge, attitude, and practice of caregivers, service providers, and community on IPV acceptance. The study will contribute to and inform future vaccine introduction by the Ministry of Health and Population of Nepal (MoHP), as well as to strengthen the routine immunization programme in Nepal. Recommendations will be reported and disseminated to inform IPV introduction in other countries in South Asia and globally.
PHASE 4

Issues/
Lessons Learned
Nepal successfully introduced one dose of IPV in routine immunization in all 75 districts, and was the first country in South Asia to do so. Based on the experience, several issues/lessons learned are identified to inform Government of Nepal and other countries for further new vaccine introduction, as well as strengthening routine immunization program.

4.1 Partnership is a key to success for new vaccine introduction

Introducing a new vaccine requires multiple levels of engagement in various stakeholders, as buy-in from the stakeholders is crucial to successfully roll out the new vaccine from the initial hesitance and concerns. In that sense, building a partnership is an opportunity for new vaccine introduction. Partnership not only brings a credibility of the vaccines with its existing reputation of each partner, but provides a platform to orient different stakeholder in a decentralized manner. Also partnership reduces burden of cost and logistics and increase ownership of the program by the stakeholders without any extra costs.

In the case of Nepal, CHD has mobilized various partners to build a joint strategy and share responsibilities. The partners came from development partners such as the GAVI, UNICEF, WHO, the Centre for Disease Control, Rotary International and other partners. Government of Nepal requested the development partners to assist in vaccine procurement, cold chain strengthening, development of training guideline, social mobilization and communication. At the same time, CHD closely worked with national medical professional associations such as SOPHYN and NEPAS. SOPHYN spearheaded the initial advocacy efforts with the Government of Nepal for IPV introduction, as well as supporting MoHP in drafting national polio endgame strategy. CHD hosted IPV orientation session for NEPAS members in central level and NEPAL organized cascading orientation at regional level using their network to orient district level pediatricians on IPV.

"IPV planning and introduction saw greater involvement and participation of professional associations, including NEPAS. The NEPAS leadership was fully involved and was able to advocate the IPV introduction among many pediatricians in Nepal.

Pediatricians are the first point of contact for parents on matters related to health of children. So it is very important that pediatricians have the right information and are able to inform and counsel parents. Through our advocacy workshops at the regional level, we were able to bring our members on board. This has been the value added.

--- NEPAS President, Dr. Laxman Shrestha

4.2 Political commitment creates conducive environment to move things faster

Nepal mobilized strong political commitment from the Government of Nepal and its partners to eradicate polio and strengthen immunization system through the IPV introduction. As the first country to introduce IPV in the South Asia region, and among more than 120 GAVI eligible countries globally, Nepal gained significant confidence to continue its efforts in strengthening immunization system beyond polio eradication. The momentum also contributed to drafting an Immunization Act and the development of immunization strategies. Moreover, in March 2014, the Ministry of Health and Population established the Immunization Fund to ensure the financial capacity of the Ministry to sustainably procure vaccines and implement the immunization program without donor support in the future.

4.3 Concerns with Multiple Injections

Due to the concerns of health workers and caregivers on multiple injection at single visit, National Committee on Immunization Practices (NCIP) recommended to shift the third dose of PCV. Nepal has recently chosen to adopt an immunization schedule at six weeks, ten weeks and nine months for the 10-valent pneumococcal conjugate vaccine (PCV10) in which no more than two injectable vaccines are administered in a single visit at 14 weeks. Due to the timing of the doses involved, this schedule is not compatible with WHO recommendations. An alternate schedule compatible with WHO recommendations would involve the administration of three injectable vaccines at one visit.

A study in collaboration with CHD, WHO and CDC is planned for 2016 to determine whether or not health care providers and children’s caregivers
are more or less likely to accept an immunization schedule consistent with WHO recommendations that involves the administration of three injectable vaccines in a single visit than a schedule not consistent with WHO recommendations that involves the administration of no more than two injectable vaccines in a single visit.

