Application Form for Gavi NVS support

Submitted by

The Government of

Pakistan

Date of submission: **19 May 2016**

Deadline for submission:

i. **1 May 2016**
ii. 1st May 2015
iii. 9 September 2015

Select Start and End Year of your Comprehensive Multi-Year Plan (cMYP)

Start Year	2014	End Year	2018

Form revised in 2015

(To be used with Guidelines of November 2015)

Note: Please ensure that the application has been received by Gavi on or before the day of the deadline.

Gavi
GRANT TERMS AND CONDITIONS

FUNDING USED SOLELY FOR APPROVED PROGRAMMES

The applicant country ("Country") confirms that all funding provided by the Gavi will be used and applied for the sole purpose of fulfilling the programme(s) described in the Country's application. Any significant change from the approved programme(s) must be reviewed and approved in advance by the Gavi. All funding decisions for the application are made at the discretion of the Gavi Board and are subject to IRC processes and the availability of funds.

AMENDMENT TO THE APPLICATION

The Country will notify the Gavi in its Annual Progress Report if it wishes to propose any change to the programme(s) description in its application.The Gavi will document any change approved by the Gavi, and the Country's application will be amended.

RETURN OF FUNDS

The Country agrees to reimburse to the Gavi all funding amounts that are not used for the programme(s) described in its application. The country's reimbursement must be in US dollars and be provided, unless otherwise decided by the Gavi, within sixty (60) days after the Country receives the Gavi's request for a reimbursement and be paid to the account or accounts as directed by the Gavi.

SUSPENSION/ TERMINATION

The Gavi may suspend all or part of its funding to the Country if it has reason to suspect that funds have been used for purpose other than for the programmes described in the Country's application, or any Gavi-approved amendment to the application.The Gavi retains the right to terminate its support to the Country for the programmes described in its application if a misuse of Gavi funds is confirmed.

ANTICORRUPTION

The Country confirms that funds provided by the Gavi shall not be offered by the Country to any third person, nor will the Country seek in connection with its application any gift, payment or benefit directly or indirectly that could be construed as an illegal or corrupt practice.

AUDITS AND RECORDS

The Country will conduct annual financial audits, and share these with the Gavi, as requested. The Gavi reserves the right, on its own or through an agent, to perform audits or other financial management assessment to ensure the accountability of funds disbursed to the Country.

The Country will maintain accurate accounting records documenting how Gavi funds are used. The Country will maintain its accounting records in accordance with its government-approved accounting standards for at least three years after the date of last disbursement of Gavi funds. If there is any claims of misuse of funds, Country will maintain such records until the audit findings are final. The Country agrees not to assert any documentary privilege against the Gavi in connection with any audit.

CONFIRMATION OF LEGAL VALIDITY

The Country and the signatories for the Country confirm that its application, and Annual Progress Report, are accurate and correct and form legally binding obligations on the Country, under the Country's law, to perform the programmes described in its application, as amended, if applicable, in the APR.

CONFIRMATION OF COMPLIANCE WITH THE Gavi TRANSPARENCY AND ACCOUNTABILITY POLICY

The Country confirms that it is familiar with the Gavi Transparency and Accountability Policy (TAP) and complies with the requirements therein.

USE OF COMMERCIAL BANK ACCOUNTS

The Country is responsible for undertaking the necessary due diligence on all commercial banks used to manage Gavi cash-based support. The Country confirms that it will take all responsibility for replenishing Gavi cash support lost due to bank insolvency, fraud or any other unforeseen event.

ARBITRATION

Any dispute between the Country and the Gavi arising out of or relating to its application that is not settled amicably within a reasonable period of time, will be submitted to arbitration at the request of either the Gavi or the Country. The arbitration will be conducted in accordance with the then-current UNCITRAL Arbitration Rules. The parties agree to be bound by the arbitration award, as the final adjudication of any such dispute. The place of arbitration will be Geneva, Switzerland

. The languages of the arbitration will be English or French.

For any dispute for which the amount at issue is US$ 100,000 or less, there will be one arbitrator appointed by the Gavi. For any dispute for which the amount at issue is greater than US $100,000 there will be three arbitrators appointed as follows: The Gavi and the Country will each appoint one arbitrator, and the two arbitrators so appointed will jointly appoint a third arbitrator who shall be the chairperson.

The Gavi will not be liable to the country for any claim or loss relating to the programmes described in the application, including without limitation, any financial loss, reliance claims, any harm to property, or personal injury or death. Country is solely responsible for all aspects of managing and implementing the programmes described in its application.

1. Type of Support requested

Please specify for which type of Gavi support you would like to apply to.

Type of Support	Vaccine	Start Year	End Year	Preferred second presentation[1]
Routine New Vaccines Support	Rotavirus, 2-dose schedule	2017	2018	

[1] Gavi may not be in a position to accommodate all countries first product preferences, and in such cases, Gavi will contact the country and partners to explore alternative options. A country will not be obliged to accept its second or third preference, however Gavi will engage with the country to fully explore a variety of factors (such as implications on introduction timing, cold chain capacity, disease burden, etc.) which may have an implication for the most suitable selection of vaccine. If a country does not indicate a second or third preference, it will be assumed that the country prefers to postpone introduction until the first preference is available. It should be noted that this may delay the introduction in the country.

2. Table of Contents

3. Executive Summary

Please provide a summary of your country's proposal, including the following the information:

- For each specific request, NVS routine support or NVS campaign :
  - The duration of support
  - The total amount of funds requested
  - Details of the vaccine(s), if applicable, including the reason for the choice of presentation
  - Projected month and year of introduction of the vaccine (including for campaigns and routine)

- Relevant baseline data, including:
  - DTP3 and Measles coverage data (as reported on the WHO/UNICEF Joint Reporting Form)
  - Target population from Risk Assessments from Yellow Fever and Meningitis A
  - Birth cohort, targets and immunisation coverage by vaccines

- Country preparedness
  - Summary of planned activities to prepare for vaccine launch, including EVM assessments, progress on EVM improvement plans, communication plans, etc.
  - Summary of EVM assessment and progress on EVM improvement plan

- The nature of stakeholders' participation in developing this proposal
  - Inter-Agency Coordinating Committee
  - Partners, including CSO involvement

Diarrhea is a leading cause of death among young children worldwide. As of April 2016, the World Health Organization estimates that globally 215 000 (197 000 - 233 000) child deaths occurred during 2013 due to rotavirus infection which accounted for approximately 3.4% of all child deaths. Cause-specific mortality rate (rotavirus deaths under age five per 100 000 population under age five) was 33.

According to WHO estimate, in Pakistan total annual under five mortality in 2013 was 394,000 of which 41,370 (10.5%) were due to diarrhoea. Among these around 15,000 deaths were rota-virus related which accounts for approximately 3.8% of total under five deaths annually in Pakistan. Pakistan is one of the top four countries accounted for approximately half (49%) of all rota deaths under age five in 2013. Rotavirus mortality rate in Pakistan per 100,000 under five children is 67.6.

Globally, more than 95% of rotavirus deaths occur in low-income countries in Africa and Asia, where access to treatment for severe rotavirus-related diarrhoea is limited or unavailable. Countries that have introduced rotavirus vaccines have experienced reductions in severe and fatal diarrhea, underscoring the incredible potential for rotavirus vaccines to improve child health and saving lives. A study in 116 countries showed the cost effectiveness and associated significant reduction in disease burden, particularly in low- and lower-middle-income countries with high child mortality after the introduction of rotavirus vaccination.

In 2009 the World Health Organization (WHO) recommended for the inclusion of vaccines in all national immunization programs. Immunization represents the most promising method for preventing rotavirus infection since the virus is so contagious and resilient that simple measures like encouraging hand-washing and providing clean water, does not work well enough. Providing rotavirus vaccines within a broader approach that brings to bear all available tools—like oral rehydration therapy, breastfeeding, sanitation improvements, and zinc—gives caregivers a better chance at making a major impact.

As of January 1, 2016, eighty countries have already introduced rotavirus vaccines in their national immunization programs while few countries have introduced rotavirus vaccines in pilot phase. Rotavirus vaccines are also available in more than 100 countries through the private market and is already been introduced in 37 GAVI-eligible countries as well.

It is estimated that each year, the use of rotavirus vaccines in GAVI-supported countries could prevent

180,000 deaths and avert 6 million clinic and hospital visits, thereby saving US$ 68 million annually in treatment costs. Diarrhoeal deaths in young children were reduced by 19–43% in Bolivia, 43–55% in Mexico and 57–64% in Venezuela following the introduction of rotavirus vaccines.

The health and economic burden due to Rota Virus gastroenteritis in Pakistan is substantial, and based on available data analysis predicts a vaccination program would prevent 1.2 million cases of Rota Virus Gastroenteritis, 93,000 outpatient visits, and 43,000 hospitalizations of children under 5. A national rotavirus vaccination program has also estimated to decrease health and economic burden due to rotavirus gastroenteritis in Pakistan by ~40%.

The country expresses its interest to apply to GAVI for NVS support for this vaccine in 2017. The National Immunization Technical Advisory Group (NITAG) recommended Ministry of National Health Services Regulation & Coordination (MoNHSRC) for submitting application to GAVI for countrywide introduction of two-dose schedule of Rotavirus Vaccine keeping in view the existing cold chain capacity. Series of consultative meetings were held with Provincial Governments, WHO, UNICEF, USAID DELIVER and other development partners along with CSOs in finalizing the application based on their inputs. The National Interagency Coordination Committee (NICC) endorsed the proposal for further submission to GAVI.

The country is prepared to introduce the Rotavirus vaccine from Jan 2017. Considering baseline year as 2015 the country's reported immunization coverage for the DTP3 and Measles is 85% and 86% respectively.The country’s birth cohort for the year 2017 is more than 6.8 million with the assumption of 78% coverage in year 2017 and 85% in year 2018.The provinces have already submitted their concurrence for introduction of Rotavirus vaccine that is also reflected in their respective PC-1s.

As regards the preparedness of the country, the overall scores of EVM assessment for Pakistan (2014) at all levels of supply chain demonstrate a need for improvement in most areas of vaccine and supply management system as only pre-arrival procedure exceeded the standard score of 80%. Performance level of storage capacity, supply chain infrastructure, vaccine management policies were about 70% however vaccine distribution, stock management and information management were as low as below 50%. However based on the improvement plans developed correspondingly, the bottlenecks are being addressed ensuring full commitment at the highest level. Up-gradation of the National warehouses to state of the art level, with the development and roll-out of vaccine logistic management information system and ISO certification thereafter have lead towards improving vaccine management.