4.4 OPV should not be forgotten, but should be reemphasized to maintain polio free status

Introducing a new vaccine (IPV) alongside an existing vaccine (OPV) for the same disease raised many questions relating to the new vaccine and the replacement of OPV. Key questions during pre-assessment meetings with parents, caregivers, and community health volunteers were 1) Why does Nepal need a new vaccine for the same disease, 2) whether OPV is no longer to be used, and 3) whether multiple injection at 14 weeks (along with DPT and PCV) is safe?

Answers to these key questions needed to be addressed with strategic messaging: 1) OPV does not replace IPV and 2) IPV + OPV = Best Protection for Your Children against Polio. On TV/radio public service announcement, the staging was set for main actors directly addressing these questions, clearly answered by the FCHV. These answers were also reflected in all printing materials (brochure, factsheet, poster, orientation banner, and media kits) to mitigate possible confusion. For media and medical professionals, several advocacy meetings were held with Nepal Pediatrics Society (NEPAS) members both in central and regional levels, Society of Public Health Physician Nepal (SOPHYN) and media professional to address their concerns and orient various stakeholders to counter the possible confusion on OPV administration.

4.6 Start early and start with baseline KAP survey to guide the whole process

Government of Nepal conducted a baseline KAP (Knowledge, Attitude, Practice) survey on IPV introduction among parents, caregivers, and service providers. The purpose of the KAP survey was not only for setting a baseline for M&E but guiding a more relevant communication strategy. However, the field research was delayed due to monsoon season and the data collection was completed just before the launching event. Given the situation, the team decided to utilize an existing formative research findings on immunization program for communication strategy. The formative research findings were extensive enough to guide the development of communication strategy, but it would have been better to have IPV specific research findings to guide the planning process. Therefore, it is always better to start early with baseline KAP survey to guide communication planning process for new vaccine introduction, as every new vaccine requires specific communication needs.

4.7 IPV introduction contributed to strengthening routine immunization system

New vaccine introduction can be a strategic opportunity to advocate existing routine immunization program and review the whole immunization system. For IPV introduction, health worker training, mass media campaign, community-level orientation served as an opportunity not only to orient health workers but to refresh their knowledge on routine immunization program. Every material also included the routine immunization schedule and relevant messages to reinforcing ongoing efforts on routine immunization. At the same time, cold chain managers were able to review their cold chain capacity and management structure.
REFERENCES


Annex 1: KAP Baseline findings

Implementation of expanded program on Immunization:
- Almost all the beneficiaries were aware about the immunization program being conducted in their area along with the date.
- Most of the beneficiaries were satisfied with the current immunization system and felt that vaccines are easily accessible and available.
- Health workers of all three districts there are proper storage system of vaccines only in districts. However, electricity cut off is the main issue affecting the storage system. Health workers from sub health post mentioned that they carry vaccines in a vaccine box just before the vaccination campaign and return back the remaining vaccines to the district.

Knowledge and Perception on New Vaccines
All the health workers could mention the name of at least one new vaccine that is to be introduced in Nepal and mentioned training to be their source of information.

Very few health workers could name all new vaccines and had detailed knowledge (correct mode of administration, vaccine schedule and site of administration) regarding new vaccines. Superficial information provided during the training about new vaccines and long time gap after the training was mentioned by health workers as the reason for not being able to give details of new vaccines.

Health workers and FCHVs added that introduction of new vaccines decreases child morbidity and mortality from vaccine related diseases. They also mentioned that IPV is important to eradicate polio.
**Perception on Acceptability of New Vaccines**

- Health workers, community beneficiaries, WDOs and FCHVs of all three districts very supportively mentioned that they and the community people will accept the new vaccines after receiving proper information regarding vaccines including both pros and cons.
- Furthermore, some beneficiaries also mentioned that they will accept the new vaccines as it is being introduced by the government and they trust that government brings vaccines for the betterment of their children.
- When further asked about acceptability of multiple injections, health workers stated that there can be slight hesitation among the parents in the beginning when multiple injections are to be given in a single clinic visit.
- While few health workers and FCHVs mentioned that the perceptions towards multiple injections can be changed slowly by giving proper information.
- Most of the participants from all groups mentioned that vaccines can be made acceptable conducting awareness programs and providing information via effective medium. The effective source of medium mentioned was FCHVs, authorized person from health post and the vaccines brought during routine immunization schedule. They also mentioned radio, television, mothers group and school to be the other effective medium to disseminate information regarding new vaccines.

**Facilitators and barriers/challenges in implementing New Vaccines**

- Various barriers and challenges in new vaccines implementation mentioned were low level of knowledge, vaccine supply, social and traditional beliefs, economic conditions, fear regarding the vaccines, mobility of people, availability of services and skilled service providers and geographical structure.
- The most cited challenge by most of the health workers, FCHVs and beneficiaries were lack of information about new vaccines and fear of side effects and pain that might occur to their children after vaccination.
- According to few FCHVs and health workers community people might blame service providers if any side effects occur after vaccination to their children. Also mentioned was the service provider might get confused about vaccines when there are many vaccines to be given.
- In order to remove these barriers and challenges the most common suggestions cited by all groups of participants were providing education and disseminating information to all the community people, leaders and health workers themselves in larger extent.
- Health workers suggested that the quality of vaccines should be maintained and the proper monitoring and supervision of the program should be done.
Annex 2: IEC materials

Brochure:

Factsheet:

Poster:

Job aid:

FCHV Orientation Banner
INTRODUCTION OF INACTIVATED POLIO VACCINE (IPV) IN NEPAL

ABOUT INACTIVATED POLIO VACCINE (IPV)

Why is IPV being introduced in addition to OPV drops? We no more see the presence of polio-affected children in our communities because of the OPV given as drops. The new vaccine IPV further strengthens the immune system and provides protection by preparing children’s bodies to fight against the poliovirus. The Inactivated Polio Vaccine (IPV) injection along with oral polio vaccine (OPV) drops will provide the greatest possible protection against polio virus and make Nepal completely free from polio forever.

SHOULD THE CHILD CONTINUE TO RECEIVE OPV AFTER RECEIVING IPV?

Yes. Children under one year of age should continue receiving three doses of OPV drops along with one dose of IPV injection. In addition, children under five years of age should receive OPV drops during campaigns, to protect themselves from polio.

Oral Polio Vaccine (OPV) - Inactivated Polio Vaccine (IPV)

- Takes many years to develop
- Easily administered and does not require a trained health worker
- Main protective measure against polio

- Given through injection
- Requires a trained health worker
- Given in addition to OPV
- Strengthens the immune system and provides further protection from polio

INACTIVATED POLIO VACCINE (IPV)

- One dose of IPV at 14 weeks in addition to third dose of Oral Polio Vaccine (OPV)
- Free of cost, safe, and reliable vaccine to protect your children from polio
- OPV (Oral drop) and IPV (Injection form) will provide the best protection for your children and community

NATIONAL IMMUNIZATION SCHEDULE 2011

VACCINES CAN SAVE LIVES

VACCINES ARE SAFE

VACCINES ARE FREE OF COST
### Annex 3: Specification of IEC materials

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Annex 4: FAQ for media

What is polio?
Poliomyelitis (polio) is caused by a virus that attacks the nervous system of young children in particular. The virus can permanently paralyze and sometimes kill. There are three types of poliovirus – type 1, type 2, and type 3. There have been no cases of type 2 wild poliovirus reported since 1999. In Nepal, the last polio case was in August 2010.

Who is most at risk of getting polio?
Poliovirus usually affects children under 5 years of age who are unvaccinated or under-vaccinated. Most children who are infected will show only minor symptoms but as many as one in 200 infected children will be paralyzed. The virus can also affect or be carried by adolescents and adults.

How is polio transmitted?
The polio virus enters the body through the mouth, often with food or drinking water that is contaminated with fecal matter from a person who carries the polio virus. The virus multiplies in the intestines and is passed through feces.

What are the symptoms of polio?
Fever, fatigue, headache, vomiting, stiffness in the neck, pain and weakness in the limbs, followed by paralysis usually in the arms of legs. If a child, adolescent, or adult suddenly shows signs of a floppy or weak arm or leg, then health authorities or community leaders should be informed immediately.