The existing cold chain capacity at the Federal warehouse is already sufficient to store 01 month’s stock and 03 months buffer stock for all vaccines including the Rota virus vaccine. Since the Federal EPI intends to store quarterly supply in addition to the buffer stock, the existing capacity can be managed amicably as Punjab storage capacity is being enhanced to four-folds by June 2016, of the existing capacity and Punjab is 50% of Pakistan’s population, therefore the introduction of Rotavirus vaccine would be managed optimally.

In accordance with the current cMYP, country requests support for the year 2017-2022, for the Rotavirus vaccine. The government will request for its further extension and support from GAVI would be required when the new comprehensive multi-year Plan (cMYP2019-2023) will be developed. The official request will be put forward to GAVI through the Joint Appraisal of the respective year in due course of time.

The government of Pakistan commits to fulfill all its obligations for co-financing of the cost of vaccine in accordance with GAVI policy. The country co-financing share for 2017-2018 is USD 5.1 & 6.1million respectively .The vaccine would be procured as per Public Procurement Regulatory Authority rules. This fund will be transferred to the UNICEF for procurement of vaccines in December of the respective calendar year. The introduction grant for Rota vaccine is USD 5.4M , mainly to be utilized under the heads of capacity building, Advocacy, Communication, Social mobilization (ACSM) and procurement of cold chain equipments. For effective and timely utilization M/o NHSR&C is willing to spend this fund through WHO (USD 1,397,016) and UNICEF (USD 4,256,880). Hence the ministry requests GAVI to make necessary arrangements for the transfer of respective allocations to WHO and UNICEF once the application is approved.

4. Signatures

4.1. Signatures of the Government and National Coordinating Bodies

4.1.1. Government and the Inter-Agency Coordinating Committee for Immunisation

The Government of Pakistan would like to expand the existing partnership with the Gavi for the improvement of the infants routine immunisation programme of the country, and specifically hereby requests Gavi support for:

Rotavirus, 2-dose schedule routine introduction

The Government of Pakistan commits itself to developing national immunisation services on a sustainable basis in accordance with the Comprehensive Multi-Year Plan presented with this document. The Government requests that the Gavi and its partners contribute financial and technical assistance to support immunisation of children as outlined in this application.

Table(s) 6.2.4 in the NVS Routine section of this application shows the amount of support in either supply or cash that is required from the Gavi. Table(s) 6.2.3 of this application shows the Government financial commitment for the procurement of this new vaccine (NVS support only).

Following the regulations of the internal budgeting and financing cycles the Government will annually release its portion of the co-financing funds in the month of **June**.

The payment for the first year of co-financed support will be around **June 2017** for Rotavirus, 2-dose schedule.

Please note that this application will not be reviewed or recommended for approval by the Independent Review Committee (IRC) without the signatures of both the Minister of Health and Minister of Finance or their delegated authority. These signatures are attached as DOCUMENT NUMBER : 2 and 1 in Section 10. Attachments.

Minister of Health (or delegated authority)		Minister of Finance (or delegated authority)	
Name	Mrs Saira Afzal Tarar	**Name**	Syed Raza Mehdi
Date		**Date**	
Signature		**Signature**	

This report has been compiled by (these persons may be contacted in case the Gavi Secretariat has queries on this document):

Full name	Position	Telephone	Email
Dr. Syed Saqlain Ahmed GILANI	National Programme Manager - EPI	051-9255101	zain_asg2@hotmail.com

4.1.2. National Coordinating Body - Inter-Agency Coordinating Committee for Immunisation

Agencies and partners (including development partners and NGOs) supporting immunisation services are co-ordinated and organised through an inter-agency coordinating mechanism (ICC, Health Sector Coordinating Committee (HSCC), or equivalent committee). The ICC, HSCC, or equivalent committee is responsible for coordinating and guiding the use of the Gavi NVS routine support and/or campaign support. Please provide information about the ICC, HSCC, or equivalent committee in your country in the table below.

Profile of the ICC, HSCC, or equivalent committee

Name of the committee	National Interagency Coordination Committee Meeting
Year of constitution of the current committee	2014
Organisational structure (e.g., sub-committee, stand-alone)	Headed by Minister of National Health Services, regulation & Coordination (NHSR|&C)
Frequency of meetings	Quarterly / Needbased

The Terms of Reference or Standard Operating Principles for the ICC, including details on the ICC membership, quorum, dispute resolution process and meeting schedules is attached as DOCUMENT NUMBER : 4.

Major functions and responsibilities of the ICC/HSCC:

1. ***Coordinate*** *support at national level from government and partner agencies to strengthen EPI and polio eradication activities in Pakistan.*
2. ***Mobilize*** *the national government and NGOs to eradicate polio and control other vaccine-preventable disease.*
3. ***Assist*** *Pakistan in becoming self-sufficient in its immunization programmes.*
4. ***Establish*** *a forum for exchange of information and dialogue on immunization programmes in the country and facilitate that dialogue by making data information sources readily available.*
5. ***Ensure*** *the availability of appropriate policies, advice and tools to the Pakistan government.*
6. ***Assist*** *the international and national community in identifying and developing support for new disease control programmes when appropriate intervention tools, such as new vaccines become available.*
7. ***Advise*** *the government in specific areas related to EPI and Polio Eradication where partner agencies have specialized expertise.*
8. ***Review*** *progress towards Polio Eradication. Improving EPI and plans for further activities.*

Chair: *Federal Minister of Mo National Health Services, Regulation and Coordination*

Co-chair: *Federal Secretary of Mo National Health Services, Regulation and Coordination*

1. *Financial Advisor National Health Services, Regulation and Coordination*
2. *JS Health Ministry of National Health Services, Regulation and Coordination*
3. *Chief Health Planning*
4. *Director General Health Services of all Provinces*
5. *Provincial Programme Managers EPI*
6. *National Program Manager EPI*
7. *Members from concerned organizations and government departments*
    - *World Health Organization (WHO)*
    - *United Nations Children Fund (UNICEF)*
    - *World Bank*
    - *Government of Japan*
    - *Rotary International*
    - *United States Agency for International Development (USAID)*
    - *Department of International Development (DFID)*
    - *Canadian International Development Agency (CIDA)*
    - *Private Sector Organizations (Aga Khan University)*

Please describe how partners have provided support in preparation of the proposal:

The GAVI-Rota Virus Vaccine application development has been a comprehensive and inclusive process involving participation of all the relevant stakeholders. Ministry of National Health Services, Regulations and Coordination (Mo NHSR&C) played a lead role in this regard, with Federal EPI being designated as the focal institution to collaborate and coordinate with the provincial counterparts including CSOs and other stakeholders in developing the application. The application development process was facilitated by a WHO Consultant. The technical and development partner also participated in the provincial consultative meeting that was held on 31st March 2016.

Role of National Inter-Agency Coordination Committee (NICC)

NICC members provided valuable inputs to the proposal development by describing existing operational procedures for the introduction of Rota Virus Vaccine.The application has been duly endorsed by the National Inter- agency Coordination Committee where in the representatives of WHO, UNICEF, DFID, JICA, World Bank, AUSAID, USIAD, Rotary International and Civil Society Organizations are the regular members of the committee.

4.1.3. Signature Table for the Coordinating Committee for Immunisation

We the members of the ICC, HSCC, or equivalent committee *[1]* met on the **21/04/2016** to review this

proposal. At that meeting we endorsed this proposal on the basis of the supporting documentation which is attached. The minutes of the meeting endorsing this proposal are attached as Document number 5. The signatures endorsing the proposal are attached as Document number 7 (please use the list for signatures in the section below).

Please refer to Annex C of the 'Gavi HSS and NVS General Guidelines' for more information on ICCs.

Function	Title / Organisation	Name	Please sign below to indicate the attendance at the meeting where the proposal was endorsed	Please sign below to indicate the endorsement of the minutes where the proposal was discussed
Chair	Minister - National Health Services Regulation & Coordination Islamabad	Mrs Saira Afzal Tarar		
Secretary	National Programme Manager - EPI	Dr. Syed Saqlain Ahmed Gilani		
Members				

By submitting the proposal we confirm that the quorum has been met. **Yes**

The minutes from the three most recent ICC meetings are attached as DOCUMENT NUMBER : 6.

4.2. National Immunization Technical Advisory Group (NITAG)

Has a NITAG been established in the country ? **Yes**

We the members of the NITAG met on the **06/01/2016** to review this proposal. At that meeting we endorsed this proposal on the basis of the supporting documentation describing the decision-making process through which the recommendations were reached, attached as Document number 26.

4.2.1. The NITAG

Profile of the NITAG

Name of the NITAG	National Immunization Technical Advisory Group
Year of constitution of the current NITAG	2014
Organisational structure (e.g., sub-committee, stand-alone)	Stand alone
Frequency of meetings	Bi annually / Need based

Function	Title / Organisation	Name
Chair	Pediatrician / Member Regional Certification Commission (EMRO)	Professor Dr. Tariq Bhutta
Secretary	National Programme Manager - EPI	Dr. Syed Saqlain Ahmed Gilani
Members	List attached as Doc. no. 30.6	Director General Health, Prof Tabish Hazir, Brig M. Tahir, Prof Anitta Zedi, Prof Gohar Zaman, Prof

Major functions and responsibilities of the NITAG

The NITAG will perform its responsibilities by convening

EPI advisory group will hold its meeting atleast twice a year. NITAG Advisory group will providepolicy directions on the EPI related matter like advocacy, immunization schedule, innovations in EPI, Vaccine handling and storage any another technical issue where National EPI manager or NICC requires suchpolicy direction.

NITAG may co-opt any other person to constitute a sub-committee for any specific task with the approval of the chairman.

NITAG will finalize the decision based on the opinion of the members and keeping in view the relevant global guidelines.

National Programme MAnager will be the secratary of the committe and will be responsible for recording all such decisions in minutes and circulating them to the members.

Secratary of the committee shal forward the approved minutes and the recommendations of the meeting to the M/o NHSR&C.

The ministry may then take measures as deemed appropriate.

The secratary of the commiitee shall follow the implementation of the decision and keep the ministry informed.

Meeting minutes of NITAG held on January 6, 2016 that recommended the introduction of Rota Virus Vaccine are attached as Doc. no. 26

In the absence of a NITAG, countries should clarify the role and functioning of the advisory group and describe plans to establish a NITAG. This document is attached as **(Document Number: 8)**

5. Immunisation Programme Data

5.1 Background information

Please complete the table below, using data from available sources. Please identify the source of the data, and the date. Where possible use the most recent data and attach the source document.

- Please refer to the Comprehensive Multi-Year Plan for Immunisation (cMYP) (or equivalent plan) and attach a complete copy (with an Executive Summary) as DOCUMENT NUMBER 9. Please attach the cMYP costing tool as DOCUMENT NUMBER 10.
- Please attach relevant Vaccine Introduction Plan(s) as DOCUMENT NUMBER : 12
- Please refer to the two most recent annual WHO/UNICEF Joint Reporting Forms (JRF) on Vaccine Preventable Diseases
- Please refer to Health Sector Strategy documents, budgetary documents, and other reports, surveys etc, as appropriate.
- Please refer to the attached risk assessments in the case of yellow fever and meningitis A mass preventive campaigns.

Please use the most recent data available and specify the source and date.

	Figure	Year	Source
Total population	190,735,949	2016	cMYP
Birth cohort	6,675,758	2016	cMYP
Infant mortality rate (per 1000)	9	2016	cMYP
Surviving infants*[1]*	6,205,265	2016	cMYP
GNI per capita (US$)	1,400	2015	data.worldbank.org/indicator/NY.GNP.PCAP.CD
Total Health Expenditure (THE) as a percentage of GDP	1	2015	data.worldbank.org/indicator/SH.XPD.PUBL.ZSdata.worldbank.org/indicator/SH.XPD.PUBL.ZS
General government expenditure on health (GGHE) as % of General government expenditure	37	2015	data.worldbank.org/indicator/SH.XPD.PUBL.ZSdata.worldbank.org/indicator/SH.XPD.PUBL

[3] Surviving infants = Infants surviving the first 12 months of life

5.1.1 Lessons learned

Routine New Vaccines Support

If new or under-used vaccines have already been introduced in your country, please give details of the lessons learned from previous introduction(s) specifically for: storage capacity, protection from accidental freezing, staff training, cold chain, logistics, coverage and drop-out rates, wastage rate, etc., and suggest action points or actions taken to address them. Please refer to previous Post Introduction Evaluations (PIE), if applicable. If they are included in the Introduction Plan, please cite the section only. If this information is already included in NVIP/POA, please reference the document and in which section/page this information can be found.

Lessons Learned	Action Points
Pakistan has introduced Hib (Pentavalent), Pneumococcal (PCV10) and IPV during past few years. Lessons learned from these new and underused vaccine introductions are as follows,	1. For the development of HSS and Rota application, joint teams comprising of Government officials and partners started working well before the submission date/deadline in order to plan introduction

• Plan well in advance for new vaccine introduction i.e having adequate time for implementation of planned activities • The plan of introduction should be for all levels with details for each activity, time line and resource requirement. • Ensure quality training for health staff focusing on data quality, vaccine management, AEFI and injection safety • Provide the reference material to trainees in time. • Monitoring vaccine wastage for all antigens at all levels. • Avoid stock-out by good planning and timely procurement • A plan for monitoring and supervision needs to be prepared at all level and implemented. • AEFI should be made fully functional. • The opportunity of new vaccine introduction should be used fully for strengthening of RI and attaining high immunization coverage with all antigens. • Thorough assessment for the available cold chain for every level should be undertaken and required cold chain provided before introduction of new vaccine. • PIE should be undertaken within 6 to 12 months of introduction for taking corrective actions in time. • Provision of required financial resources at all levels in timely manner should be ensured.	activities in more organize and systematic manner incorporating all the information from grass root levels with final compilation at national level. 2. Training modules are revised before execution of trainings in order to ensure quality training focusing on skill development. 3. Vaccine wastage incident was indeed the window of opportunity wherein with the help of partners the federal warehouses were upgraded as per international standards as the step towards state of the art warehouse. Now the National warehouse in ISO certified 4. Measles SIAs throughout the country was monitored by the federal EPI staff. This opportunity was used to highlight gaps in existing vaccine management system recommending provincial governments to take necessary step towards improvements 5. Based on the recommendations of EVM assessment, the cold chain capacity has been enhanced with the installation of additional cold rooms / freezer rooms. 6. Temperature mapping of the cold rooms and installation of devices for continuous temperature monitoring have been initiated as a step towards the quality improvement. 7. The Federal EPI has planned for post introduction evaluation (PIE) for IPV that was introduced in the country for more than six months. 8. Federal EPI has already secured adequate stock of vaccines required till November 2016. Procurement for subsequent period has already been initiated which is expected to be delivered by August 2016. Hence there are no fear of any stock-out. 9. Federal PC-1 has been approved by the ECNEC while provincial PC-1s are also in the pipeline of the approval and are being rigorously followed with the planning commission for its timely approval.

5.1.2 Health planning and budgeting

Please provide information on the planning and budgeting cycle in your country

Immunization operational plan is prepared following calendar year i.e. Jan - Dec

Budgeting cycle follows fiscal year i.e. Jul - Jun

Please indicate the name and date of the relevant planning document for health

Planning document for health (immunization) is PC-1 for EPI. The new EPI PC-1 is for the duration from 2015-16 fiscal year to 2019-20 fiscal year has been approved by ENCEC on 24-March-2016.

Is the cMYP (or updated Multi-Year Plan) aligned with the proposal document (timing, content, etc.)

Introduction of Rotavirus vaccine is included in the current cMYP from 2016. Country is submitting proposal for its introduction in 2016 but actual introduction is planned from 2017 because of the delay in approval process, vaccine procurement and supply and completion of preparatory activities at all implementation levels.

Please indicate the national planning budgeting cycle for health

Fiscal year Jul - Jun

Please indicate the national planning cycle for immunisation

Operational planning cycle is Jan - Dec. Fiscal planning cycle is Jul - Jun

5.1.3 Gender and equity

Please describe any barriers to access, utilisation and delivery of immunisation services at district level (or equivalent) that are related to geographic, socio-economic and/or gender equity. Please describe actions

taken to mitigate these barriers and highlight where these issues are addressed in the vaccine introduction plan(s).

3Analysis of the national surveys PDHS and PSLM revealed no significant difference across gender. However, evidence shows consistent geographic and socioeconomic inequities which are in line with the findings of third party surveys. According to, PSLM 2013-14, 70% children aged 12-23 months are more likely to be immunized in urban areas compared to only 53% in the rural areas. Similarly, immunization coverage rates among children from households in the highest wealth quintile are 60% more likely to be vaccinated in urban areas compared to 43% in rural areas; children in the lowest wealth quintile are more likely to miss out vaccination compared to children in the highest wealth quintile in both urban as well as rural areas. as per PSLM 2013-14. It also shows that poverty is the main underlying factor, with children in the poorest household having immunization coverage rates that are one third of their counterparts in wealthier households but cultural and ethnic affiliation also influence child's access to immunization services. Children in these communities are at "high risk", because not only are vaccine preventable disease burden disproportionately concentrates, also levels of hygiene, access to medical care and education tends to be lower in these communities. Immunization coverage thus becomes a clear indicator highlighting existing inequities among children within the country, and can show the way to overcome these hurdles in order to address the inequities in immunization coverage. Furthermore, marked differences exist in the immunization coverage between children of women with no education (40 percent) and children of women at the middle, secondary, and higher educational levels (74 percent and above respectively).

Discuss how equity issues (geographic, socio-economic and/or gender) are being taken into account in the design of social mobilisation and other strategies to increase immunisation coverage. Highlight where these issues are addressed in the vaccine introduction plan(s).

In order to access geographic, socioeconomic and /or gender inequities, linkages will be established with the CSOs in the urban slums and far flung areas to reach out to 15-20% of the children who are being constantly missed for immunization activities. Communication for Development approach shall be adapted with strong community engagement strategy and Reaching Every Community through effective microplanning.

Please indicate if sex disaggregated data is collected and used in immunisation routine reporting systems.

The immunization recording and reporting tools were revised by the program last year to allow collection of sex disaggregated data. However, compliance in reporting with the revised tools is not yet optimal. Program is making an effort to increase compliance and use of such data at every level.

Is the country currently in a situation of fragility (e.g. insecurity, conflict, post-conflict, refugees/and or displaced persons and recent, current or potential environmental disaster, such as flooding, earthquake or drought or others)? If Yes, please describe how these issues may impact your immunisation programme, planning for introduction of routine vaccines or campaigns and financing of these activities.

Negative. Though the country is facing different natural and man made challenges but not in a state of fragility.

Pakistan is continually struggling against the security threat and fighting against terrorism.The prevailing security situation, natural disasters and political instability have further impacted health service delivery in all provinces. Children and their families continue to suffer from displacement due to security operations in the Federally Administered Tribal Areas (FATA). IDPs living off-camp are using existing available social services in KPK, which are already insufficient for the settled population and local communities, and to meet minimum humanitarian service delivery standards. The displacement period actually offers an opportunity for government and humanitarian actors to reach previously unreached children with services.

If available, please provide additional information and documents on subnational coverage data, e.g. comparing urban/rural districts or districts with highest/lowest coverage, etc.

Reports of latest PDHS and PSLM reports are attached **[attached at Document no. 30.7 & 30.8]**

Pakistan the sixth most populous country of the world having a total population of 184.5 million[1] with surviving infants of 4,301,000. In 2012, the WHO/UNICEF estimates indicated that Pakistan had achieved 81 per cent DPT3 coverage and based on this, there are a total of 817,190 [2]unimmunized children in the country. Different surveys carried out in last five years demonstrate inequities in vaccination across different

provinces and districts.

Pakistan has the fifth largest number of unimmunized children in the world, and provinces like Balochistan and Federally Administered Tribal Areas (FATA) have much lower coverage rates than the rest of the country. Only 16% of the children are fully immunized in Balochistan compared to 66%[3] in Punjab.

National coverage estimates often mask sub-national differences in performance. Disaggregation of national immunization cover-age data can reveal areas with low access to and utilization of immunization services. In the last quarter of 2014, UNICEF shifted its focus from Reach Every District (RED) to Reach Every Community (REC) approach. In “REC” analysis different sets of data were reviewed and PSLM 2012-13 (latest available survey at the time of analysis) was used to identify the social characteristic and resultant population groups associated with lowest immunization rates in the districts by using different data sources. Thirty three districts were identified across all four provinces with highest number of not Fully Immunized Children (FIC). Attachment 20A presents name of 33 districts identified through equity analysis with system barriers.

[1] Pakistan Demographic Health Survey PDHS 2012-13

[2] UNICEF-WHO joint estimates; a statistical reference containing data through 2012.

[3] PDHS 2012-2013.

5.1.4 Data quality

Please attach a data quality assessment (DQA), report if one has been completed within the previous 48 months (DOCUMENT NUMBER: 27). If available, an improvement plan and progress report on the implementation of the improvement plan should also be submitted (DOCUMENT NUMBER: 11, DOCUMENT NUMBER: 28).

If DQA not available, please briefly describe plans to establish mechanisms for data quality assessment.