Can polio be cured?
No, there is no cure for polio and the disease can severely paralyze or kill the child.

Can polio be prevented?
Yes, polio can be prevented through immunization with vaccines. Since 1988, when the Global Polio Eradication Initiative was formed, the global incidence of polio has been reduced by more than 99%, and the number of countries with endemic polio transmission has fallen from 125 to 3: Pakistan, Afghanistan and Nigeria. Every polio-free country in the world eliminated polio through the use of OPV. However, all countries remain at risk of polio re-infection or re-emergence, until the disease has been eradicated everywhere (Stein, 2006).

What is the difference between IPV and OPV?
Both vaccines are very safe and protect children from polio paralysis, but in different ways.

The Oral Polio vaccine (OPV) is a live attenuated vaccine that is taken orally as drops. Oral polio vaccine has a unique ability to build immunity in the gut, which is required to stop person-to-person spread of the virus. OPV is given at 6, 10 and 14 weeks of age and is also given during polio campaigns (National Immunization Days) to all children under 5 years of age. OPV remains the main preventive measure against polio.

The Inactivated Polio Vaccine (IPV) is killed vaccine and is given through an injection. When used alone, IPV does not build immunity in the gut but it provides blood immunity and effectively protects the individual child. However, new evidence shows that when used together with OPV, IPV gives better gut immunity than when OPV is used alone. Given in addition to OPV at the age of 14 weeks, IPV therefore strengthens the immune system and provides further protection from polio.

Why is IPV being introduced?
IPV is being introduced to routine immunization, and used alongside OPV, in order to quickly maximize children’s immunity to polio and maintain the country’s polio-free status.
IPV is also being introduced in preparation for a planned change in the composition of the vaccine. Because type 2 virus was eradicated in 1999 the component of OPV that targets type 2 will soon be removed from OPV. IPV protects the child against all types of virus, including type 2 virus. By introducing IPV Nepal will reduce risks associated with OPV2 cessation as it will lower the risk of reintroduction type 2 poliovirus. It will also facilitate the interruption of transmission with the use of monovalent OPV2 if a type 2 polio outbreak should occur.

Is IPV safe?
IPV has been proven an extremely safe and effective vaccine, whether given alone or with other vaccines. It has been used successfully in developed countries for several decades. The vaccine protects children against all three strains of poliovirus and when used together with OPV it can boost immunity.

Are there any potential side effects?
No serious adverse events have ever been reported following vaccination with IPV, including when used alone or in combination with other vaccines. Minor local reactions, such as redness and tenderness, may occur following IPV administration.

Is it safe to receive both polio vaccines at the same time?
Both IPV and OPV can be administered to the child at the same time. It is in the best interests of the child to receive both vaccines at the same time to maximize protection against polio and minimize missed opportunities to fully immunize children.

Is IPV better than OPV?
No, each of the vaccines has its own strengths. Used in combination, the two vaccines provide the best protection against importation of the virus from abroad, and accelerate the eradication of polio globally.

Should the child continue to receive OPV after receiving IPV, when offered in the future?
Following immunization with IPV, parents should continue to immunize their children with OPV when it is offered in campaigns (National Immunization Days). This will further strengthen children’s immunity to polio.

Does introduction of IPV mean more immunization visits?
IPV will be given together with the third dose of OPV when the child is around 14 weeks old. There will be no additional immunization visits.

Why continue with polio vaccination when there is no longer polio in the country?
Nepal reported its last polio case in 2010 and is now certified ‘polio-free’ by the World Health Organization. However, there is still a risk of importation of cases and virus from outbreak areas. Ensuring optimal immunity in the population is the only way to prevent future cases of polio.

Why is polio given priority? Why not introduce vaccines for other diseases?
IPV will soon be followed by other new and additional vaccine doses, including those preventing pneumonia (PCV), measles and rubella (MRSD) and cervical cancer (HPV).