No DQA was done during last 48 months.

Actions taken for data quality improvement:

1. Field monitoring for data validation

2. Periodic review of administrative data, analysis and feedback

3. Development of online electronic reporting system for immunization performance and vaccinator tracking e.g. implemented in all districts of Punjab for outreach services through e-Vac application. Piloting in certain districts in Sindh with a different application.

4. Vaccine and logistics stock management data is now digitalized using vLMIS platform which is implemented in Federal, Provincial and 83 district stores till date.

Plan for data quality improvement:

1. Data quality audit (DQA) planned in every province individually in this year

2. Seperate data quality improvement plan for every province will be developed based on the findings of DQAs

3. vLMIS will be expanded in all remaining districts by 2017

4. Use of electronic reporting application will be expanded in KP, Balochistan and federating areas (GB, FATA, AJK and Isb).

5. Polio micro-census data will be used for setting target for RI (EPI-PEI synergy)

Please indicate what routine mechanisms to independently assess the quality of administrative data are in place, and if so what these mechanisms are and how they enable the country to track changes in data quality over time.

a). Field monitoring for data validation

b. Periodic review of administrative data, analysis and feedback

c. Development of online electronic reporting system for immunization performance and vaccinator tracking e.g. implemented in all districts of Punjab for outreach services through e-Vac application. Piloting in certain districts in Sindh with a different application.

d. Vaccine and logistics stock management data is now digitalized using vLMIS platform which is implemented in Federal, Provincial and 83 district stores till date.

e. Coverage Evaluation Survey is planned in 2016 to assess coverage estimates.

Please detail what household surveys have been conducted in recent years to independently assess immunisation coverage and equity, and describe any survey plans for the coming five year period.

Two national level surveys routinely conducted in country addressing gender and equity related issues in immunization namely,

1. Pakistan Demographic and Health Survey (PDHS): usually conducted every 4 years. The last survey was done during 2012-13. This survey addresses equity by gender, mother's education, wealth quantile and geographic distribution (provinces).

2. Pakistan Social and Living Standard Measurement Survey (PSLM): conducted every alternate years. The last survey was done during 2013-14. This survey also addresses equity by all the parameters as in PDHS up to district level.

The country has planned to conduct nation wide coverage evaluation survey following WHO cluster methodology in 2016.

To monitor the progress under the NISP the programme has also planned to conduct rolling survey throughout the country every year for the next 5-years.

5.2. Baseline and Annual Targets (NVS Routine Support)

Please refer to cMYP pages to assist in filling-in this section.

Number	Base Year	Baseline and Targets	
	2015	2017	2018
Total births	6,547,664	6,806,441	6,939,767
Total infants' deaths	463,612	477,440	484,450
Total surviving infants	6,084,052	6,329,001	6,455,317
Total pregnant women	6,678,617	6,942,570	7,079,562
Target population vaccinated with OPV3*[1]*	5,247,824	5,126,491	5,487,020
OPV3 coverage*[2]*	86 %	81 %	85 %
Target population vaccinated with DTP1*[1]*	5,699,273	5,506,231	5,809,786
Target population vaccinated with DTP3*[1]*	5,217,954	5,126,491	5,487,020
DTP3 coverage*[2]*	86 %	81 %	85 %
Wastage*[3]* rate in base-year and planned thereafter (%) for DTP	5	5	5
Wastage*[3]* factor in base-year and planned thereafter for DTP	1.05	1.05	1.05
Target population vaccinated with 1st dose of Rotavirus	0	5,243,000	5,809,786
Target population vaccinated with 2nd dose of Rotavirus	0	4,917,529	5,487,020
Rotavirus coverage*[2]*	0 %	78 %	85 %
First Presentation: Rotavirus, 2-dose schedule			
Wastage*[3]* rate in base-year and planned thereafter (%)	5	5	5
Wastage*[3]* factor in base-year and planned thereafter (%)	1.05	1.05	1.05
Maximum wastage rate value for Rotavirus, 2-dose schedule	5 %	5 %	5 %
Target population vaccinated with 1st dose of Measles	5,192,093	4,810,041	5,099,701
Measles coverage*[2]*	85 %	76 %	79 %
Annual DTP Drop out rate [(DTP1 – DTP3) / DTP1] x 100	8 %	7 %	6 %

[1] Indicate total number of children vaccinated with either DTP alone or combined

[2] Number of infants vaccinated out of total surviving infants

[3] The formula to calculate a vaccine wastage rate (in percentage): [(A - B) / A] x 100. Whereby: A = the number of doses distributed for use according to the supply records with correction for stock balance at the end of the supply period; B = the number of vaccinations with the same vaccine in the same period.

5.3. Targets for Preventive Campaign(s)

No NVS Prevention Campaign Support this year

5.4. Targets for One time mini-catchup campaign(s)

No One time mini-catchup campaign this year

6. New and Under-Used Vaccines (NVS Routine)

6.1. Assessment of burden of relevant diseases (if available)

If already included in detail in the Introduction Plan or Plan of Action, please cite the section only.

Disease	Title of the assessment	Date	Results
Please refer to Introduction Plan Document no. 12	Section on Rationale for introducing Rotavirus vaccine of the introduction plan		

6.2. Requested vaccine (Rotavirus, 2-dose schedule)

As reported in the cMYP, the country plans to introduce Rotavirus, using Rotavirus, 2-dose schedule.

When is the country planning to introduce this vaccine? **January 2017**

Please note that, due to a variety of factors, the launch date may vary compared to the date stipulated in the application. Gavi will work closely with countries and their partners to address these issues.

Please summarise the cold chain capacity (at central and other levels) and readiness to accommodate new vaccines, taking into consideration training, cold chain equipment and other logistical requirements. If cold chain expansion is required, state how it will be financed, and when it will be in place. The Independent Review Committee requires assurance that the cold chain is ready or will be ready for the routine introduction of the new vaccine, and evidence/plans need to be provided. All proposals that include Gavi- financing for cold chain equipment intended for vaccine storage shall need to procure equipment pre-qualified by WHO under their Performance Quality and Safety (PQS) program. The purchase of non-PQS equipment will only be considered on an exceptional basis, with justification and advance agreement from Gavi.

Federal EPI

At present the cold chain capacity (2-8°C) of the Federal EPI is 271400L. This space is sufficient to maintain monthly supplies including 03months of buffer stock for all vaccines.

- However if federal EPI maintains 2 monthly supplies with 3 month buffer stock (Maximum stocks of 5 month for all vaccine including Rota vaccine), then 4 additional cold rooms having 40m3 gross capacity would be required.
- In case federal EPI maintains quarterly supplies of vaccines with 3 month buffer stock (Max stocks for 6 month for all vaccine including Rota vaccine) then 10 additional cold rooms of 40m3 gross capacity would be required.
- If the federal EPI opts to accommodate maximum stock for 12 months including the buffer stocks for all vaccines, the 20 additional cold rooms of 40m3 would be required.

Federal EPI intends to go for a quarterly supply (Max stocks for 6 month for all vaccine including 3 months buffer stock).

- In order to accommodate 10 cold rooms of 40m3 gross capacity, the existing dry store could be used.
- Additional space for dry storage is required to accommodate logistics (Pre- Fabricated dry storage in front of the existing one)
- To maintain continuous electric supply, 2 more generators of 365 KVA would be required.

The funds required for the cold chain expansion at the federal EPI is approximately US$617,358. However, the cost for capacity building of the relevant staff in cold chain will be borne by govt. fund from Federal PC-1. The training would be mainly focusing on fire safety, technical training for cold chain maintenance, SOPs and guidelines for vaccine storage, supply chain and forecasting.

All the procured equipment's would be WHO pre-qualified and in future the required cold chain expansion and equipment's would be procured through UNICEF.

Punjab

At present the net storage capacity (2-8oC) of Punjab is 110,550 liters and 32, 296 liters is the additional cold chain requirement for the storage of 06 months stock of all vaccines (03 months stock + 03 months buffer stock) at the moment. While Punjab is in process of constructing two new ware houses in Lahore and Multan where 24 more cold rooms of gross capacity of 40 m3 would be installed after this the Punjab would have over and above capacity for the storage of all the vaccine for 06 months. Moreover, the districts of Punjab already have sufficient cold chain capacity for the storage of two months stock of vaccines (one month stock+ one month buffer stock). So the Punjab would be ready for the introduction of Rota vaccine in June 2016.

Sindh

Currently the net cold storage capacity of Sindh is 51,060 liters and 29,758 liters more capacity is required for the storage one quarter stock of vaccines including Rota vaccine. While the procurement of two cold rooms each of 40m3 gross capacity is in process from UNICEF that would be supplied in Dec 2016. After the

installation of these cold rooms the Sindh provincial store would require one more cold room of 40m3 gross capacity before the introduction of Rota vaccine in 2017 for storage of quarterly supplies including 03 months buffer stock. However, if the Sindh would maintain two monthly supplies including 03 months buffer stock for all vaccines then the Sindh province would have sufficient capacity for the storage of vaccines after the installation of the cold rooms which are currently in pipelines. As far as the cold chain capacity at district level is concerned 70 ILR each having 130 liters additional capacity is required for the introduction of Rota vaccine to maintain monthly stocks of the all the vaccines including one month buffer stock. The additional cold room for the provincial store and required ILRs for the districts stores are expected to be procured, delivered and made operational by February 2017.

Khyber Pakhtunkhwa (KP)

Presently, the net cold storage capacity (2-8oC) of provincial store of KP is 31,097 liters and KP provincial store would require 24,913 liters for the introduction of Rota Vaccine to maintain quarterly stocks including three months buffer stock. KP is procuring 03 cold rooms through UNICEF in 2016. After the installation of these three cold rooms which are in pipeline KP Provincial store would be ready to introduce Rota vaccine to maintain the quarterly supplies of all the vaccines. Currently KP Provincial store is maintaining the monthly supplies of the vaccines and logistics. At district level the KP Province would require 63 ILR each having 130 liters capacity and three cold rooms of 10m3capacity to introduce the Rota vaccine to maintain monthly supplies of vaccine including one month buffer stock. The cold rooms for the provincial store will be made operational before December 2016 and required ILRs for the districts stores are expected to be procured, delivered and made operational by February 2017.

Balochistan

In current situation the net storage capacity (2-8oC) of the Balochistan Provincial store is 24,000 liters which is more than sufficient to maintain quarterly supplies of all vaccines including Rotavirus vaccine and three months buffer stock. While the Balcohistan provincial store is also procuring one more cold room of 40 m3 gross capacity which will further enhance the cold chain capacity of the Provincial store for the storage of the vaccines. To maintain the monthly supplies including one month buffer stock at district level Balochistan would require 06 more ILRs each having 130 liters capacity for the introduction of Rota vaccine. These ILRs are expected to be procured, delivered to the districts and made operational by January 2017.

FATA

Currently, the net cold storage capacity of FATA is 8,653 liters net capacity and 389 liters would be additionally required for the storage of quarterly supplies of all vaccines including three months buffer stock for which FATA provincial store require 03 ILRs of 30 liters capacity. Currently FATA is maintaining monthly stock of all the vaccines for which FATA does not require additional cold chain capacity for the introduction of Rota vaccine. As far as the cold chain capacity of agencies of FATA is concerned 19 ILRs of 130 liters capacity are required to maintain the monthly supplies of vaccine including one month buffer stock. The additional cold chain equipment are expected to be procured, delivered and made operational by March 2017.

Gilgit-Baltistan (GB)

At present the cold chain capacity of GB is 232 liters which is not sufficient for the storage of quarterly supplies of the vaccines for which GB would require 2,486 liters additional capacity for the introduction of Rota vaccine to maintain quarterly supplies of the vaccine including three months buffer stock. To enhance the capacity of GB up to the required level one cold room of 10m3 gross capacity is required. However to maintain the monthly stocks of the vaccine including one month buffer stock at district level GB would require 05 ILRs of 130 liters capacity for the introduction of Rota vaccine. The additional cold room for the provincial store and required ILRs for the districts stores are expected to be procured, delivered and made operational by March 2017.

AJK, CDA and ICT

As per the current situation the AJK, CDA and ICT are maintaining the vaccine storage at district level. AJK would require 1 ILR of 130 liters capacity to maintain the monthly supplies of vaccine including one month buffer stock. While CDA would require 1 ILR of 130 liters for the introduction of Rota vaccine to maintain one month supplies including one month buffer stock for ICT the cold chain capacity is sufficient for the introduction of Rota vaccine. Additional equipment for these three small administrative territories will be provided and made operational before end of 2016.

Cost for additional cold chain equipment required

For details please refer to the section of cold chain in the introduction plan.

6.2.1. Co-financing information

If you would like to co-finance an amount higher than the minimum, please provide information in Your co-financing row.

Country group	Preparing transition phase

	2017	2018
Minimum co-financing	0.38	0.44
Your co-financing (please change if higher)	0.42	0.48

6.2.2. Specifications of vaccinations with new vaccine

	Data from		Year 1	Year 2
			2017	2018
Number of children to be vaccinated with the first dose	Table 5.2	#	5,243,000	5,809,786
Number of children to be vaccinated with the second dose	Table 5.2	#	4,917,529	5,487,020
Immunisation coverage with the second dose	Table 5.2	%	78 %	85 %
Country co-financing per dose	Table 6.2.1	$	0.42	0.48

6.2.3. Portion of supply to be procured by the country (and cost estimate, US$)

		2017	2018
Number of vaccine doses	#	2,900,593	3,010,417
Number of AD syringes	#	0	0
Number of re-constitution syringes	#	0	0
Number of safety boxes	#	0	0
Total value to be co-financed by the Country ***[1]***	**$**	5,780,880	5,999,760

[1] The co-financing amount for intermediate and graduating countries indicates costs for the vaccines, related injection safety devices and any freight charges. The total co-financing amount does not contain the costs and fees of the relevant Procurement Agency, such as contingency buffer and handling fees. Information on these extra costs and fees will be provided by the relevant Procurement Agency as part of the cost estimate to be requested by the Country.

6.2.4. Portion of supply to be procured by Gavi (and cost estimate, US$)

		2017	2018
Number of vaccine doses	#	10,863,407	9,489,083
Number of AD syringes	#	0	0
Number of re-constitution syringes	#	0	0
Number of safety boxes	#	0	0
Total value to be co-financed by Gavi	**$**	21,650,772	18,911,744

6.2.5. New and Under-Used Vaccine Introduction Grant

Calculation of Vaccine Introduction Grant for the Rotavirus, 2-dose schedule

Year of New Vaccine Introduction	Births (from Table 5.2)	Share per Birth in US$	Total in US$
2017	6,806,441	0.80	5,445,153

The Grant will be based on a maximum award of $0.80 per infant in the birth cohort with a minimum starting grant award of $100,000

Please describe how the Gavi Vaccine Introduction Grant will be used to facilitate the timely and effective implementation of critical activities in advance of and during the introduction of the new vaccine (refer to the cMYP and the Vaccine Introduction Plan).

The VIG will be used for below key activities for RV vaccine introduction,

1. Development of training materials and training of Health Workers and supervisors

2. Cold chain expansion

3. Development of guidelines, SOPs for the new vaccine and revision, printing and distribution of EPI recording and reporting tools

4. Advocacy, Communication and Social mobilization activities for immunization in general and RV vaccine specifically

The details are described in the section of activities timeline of the introduction plan

Please complete the 'Detailed budget for VIG / Operational costs' template provided by Gavi and attach as a mandatory document in the Attachment section.

Detailed budget attached as Document No. 22.

Where Gavi support is not enough to cover the full needs, please describe other sources of funding and the expected amounts to be contributed, if available, to cover your full needs.

GAVI VIG for RV vaccine will not be enough for implementing all activities for introduction of new vaccine. One important activity before introduction is revision of all existing EPI recording and reporting tools including child vaccination card. Having more than six million birth cohort annually with each vaccination card cost US$0.70, only for printing of new vaccination card with the new vaccine would cost approximately US$ 4.2 million. Beside that cost for development, revision, printing and distribution of other materials (guidelines, SOPs, forms), training of health workers and supervisors, ACSM activities and procurement of cold chain equipments will require more resources. Available VIG for Pakistan (US$5,445,153) is not enough to meet this cost. Hence, country will use funds from other sources for the introduction of new RV vaccine to meet the short fall:

Government share = 95,000 USD

GAVI Unspent money = 185,316 USD

UNICEF = 60,000 USD

The detailed breakup of the budget is attached at document # 22 in section 10.

6.2.6.Integrated disease control

a) Please describe **any** existing interventions for **the** prevention and treatment of pneumonia and diarrhoea and the status of implementation.

Please refer to introduction plan section "Benefit of introducing Rotavirus vaccine for other health interventions".

b) Please provide any considerations for how vaccination could strengthen delivery and communication of additional health interventions. Please highlight any barriers that you may foresee with integrating vaccination with other health interventions.

Integrating cost-effective health-care interventions and other health services with immunization services can have numerous benefits for achieving high and equitable coverage.Compatibility between interventions and presence of a strong immunization service prior to integration can be the key characteristics to this success. The addition of rotavirus vaccine in the Expanded Programme will provide the opportunity to simultaneously scale up the use of other complementary interventions and create synergies between different health programmes to maximize benefits.

Rotavirus vaccines represent significant new interventions for reducing the burden of diarrhoeal disease. However, they are not the only new or established interventions for prevention and control of these diseases. Zinc treatment for diarrhoea (and potentially for pneumonia), improved oral rehydration solution (ORS), antibiotics, exclusive breastfeeding, improved nutrition, safe water, adequate sanitation and hygiene, are among other health interventions that when applied effectively, can complement the impact of vaccines and together have a huge impact in reducing the burden of diarrhoea–one of the major killers of children under five. Message dissemination for prevention and control of diarrhoeal diseases e.g. breast-feeding, use of ORS, hand washing, personal and food hygiene, safe drinking water, sanitation and vaccination can be integrated easily for more usefullness and better acceptance by the community.

The barrier which we may foresee with integrating with other health interventions is coordination among different vertical program e.g. MNCH, National Program for PHC and FP and EPI all of which address different components of the MNCH services. This can be overcome through close collaboration and coordination among different vertical programs which is already underway in certain degree in different provinces. Punjab and KP health departments have already taken initiative to integrate MNCH service delivery bringing different vertical programs under more coordinated management system. Other provinces also have an appetite for a more integrated approach for more efficient use of resources.

More details on this are further available in the introduction plan in the section "Benefit of introducing Rotavirus vaccine for other health interventions".

6.2.7.Technical assistance

Please describe any particular area(s) the Ministry would require technical assistance to support the introduction of Rotavirus. Please consider the support in the context of developing and implementing an integrated approach to disease prevention and control.

MoNHSRC desires to have technical assistance in the following areas for Rotavirus vaccine introduction,

1. Cold chain management, Development of assesst management system, fire safety, developing SOPs and guideline for vaccine management/handling, ACSM: from UNICEF

2. Vaccine stock management: Implemented in Federal, Provincial and 83 districts by USAID Deliver project

3. Monitoring and Evaluation,, Training of health workforce, DQA: from WHO

As far as technical support is concerned, communication and interpersonal skills building component would be integrated in trainings for vaccine introduction to optimize their capacity to create demand for new vaccines, RI and manage refusals. Such trainings should focus on helping health workers develop skills to coin and effectively convey immunization messages that can be absorbed and remembered by caregivers. Such sessions can also serve to motivate health care providers to perform optimally as it helps them realize the importance and impact of their role on community behavior. More specifically, duration of training in future

vaccine introductions should be spread over days, focused equally on interpersonal and communication skills development and should be organized at regular intervals to support health staff in overcoming specific challenges and to refresh their knowledge.

Detailed description of the TA needs is described in section on Technical Assistance in Introduction Plan.

7. NVS Preventive Campaigns

No NVS Prevention Campaign Support this year

8. Procurement and Management

8.1 Procurement and Management of New and Under-Used Vaccines Routine

Note: The PCV vaccine must be procured through UNICEF to be able to access the price awarded by the Advance Market Commitment (AMC).

a) Please show how the support will operate and be managed including procurement of vaccines (Gavi expects that most countries will procure vaccine and injection supplies through UNICEF or PAHO's Revolving Fund):

Country's past experience of procuring other new and under-used vaccine through UNICEF is satisfactory. Hence, country decides to procure RV vaccine through UNICEF.

b) If an alternative mechanism for procurement and delivery of vaccine supply (financed by the country or the Gavi) is requested, please document

- A description of the mechanism and the vaccines or commodities to be procured by the country
- Assurance that vaccines will be procured from the WHO list of pre-qualified vaccines, indicating the specific vaccine from the list of pre-qualification. For the procurement of locally-produced vaccines directly from a manufacturer which may not have been prequalified by WHO, assurance should also be provided that the vaccines purchased comply with WHO's definition of quality vaccines, for which there are no unresolved quality problems reported to WHO, and for which compliance is assured by a fully functional National Regulatory Authority (NRA), as assessed by WHO in the countries where they are manufactured and where they are purchased.

Not applicable

c) If receiving direct financial support from Gavi (such as operational support for campaigns or VIG activities), please indicate how the funds should be transferred by Gavi.