What is the current status of polio globally?
Globally, there have been 171 wild poliovirus cases in 2014 (as of 9 September), compared to 256 cases at the same time in 2013. Most of the cases this year (152) have occurred in the three countries where polio is still endemic (Pakistan, Afghanistan and Nigeria). Six countries have reported cases caused by imported poliovirus this year (Somalia, Equatorial Guinea, Cameroon, Ethiopia, Iraq, and Syria).
Annex 5: Agenda for IPV launching ceremony

**Launching of Inactivated Polio Vaccine (IPV) in NEPAL**
**18 SEPTEMBER 2014**
**TU Teaching Hospital**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activities</th>
<th>Speaker</th>
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<tbody>
<tr>
<td>11:00-11:10 AM</td>
<td>Greeting of VIP guests</td>
<td>Ms. Malvika Subba</td>
</tr>
<tr>
<td>11:10-11:20 AM</td>
<td>Welcoming remarks</td>
<td>Dr. Senendra Raj Upreti Director General, DoHS</td>
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<td>11:20-11:30 AM</td>
<td>National anthem</td>
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<tr>
<td>11:30-11:35 AM</td>
<td>Auspicious Panas Lighting Ceremony</td>
<td>Honorable Health Minister Khagaraj Adhikari Ministry of Health and Population (MoHP)</td>
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<td>11:35-11:50 AM</td>
<td>Update on Polio Eradication Initiative and Introduction of IPV (Followed by TV Public Service Announcement)</td>
<td>Dr. Shyam Raj Upreti Director, CHD</td>
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<tr>
<td>11:50-12:10 PM</td>
<td>Launching of IPV- Vaccine Introduction</td>
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<tr>
<td>12:10-12:20 PM</td>
<td>Partnership towards Measles Elimination-Signing ceremony</td>
<td>Government of Nepal (Mr. Shanta Bahadur Shrestha) WHO (Dr. Lin Aung) UNICEF (Mr. Tomoo Hozumi) NEPAS (Dr. Laxman Shrestha) Lions Club (Mr. Sanjaya Khetan)</td>
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<tr>
<td>12:20-1:15 PM</td>
<td>Remarks</td>
<td>Mr. Olivier Charmeail Sanofi Pasteur CEO Dr. Laxman Shrestha NEPAS President Ms. Beth Dunford USAID Mission Director Mr. Ratna Man Shakya Chairman National Polio Plus Committee Mr. Tomoo Hozumi UNICEF Representative Dr. Lin Aung WHO Representative Honorable Health Minister Khagraj Adhikari Ministry of Health and Population (MoHP)</td>
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<tr>
<td>1:15-1:30 PM</td>
<td>Closing Remarks</td>
<td>Mr. Shanta Bahadur Shrestha Secretary, MoHP</td>
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Annex 6: Press release

JOINT PRESS RELEASE
Nepal in historic introduction of the injectable Inactivated Polio Vaccine (IPV)

The IPV will help secure a world free of all polio disease

KATHMANDU, 18 September 2014 – In a landmark step to accelerate the global eradication of polio and help prevent a resurgence of the disease, Nepal is today introducing the Inactivated Polio Vaccine (IPV) into its routine immunization programme. Nepal has the distinction of being the first country in South Asia region to launch IPV as part of the global roll-out of the vaccine.

Until now, oral polio vaccine (OPV) has been the primary tool in the global polio eradication effort, reducing incidence of the disease by more than 99 percent worldwide thanks to its unique ability to stop person-to-person spread of the virus. Nepal, along with Bangladesh, Bhutan, Democratic People’s Republic of Korea, India, Indonesia, Maldives, Myanmar, Sri Lanka, Thailand and Timor-Leste, was declared polio free last March. Endemic polio has been successfully eliminated from all but three countries worldwide.

Nepal has made tremendous progress in improving the health and survival of children in the last 25 years. The under-5 mortality rate has significantly reduced from 147 per thousand live birth in 1990 to 54 per thousand in 2011. Also, the coverage of immunization against polio has doubled to 90 percent in 2011 from 44 percent in 1984. Thanks to the tireless efforts of community members and the Female Community Health Volunteers together with the Government and its partners WHO, UNICEF, Rotary and GAVI, Nepal has been able to achieve near universal immunization coverage.