Country requests the VIG to be transfered through WHO and UNICEF.

Specific amount to be transferred to each organization and is mentioned in detail in the section on activity timeline of the Introduction Plan .

d) Please indicate how the co-financing amounts will be paid (and who is responsible for this)

The co-financing amount will be paid by the Federal Ministry of National Health Services, Regulation and Coordination to the UNICEF country office for procuring country co-financing share of RV vaccine through UNICEF Supply Division.

e) Please describe the financial management procedures that will be applied for the management of the NVS direct financial support, including procurement.

As mentioned earlier, the operational expenditure will be borne by VIG and GAVI unspent fund (reprogram) through WHO and UNICEF. Funds will be used mainly through following procedures,

1. Activities to be implemented by provinces and areas: fund will be transfered to the provinces by DFC (Direct Financial Contribution)

2. Activities to be implemented at Federal level: will be done by Fed EPI with direct assistance of WHO/UNICEF. e.g. coordination meetings, monitoring visits, printing and distribution of Recording and Reporting tools, National TOTs, procurement of cold chain equipment and logistics etc.

Country co-financing share of vaccine will be procured through UNICEF. Fund will be transfered by Federal MoNHSRC to the UNICEF Country Office in due course

GAVI unspent funds will be used to conduct monitoring and evaluation at Federal and Provincial level during the introduction of Rota virus Vaccine.

f) Please outline how coverage of the introduced vaccine will be monitored, reported and evaluated (refer to cMYP and Introduction Plan)

There is a Monitoring and Evaluation (M&E) system in place at all levels of EPI service delivery from district level up to National level. The M&E system includes reporting on coverage, various aspects of programme, surveillance for AFP , VPDS and sentinel surveillance for Rota virus and IBDs through selected centers.

The recording and reporting tools shall be revised in order to add the new vaccine and this standardization shall be taken place at all levels. Indicators related to the RV vaccine shall be included in the country's existing monitoring and evaluation plan. The protocols and guidelines for data collection, collation and reporting shall be produced to standardize data management.

The country is in a process of developing the management information system which will collect all the data from the provinces and the main purpose shall be the integration of data quality and consistent checks in the electronic data bases (to trap errors at data entry). One of the efforts will be instituting routine quarterly/semi-annual quality checks on the data that have already been collected and reported (data quality audits and assessment).

The conduction of the regular coverage evaluation surveys shall be made possible so that to analyze the consistency between reported and surveyed coverage by districts. The recommendations gathered shall be provided to EPI management team. Review of surveillance and immunization data through periodical review meetings, DQS, desk review and survey

The M&E and Surveillance Plan is attached

g) If applying for measles second dose, does the country wish to have the support in cash or in-kind? **N/A**

8.2 Procurement and Management for NVS Preventive Campaign(s)

No NVS Prevention Campaign Support this year

8.3 Product Licensure

For each of the vaccine(s) requested, please state whether manufacturer registration and/or national vaccine licensure will be needed in addition to WHO prequalification and, if so, describe the procedure and its duration. In addition, state whether the country accepts the Expedited Procedure for national registration of WHO-prequalified vaccines.

Note that the necessary time for licensure should be factored into the introduction timeline and reflected in the Vaccine Introduction Plan or Plan of Action.

For each of the vaccine(s) requested, please provide the actual licensure status of the preferred presentation and of any alternative presentations, if required.

Please describe local customs regulations, requirements for pre-delivery inspection, special documentation requirements that may potentially cause delays in receiving the vaccine. If such delays are anticipated, explain what steps are planned to handle these.

Please provide information on NRA in the country, including status (e.g. whether it is WHO-certified). Please include points of contact with phone numbers and e-mail addresses. UNICEF will support the process by communicating licensing requirements to the vaccine manufacturers where relevant.

8.4 Vaccine Management (EVSM/EVM/VMA)

It is mandatory for countries to conduct an Effective Vaccine Management (EVM) assessment prior to an application for the introduction of a new vaccine. This EVM should have been conducted within the preceding **5 years**.

When was the EVM conducted? **March 2014**

Please attach the most recent EVM assessment report (DOCUMENT NUMBER : 20,19,21), the corresponding EVM improvement plan (DOCUMENT NUMBER : 19) and progress on the EVM improvement plan (DOCUMENT NUMBER : 21). The improvement plan should include a timeline, budget of committed resources for these activities and funding gaps, if any, as well as M&E indicators to monitor progress of implementation.

If any of the above mandatory documents (EVM Assessment Report, EVM Improvement Plan, Progress on the EVM Improvement Plan) are not available, please provide justification and reference to additional documents such as PIE and External EPI Reviews.

When is the next Effective Vaccine Management (EVM) Assessment planned? **December 2018**

EVM assessment report, EVM IP and Progress report on EVM IP are attached herewith as Document No. 19, 20 and 21 respectively

8.5 Waste management

Countries must have a detailed waste management and monitoring plan as appropriate for their immunisation activities. This should include details on sufficient availability of waste management supplies (including safety boxes), the safe handling, storage, transportation and disposal of immunisation waste, as part of a healthcare waste management strategy. Please describe the country's waste management plan for immunisation activities (including campaigns).

Disposal of injection waste at immunization site:

This is an important component of EPI activities. The project will follow the ESMG guidelines to ensure that the waste is burnt and buried in a proper manner with safety boxes under supervision of in-charge of Basic Health Unit.

- Though Rotavirus vaccine will not produce any sharp waste but such wastes (used syringes and its parts and needles) produced through use of other injectable vaccines such as, Penta, PCV10, IPV, Measles and TT are to be disposed in a safety box immediately after use. Other wastes such as, empty vial/ampoule, blister pack, cotton etc. are to be collected in a separate bag/container in the immunization sites. Safety boxes and other waste bags are to be returned to the nearest health facility for storage at a secured place for future re-use (if partially filled) or final disposal.

Final disposal of injection waste:

Auto combustion type of incinerators which achieve temperatures in excess of 800 oC are preferred to destroy all contaminated sharp wastes, including syringes and needles used for immunization. This equipment ensures the most complete destruction of sharp wastes and also reducing environmental pollution. However, in situations of limited resources and low level of immunization activities waste disposal may proceed as follows:

• The facilities that are remote and cannot undertake transport of immunization waste to a facility with incinerator the immunization waste (filled safety boxes and other waste bags) shall be stored in a secured place in the health facility. All filled safety boxes shall be burnt in a pit prepared for the purpose. The pit to be prepared in a secluded area out of reach of children and domestic animals within the premises of the health facility. After burning, the left overs shall be covered with a thin layer of earth.

• The facilities without incinerators that are located close to a facility with incinerator, the waste should ideally be transported to the facility with incinerator for incineration.

• Incineration of the injection waste is recommended where standard incinerator is available.

• Pit burning or incineration whatever method is adopted, that always to be done under direct supervision of a responsible officer.

• The EDO (H) shall be responsible for providing instructions for disposal of injection waste according to local arrangements in accordance with the National Injection Safety Policy.

• Federal EPI Cell shall facilitate the designated Ministry of Health (MoH), in collaboration with other

concerned agencies in developing plans for injection safety.

*Hospital Waste Management Plan is required to be developed by each health care facility as per requirements of Hospital Waste Management Rules, 2005, Government of Pakistan

Action Plan for Immunization Waste Management

Immunization waste management across Pakistan remains a challenge, especially at the Tehsil (sub-district) and Union Council levels. Most of the primary level healthcare facilities do not have effective systems and procedures in place, nor have proper infrastructure e.g. incinerator to safely dispose-off infectious waste. At present most of the facilities follow pit burning followed by burrial method for waste disposal.

It is proposed under NISP to prepare a two to three years comprehensive action plan in order to tackle this issue, and suggest workable and practical solutions. A year wise breakdown of activities is proposed as under:

Year 1; Documentation of current practices and identification of workable solutions

- Regional workshops on documenting current practices and systems currently in place for infectious waste management;

- Identifying best practices from within the country as well as the South Asian region

- Documenting the results and dissemination to relevant stakeholders in the government, academia and civil society

Year 2; District Action Plans prepared and notified

- District Action Plans to be prepared on the basis of the above

- Identification of short, medium and long term milestones and action points from within the plans

- Notification of the Plans by the respective provincial health departments

- Appointment of provincial immunization waste management coordinator in each province.

Year 3; Implementation of the District Action Plans and Immunization Waste Management Systems in place

- Provision of resources for the short term actions points of each provincial plan

- Execution of the plans, especially of the short term actions that can be dealt with in the NISP lifetime

- Equipment, systems and procedures in place for immunization waste management, under the monitoring and coordination of Federal EPI Program.

9. Additional Comments and Recommendations from the National Coordinating Body (ICC/HSCC)

Comments and Recommendations from the National Coordinating Body (ICC/HSCC)

- Federal EPI to sensitize provincial/areas Health Departments on the preparedness for RV vaccine introduction.
- Share the cold storage capacity analysis with the provinces for their validation again.
- Federal EPI was further directed to monitor the mechanism for capacity enhancement of provinces and urged the provinces to be vigilant about their responsibility in terms of ensuring that all preparations are in place on time for handling the vaccine introduction in their areas including availability of resources for co-financing through their PC-1s.
- Federal EPI shall be entering into agreement with UNICEF in September 2016 for the procurement of Cold chain equipment.
- ICC to recommend GAVI for transfer of the required funds for timely procurement of cold chain through unspent funds lying with GAVI in advance to UNICEF; it will be later adjusted with VIG.
- Quarterly review meeting of EPI to review the progress /status of preparedness.

The meeting concluded with the endorsement of the decisions and vote of thanks to all the members from the chair.

Detailed ICC minutes are attached as document no. 5 in the attachment section 10

10. List of documents attached to this proposal

10.1. List of documents attached to this proposal

Table 1: Checklist of mandatory attachments

Document Number	Document	Section	File
Endorsements			
1	MoH Signature (or delegated authority) of Proposal	4.1.1	Signature .pdf **File desc:** **Date/time :** 29/04/2016 01:31:23 **Size:** 383 KB
2	MoF Signature (or delegated authority) of Proposal	4.1.1	Signature .pdf **File desc:** **Date/time :** 29/04/2016 01:31:51 **Size:** 383 KB
4	Terms of Reference for the ICC	4.1.2	NICC ToRs.docx **File desc:** **Date/time :** 01/04/2016 02:23:33 **Size:** 14 KB
5	Minutes of ICC/HSCC meeting endorsing Proposal	4.1.3	Revised Minutes of ICC 21 April 2016 (Endorsement of RV and Work Plan)F April 28.docx **File desc:** **Date/time :** 29/04/2016 02:55:25 **Size:** 31 KB
6	Signatures of ICC or HSCC or equivalent in Proposal	4.1.3	Signature Table for the Coordinating Committee for Immunisation.pdf **File desc:** **Date/time :** 29/04/2016 03:59:48 **Size:** 334 KB
7	Minutes of last three ICC/HSCC meetings	4.1.3	NICC Endorsement sep 2015.pdf **File desc:** **Date/time :** 06/04/2016 03:06:56 **Size:** 4 MB
8	Role and functioning of the advisory group, description of plans to establish a NITAG	4.2.1	NITAG- TORs .pdf **File desc:** **Date/time :** 06/04/2016 02:49:14 **Size:** 2 MB
Planning, financing and vaccine management			
9	comprehensive Multi Year Plan - cMYP	5.1	cMYP Word Files.zip **File desc:** **Date/time :** 06/04/2016 03:17:27 **Size:** 45 MB
10	cMYP Costing tool for financial analysis	5.1	cYMP Excel Files.zip **File desc:** **Date/time :** 19/05/2016 03:18:38 **Size:** 17 MB

11	M&E and surveillance plan within the country's existing monitoring plan	5.1.5	M&E & Survei Plan Fed EPI.xlsx **File desc:** **Date/time :** 06/04/2016 03:35:53 **Size:** 202 KB
12	Vaccine introduction plan	5.1	RV Vaccine Introduction Plan 19-May-2016.docx **File desc:** **Date/time :** 19/05/2016 07:10:34 **Size:** 761 KB
19	EVM report	8.3	Pakistan_EVM_report_30_march-21_April__2014_Final1 (2).pdf **File desc:** **Date/time :** 06/04/2016 02:40:31 **Size:** 1 MB
20	Improvement plan based on EVM	8.3	National EVMIP_2015.pdf **File desc:** **Date/time :** 06/04/2016 02:41:19 **Size:** 985 KB
21	EVM improvement plan progress report	8.3	Progress Update on EVM Improvement Plan_Final.docx **File desc:** EVM IP progress report **Date/time :** 20/04/2016 09:10:41 **Size:** 25 KB
22	Detailed budget template for VIG / Operational Costs	6.x,7.x.2, 6.x.2	VIG and Op Cost Detail 19-5-2016.xlsx **File desc:** **Date/time :** 19/05/2016 07:11:28 **Size:** 231 KB
27	Data quality assessment (DQA) report	5.1.5	DQA plan for RV Vaccine 24-03-2016 - DRRAZASHAH.doc **File desc:** **Date/time :** 06/04/2016 03:35:23 **Size:** 35 KB

Table 2: Checklist of optional attachments

Document Number	Document	Section	File
3	MoE signature (or delegated authority) of HPV Proposal	4.1.1	No file loaded
13	Introduction Plan for the introduction of RCV / JE / Men A / YF into the national programme	7.x.4	No file loaded
15	HPV roadmap or strategy	6.1.1	No file loaded

16	HPV summary of the evaluation methodology	5.1.6	No file loaded
17	Evidence of commitment to fund purchase of RCV for use in the routine system in place of the first dose of MCV	7.x.3	No file loaded
18	Campaign target population documentation	7.x.1, 6.x.1	No file loaded
23	Risk assessment and consensus meeting report for MenA. If the DPT was used instead, please include this.	7.1	No file loaded
25	A description of partner participation in preparing the application	4.1.3	Development partners description.docx **File desc:** **Date/time :** 29/04/2016 02:53:08 **Size:** 12 KB
26	Minutes of NITAG meeting with specific recommendations on the NVS introduction or campaign	4.2	Minutes of the NITAG Meeting.docx **File desc:** **Date/time :** 29/04/2016 09:33:53 **Size:** 26 KB
28	DQA improvement plan	5.1.5	No file loaded
29	Plan of Action for campaigns	7.1, 7.x.4	No file loaded
30	Other		Rota Registration Letter.pdf **File desc:** Rotavirus vaccine registration certificate **Date/time :** 20/04/2016 08:58:44 **Size:** 469 KB FINAL EPI Policy 17 Nov '14.pdf **File desc:** National EPI Policy 2014 **Date/time :** 20/04/2016 09:14:47 **Size:** 1 MB Provincial Endorsment.pdf **File desc:** **Date/time :** 29/04/2016 01:39:36 **Size:** 243 KB KAPB 2014 NATL final text 15 12 14 (1).pdf **File desc:** **Date/time :** 29/04/2016 02:54:32 **Size:** 10 MB

			Final Communication Strategy.pdf **File desc:** **Date/time :** 29/04/2016 10:14:18 **Size:** 22 MB
			NITAG Notification.pdf **File desc:** **Date/time :** 13/05/2016 03:28:16 **Size:** 852 KB
			PDHS Final Report as of Jan 22-2014.pdf **File desc:** **Date/time :** 13/05/2016 04:12:47 **Size:** 2 MB
			Findings PSLM 2012-2013.pdf **File desc:** **Date/time :** 13/05/2016 05:22:51 **Size:** 790 KB

11. Annexes

Annex 1 - NVS Routine Support

Annex 1.1 - NVS Routine Support (Rotavirus, 2-dose schedule)

Table Annex 1.1 A: Rounded up portion of supply that is procured by the country and estimate of relative costs in US$

		2017	2018
Number of vaccine doses	#	2,900,600	3,010,500
Number of AD syringes	#	0	0
Number of re-constitution syringes	#	0	0
Number of safety boxes	#	0	0
Total value to be co-financed by the Country ***[1]***	**$**	5,781,000	6,000,000

Table Annex 1.1 B: Rounded up portion of supply that is procured by Gavi and estimate of relative costs in US$

		2017	2018
Number of vaccine doses	#	10,863,500	9,489,100
Number of AD syringes	#	0	0
Number of re-constitution syringes	#	0	0
Number of safety boxes	#	0	0
Total value to be co-financed by Gavi	**$**	21,651,000	18,912,000

Table Annex 1.1 C: Summary table for vaccine Rotavirus, 2-dose schedule

ID		Data from		2017	2018
	Number of surviving infants	Table 5.2	#	6,329,001	6,455,317
	Number of children to be vaccinated with the first dose	Table 5.2	#	5,243,000	5,809,786
	Number of children to be vaccinated with the second dose	Table 5.2	#	4,917,529	5,487,020
	Immunisation coverage with the second dose	Table 5.2	%	78%	85%
	Number of doses per child	Parameter	#	2	2
	Estimated vaccine wastage factor	Table 5.2	#	1.05	1.05
	Number of doses per vial	Parameter	#	1	1
	AD syringes required	Parameter	#	No	No
	Reconstitution syringes required	Parameter	#	No	No
	Safety boxes required	Parameter	#	No	No
cc	**Country co-financing per dose**	Table 6.4.1	$	0.42	0.48
ca	**AD syringe price per unit**	Table Annexes 4A	$	0.041	0.041
cr	**Reconstitution syringe price per unit**	Table Annexes 4A	$	0	0
cs	**Safety box price per unit**	Table Annexes 4A	$	0.005	0.005
fv	**Freight cost as % of vaccines value**	Table Annexes 4B	%	0	0

Table Annex 1.1 D: Estimated numbers for Rotavirus, 2-dose schedule, associated injection safety material and related co-financing budget (page 1)

		Formula	2017		
			Total	Government	Gavi
A	Country co-finance	*V*	21.07 %		
B	Number of children to be vaccinated with the first dose	*Table 5.2*	5,243,000	1,104,898	4,138,102
C	Number of doses per child	*Vaccine parameter (schedule)*	2		
D	Number of doses needed	*B x C*	10,486,000	2,209,795	8,276,205
E	Estimated vaccine wastage factor	*Table 5.2*	1.05		
F	Number of doses needed including wastage	*D x E*	11,010,300	2,320,284	8,690,016
G	Vaccines buffer stock	*Buffer on doses needed = (D - D of previous year) x 25% Buffer on wastages = ((F - D) - (F of previous year - D of previous year)) x 25%, = 0 if negative result G = [buffer on doses needed] + [buffer on wastages]*	2,752,575	580,071	2,172,504
I	Total vaccine doses needed	*Round up((F + G) / Vaccine package size) * Vaccine package size*	13,764,000	2,900,593	10,863,407
J	Number of doses per vial	*Vaccine parameter*	1		
K	Number of AD syringes (+ 10% wastage) needed	*(D + G) x 1.11*	0	0	0
L	Reconstitution syringes (+ 10% wastage) needed	*(I / J) x 1.11*	0	0	0
M	Total of safety boxes (+ 10% of extra need) needed	*(I / 100) x 1.11*	0	0	0
N	Cost of vaccines needed	*I x vaccine price per dose (g)*	27,431,652	5,780,880	21,650,772
O	Cost of AD syringes needed	*K x AD syringe price per unit (ca)*	0	0	0
P	Cost of reconstitution syringes needed	*L x reconstitution price per unit (cr)*	0	0	0
Q	Cost of safety boxes needed	*M x safety box price per unit (cs)*	0	0	0
R	Freight cost for vaccines needed	*N x freight cost as of % of vaccines value (fv)*	0	0	0
S	Freight cost for devices needed	*(O+P+Q) x freight cost as % of devices value (fd)*	0	0	0
T	Total fund needed	*(N+O+P+Q+R+S)*	27,431,652	5,780,880	21,650,772
U	Total country co-financing	*I x country co-financing per dose (cc)*	5,780,880		
V	Country co-financing % of Gavi supported proportion	*U / T*	21.07 %		

Table Annex 1.1 D: Estimated numbers for Rotavirus, 2-dose schedule, associated injection safety material and related co-financing budget (page 2)