Despite this progress, experts caution that polio-free countries remain at risk of re-infection until the disease has been eradicated everywhere. New evidence now demonstrates that adding one dose of IPV at 14 weeks of age to OPV is even more effective than OPV alone at stopping the virus and protecting children. IPV and OPV evoke different immune responses and when used together, maximize immunity to polio virus.

IPV is being introduced in Nepal in order to quickly maximize childhood immunity to polio and maintain the country’s polio-free status. IPV has been proven an extremely safe and effective vaccine and has been used successfully in many developed countries for several decades. It is important to note that IPV is recommended in addition to the oral vaccine and does not replace the oral vaccine.

IPV is administered to children at 14 weeks of age by intramuscular injection by a trained health worker at established health facilities or immunization sessions. The Ministry of Health and Population has successfully conducted training for all health workers in all 75 districts on successful IPV administration.

The universal introduction of IPV is part of the global plan to eradicate polio and secure the gains through stronger immunization systems, so that children, no matter where they are born, will never again suffer from this debilitating, preventable disease.
INTRODUCTION OF INACTIVATED POLIO VACCINE (IPV) IN NEPAL

Annex 7: Media Coverage

IPV VACCINATION BEGINS
Himalaya Times, Sept 17, p.2

From Ashwin 2 (Sept 18), the health and population ministry will begin providing new vaccine called IPV for children that have already received OPV. Nepal has become the first country to introduce IPV vaccination among the 11 nations of South East Asia. IPV is administered to children at 14 weeks after birth in order to develop immunity against polio. A child becomes totally immune to polio if a single dose of IPV (0.5 ml) is administered.

THREE NEW VACCINES TO BE INTRODUCED
Naya Patrika, Sept 17, p.3

In the current fiscal year, the government is planning to introduce three new vaccinations. Among these three vaccines are the Inactive polio vaccine (IPV) against polio, the Pneumococcal vaccine against pneumonia and the Human Papilloma virus (HPV) against future uterine cancer in the adolescent girls.

VACCINE AGAINST POLIO TO COMMENCE FROM THIS WEEK
Nepal Samacharpatra, September 17, p.9

The article reiterates Nepal being declared as polio free by WHO that have also recommended the introduction of IPV into countries where OPV is being used in order to prevent spread of virus. In Nepal, IPV will be launched at Tribhuvan University teaching hospital this week.
CHILDREN TO BE IMMUNIZED WITH INACTIVATED POLIO VACCINE
Republica, September 17, p.3

The government is preparing to immunize children across the country with inactivated polio vaccine (IPV). Officials at the Child Health Division (CHD) of the Department of Health Services (DoHS) said IPV vaccines will be administered to children up to 14 weeks of age.

“Apart from inactivated polio vaccine, children will also be administered oral polio drops,” said Dr Shyam Raj Upreti, director at CHD. He said CHD plans to launch the immunization program across the country from Thursday.

The World Health Organization (WHO) had declared the country polio-free in February this year. “But that does not mean that we are not at the risk of polio infection,” said Dr Upreti, adding the new vaccine has been introduced as part of polio end game strategy. The government has committed to eradicate the polio virus from the country by 2024 and has prepared a polio endgame strategic plan.

The Ministry of Health and Population (MoHP) has been providing three doses of oral polio vaccines to children under the age of one. Each dose of vaccine comprises all three types of anti polio virus (P1, P2 and P3), which cause polio infection. Dr Upreti said P2 vaccine is riskier than P1 and P3 type, which could itself spread polio infection. “Inactivated polio vaccine reduces the risk of polio infection caused by P2 virus,” he informed.

He said IPV quickly boosts childhood immunity to polio and prevents polio outbreak in the country. The office has been planning to replace oral vaccine by 2018 and to get rid of the disease by 2024.

“We are preparing a polio endgame strategic plan. After 2024 we would not administer polio vaccine to children,” he added. Officials at the division said necessary preparations have been completed to introduce the vaccine at once across the country. Trainings have been imparted to health workers and FCHVs, health officials at the department said.

The division claims that IPV is safe and effective vaccine and has been used successfully in many countries for several decades. Polio is caused by acute viral infection and mainly affects children under five. It invades the nervous system and can cause total paralysis.