		Formula	2018		
			Total	Government	Gavi
A	Country co-finance	*V*	24.08 %		
B	Number of children to be vaccinated with the first dose	*Table 5.2*	5,809,786	1,399,246	4,410,540
C	Number of doses per child	*Vaccine parameter (schedule)*	2		
D	Number of doses needed	*B x C*	11,619,572	2,798,492	8,821,080
E	Estimated vaccine wastage factor	*Table 5.2*	1.05		
F	Number of doses needed including wastage	*D x E*	12,200,551	2,938,417	9,262,134
G	Vaccines buffer stock	*Buffer on doses needed = (D - D of previous year) x 25% Buffer on wastages = ((F - D) - (F of previous year - D of previous year)) x 25%, = 0 if negative result G = [buffer on doses needed] + [buffer on wastages]*	297,563	71,666	225,897
I	Total vaccine doses needed	*Round up((F + G) / Vaccine package size) * Vaccine package size*	12,499,500	3,010,417	9,489,083
J	Number of doses per vial	*Vaccine parameter*	1		
K	Number of AD syringes (+ 10% wastage) needed	*(D + G) x 1.11*	0	0	0
L	Reconstitution syringes (+ 10% wastage) needed	*(I / J) x 1.11*	0	0	0
M	Total of safety boxes (+ 10% of extra need) needed	*(I / 100) x 1.11*	0	0	0
N	Cost of vaccines needed	*I x vaccine price per dose (g)*	24,911,504	5,999,760	18,911,744
O	Cost of AD syringes needed	*K x AD syringe price per unit (ca)*	0	0	0
P	Cost of reconstitution syringes needed	*L x reconstitution price per unit (cr)*	0	0	0
Q	Cost of safety boxes needed	*M x safety box price per unit (cs)*	0	0	0
R	Freight cost for vaccines needed	*N x freight cost as of % of vaccines value (fv)*	0	0	0
S	Freight cost for devices needed	*(O+P+Q) x freight cost as % of devices value (fd)*	0	0	0
T	Total fund needed	*(N+O+P+Q+R+S)*	24,911,504	5,999,760	18,911,744
U	Total country co-financing	*I x country co-financing per dose (cc)*	5,999,760		
V	Country co-financing % of Gavi supported proportion	*U / T*	24.08 %		

Annex 2 - NVS Routine – Preferred Second Presentation

No NVS Routine – Preferred Second Presentation requested this year

Annex 3 - NVS Preventive campaign(s)

No NVS Prevention Campaign Support this year

Annex 4

Table Annex 4A: Commodities Cost

Estimated prices of supply are not disclosed

Table Annex 4B: Freight cost as percentage of value

Vaccine Antigen	Vaccine Type	2017	2018
Rotavirus, 2-dose schedule	ROTA	6.00 %	6.00 %

Table Annex 4C: Preparing transition phase - Minimum country co-payment per dose of co-financed vaccine

Vaccine	2017	2018
Rotavirus, 2-dose schedule	0.38	0.44

Table Annex 4D: Wastage rates and factors

The following table shows the wastage rates for routine and campaign vaccines, set for 2017.

Vaccine	dose(s) per vial	Maximum Vaccine wastage rate*		Benchmark Wastage Rate**
HPV bivalent, 2 dose(s) per vial, LIQUID	2	10 %	0 %	
HPV quadrivalent, 1 dose(s) per vial, LIQUID	1	5 %	0 %	
JE, 5 dose(s) per vial, LYOPHILISED	5	10 %	10 %	
Measles second dose, 10 dose(s) per vial, LYOPHILISED	10	40 %	0 %	
Meningococcal A, 10 dose(s) per vial, LYOPHILISED	10	50 %	10 %	
MR, 10 dose(s) per vial, LYOPHILISED	10	15 %	0 %	
Pneumococcal (PCV10), 2 dose(s) per vial, LIQUID	2	10 %	0 %	
Pneumococcal (PCV13), 1 dose(s) per vial, LIQUID	1	5 %	0 %	
Rotavirus, 2-dose schedule	1	5 %	0 %	
Rotavirus, 3-dose schedule	1	5 %	0 %	
Yellow Fever, 10 dose(s) per vial, LYOPHILISED	10	40 %	0 %	
Yellow Fever, 5 dose(s) per vial, LYOPHILISED	5	10 %	0 %	

Comments:

* Source - WHO indicative wastage rates

** Source - Country APRs and studies, approved by WHO, UNICEF, and the Gavi Secretariat

Note: HPV demonstration project wastage rates are the same as for the national introduction of the vaccine

Table Annex 4E: Vaccine maximum packed volumes

Kindly note that this table is for reference purposes only and includes Gavi- and non Gavi-supported vaccines.

Vaccine product	Designation	Vaccine formulation	Admin route	No. Of doses in the schedule	Presentation (doses/vial, prefilled)	Packed volume vaccine (cm3/dose)	Packed volume diluents (cm3/dose)
BCG	BCG	lyophilized	ID	1	20	1.2	0.7
Diphtheria-Tetanus	DT	liquid	IM	3	10	3	
Diphtheria-Tetanus-Pertussis	DTP	liquid	IM	3	20	2.5	
Diphtheria-Tetanus-Pertussis	DTP	liquid	IM	3	10	3	
DTP liquid + Hib freeze-dried	DTP+Hib	liquid+lyop.	IM	3	1	45	
DTP-HepB combined	DTP-HepB	liquid	IM	3	1	9.7	
DTP-HepB combined	DTP-HepB	liquid	IM	3	2	6	
DTP-HepB combined	DTP-HepB	liquid	IM	3	10	3	
DTP-HepB liquid + Hib freeze-dried	DTP-Hib	liquid	IM	3	10	2.5	
DTP-HepB liquid + Hib freeze-dried	DTP-HepB+Hib	liquid+lyop.	IM	3	1	22	
DTP-HepB-Hib liquid	DTP-	liquid+lyop.	IM	3	2	11	

	HepB+Hib						
DTP-HepB-Hib liquid	DTP-HepB-Hib	liquid	IM	3	10	4.4	
DTP-HepB-Hib liquid	DTP-HepB-Hib	liquid	IM	3	2	13.1	
DTP-HepB-Hib liquid	DTP-HepB-Hib	liquid	IM	3	1	19.2	
DTP-Hib combined liquid	DTP+Hib	liquid+lyop.	IM	3	10	12	
DTP-Hib combined liquid	DTP-Hib	liquid	IM	3	1	32.3	
Hepatitis B	HepB	liquid	IM	3	1	18	
Hepatitis B	HepB	liquid	IM	3	2	13	
Hepatitis B	HepB	liquid	IM	3	6	4.5	
Hepatitis B	HepB	liquid	IM	3	10	4	
Hepatitis B UniJect	HepB	liquid	IM	3	Uniject	12	
Hib freeze-dried	Hib_lyo	lyophilized	IM	3	1	13	35
Hib freeze-dried	Hib_lyo	lyophilized	IM	3	2	6	
Hib freeze-dried	Hib_lyo	lyophilized	IM	3	10	2.5	3
Hib liquid	Hib_liq	liquid	IM	3	1	15	
Hib liquid	Hib_liq	liquid	IM	3	10	2.5	
Human Papilomavirus vaccine	HPV	liquid	IM	3	1	15	
Human Papilomavirus vaccine	HPV	liquid	IM	3	2	5.7	
Japanese Encephalitis	JE_lyo	lyophilized	SC	1	5	2.5	2.9
Measles	Measles	lyophilized	SC	1	1	26.1	20
Measles	Measles	lyophilized	SC	1	2	13.1	13.1
Measles	Measles	lyophilized	SC	1	5	5.2	7
Measles	Measles	lyophilized	SC	1	10	3.5	4
Measles-Mumps-Rubella freeze dried	MMR	lyophilized	SC	1	1	26.1	26.1
Measles-Mumps-Rubella freeze dried	MMR	lyophilized	SC	1	2	13.1	13.1
Measles-Mumps-Rubella freeze dried	MMR	lyophilized	SC	1	5	5.2	7
Measles-Mumps-Rubella freeze dried	MMR	lyophilized	SC	1	10	3	4
Measles-Rubella freeze dried	MR	lyophilized	SC	1	1	26.1	26.1
Measles-Rubella freeze dried	MR	lyophilized	SC	1	2	13.1	13.1
Measles-Rubella freeze dried	MR	lyophilized	SC	1	5	5.2	7
Measles-Rubella freeze dried	MR	lyophilized	SC	1	10	2.5	4
Meningitis A conjugate	Men_A	lyophilized	IM	1	10	2.6	4
Meningitis A/C	MV_A/C	lyophilized	SC	1	10	2.5	4
Meningitis A/C	MV_A/C	lyophilized	SC	1	50	1.5	3
Meningitis W135	MV_W135	lyophilized	SC	1	10	2.5	4
Meningococcal A/C/W/	MV_A/C/W	lyophilized	SC	1	50	1.5	3
Meningococcal	MV_A/C/W/Y	lyophilized	SC	1	10	2.5	4

A/C/W/Y							
Monovalent OPV-1	mOPV1	liquid	Oral		20	1.5	
Monovalent OPV-3	mOPV3	liquid	Oral		20	1.5	
Pneumo. conjugate vaccine 10-valent	PCV-10	liquid	IM	3	1	11.5	
Pneumo. conjugate vaccine 10-valent	PCV-10	liquid	IM	3	2	4.8	
Pneumo. conjugate vaccine 13-valent	PCV-13	liquid	IM	3	1	12	
Polio	OPV	liquid	Oral	4	10	2	
Polio	OPV	liquid	Oral	4	20	1	
Polio inactivated	IPV	liquid	IM	3	PFS	107.4	
Polio inactivated	IPV	liquid	IM	3	10	2.5	
Polio inactivated	IPV	liquid	IM	3	1	15.7	
Rota vaccine	Rota_liq	liquid	Oral	2	1	17.1	
Rota vaccine	Rota_liq	liquid	Oral	3	1	45.9	
Tetanus Toxoid	TT	liquid	IM	2	10	3	
Tetanus Toxoid	TT	liquid	IM	2	20	2.5	
Tetanus Toxoid UniJect	TT	liquid	IM	2	Uniject	12	
Tetanus-Diphtheria	Td	liquid	IM	2	10	3	
Yellow fever	YF	lyophilized	SC	1	5	6.5	7
Yellow fever	YF	lyophilized	SC	1	10	2.5	3
Yellow fever	YF	lyophilized	SC	1	20	1.5	2
Yellow fever	YF	lyophilized	SC	1	50	0.7	1

12. Banking Form

In accordance with the decision on financial support made by the Gavi, the Government of Pakistan hereby requests that a payment be made via electronic bank transfer as detailed below:

Name of Institution (Account Holder):			
Address:			
City Country:			
Telephone no.:		**Fax no.:**	
	Currency of the bank account:		
For credit to:			
Bank account's title:			
Bank account no.:			
Bank's name:			

Is the bank account exclusively to be used by this program?

By who is the account audited?

Signature of Government's authorizing official

		Seal
Name:		
Title:		
Signature:		
Date:		

FINANCIAL INSTITUTION		**CORRESPONDENT BANK (In the United States)**	
Bank Name:			
Branch Name:			
Address:			
City Country:			
Swift Code:			
Sort Code:			
ABA No.:			
Telephone No.:			
FAX No.:			

I certify that the account No is held by at this banking institution

The account is to be signed jointly by at least (number of signatories) of the following authorized signatories:

1		
	Name:	
	Title:	
2		
	Name:	
	Title:	
3		
	Name:	
	Title:	

Name of bank's authorizing official
Signature:
Date:
Seal: