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Strengthening Democracy and Democratic Institutions in Pakistan

Immunization in Pakistan

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Abbreviations and Acronyms

BCG	Bacillus Calmette-Guérin
CDC	Centers for Disease Control and Prevention
DFID	Department For International Development (UK)
DPT	Diphtheria, Pertussis, Tetanus
EPI	Expanded Program for Immunization
GAVI	The Global Alliance for Vaccines and Immunization
HBV	Hepatitis B Vaccine
IMR	Infant Mortality Rate
JICA	Japan International Cooperation Agency
MDG	Millennium Development Goals
NID	National Immunization Days
UN	United Nations
UNICEF	United Nations International Children's Emergency Fund
WHO	World Health Organization

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Foreword

The Expanded Programme on Immunization (EPI) was launched in Pakistan in 1978. It aims at protecting children by immunizing them against Childhood Tuberculosis, Poliomyelitis, Diphtheria, Pertussis, Measles, Tetanus and also their mothers against Tetanus.

The purpose of EPI is to initiate a collective effort to reduce the mortality results from the seven EPI target diseases by immunizing children of the age 0-11 months and women of child bearing age. Although Pakistan has made impressive gains in increasing the EPI coverage in the recent years, the public awareness and thus public support and participation in immunization drives of the Ministry of Health, Government of Pakistan needs to improve further to enable us to achieve the targets set under the Millennium Development Goals (MDGs). The elected representatives of the people in the Parliament and the Provincial Legislatures can play a very important role in enhancing the understanding and participation of their communities in the EPI initiatives. It is however critical that these elected representatives are themselves aware of the significance of EPI, its current status and the challenges being faced in this context. They should also be aware of the progress being made in their constituencies on EPI within the context of the overall national state of immunization.

This briefing paper has been specially commissioned by PILDAT to give the background and current status of immunization in Pakistan with an aim to brief Parliamentarians and Provincial Legislators on this important subject. PILDAT endeavors to enhance the awareness of elected legislators to act proactively to urge the Government to address the issues in the immunization programme in Pakistan. This paper has been authored by Dr. Haris Ahmed, a senior Public Health expert with international experience.

Acknowledgements

PILDAT would like to acknowledge the support provided by the UNICEF for the project of Promoting Immunization programme and relating policies among Parliamentarians. The paper has been prepared under the project.

Disclaimer

The views, opinions, findings and conclusions or recommendations expressed in this paper are those of the author and do not necessarily reflect the views of the PILDAT, or UNICEF.

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Profile of the Author

Dr. Haris Ahmed has a diverse experience of 20 years with public health work in program planning and implementation. He is a Fellow of the Royal Society of Public Health, London with an MPH from University of Malaysia, currently working on a project supported by Gates and Packard Foundation, to scale-up best practices in family planning and reproductive health in Punjab and Sindh provinces.

Dr Haris has worked for a USAID | PAIMAN project with private health care providers to improve MNCH services and John Hopkins School of Public Health, Centre for Communications Programs on interventions related to behaviour change communications. He provided humanitarian relief during the Pakistan 2005 Earthquake. He has managed, World Bank supported HIV/AIDS project; Procter & Gamble US supported safe water solutions project; and Micronutrient Initiative supported 'Sprinkles' project. He has served in Army Medical Corps providing both professional and administrative guidance.

A founder member and executive council member of White Ribbon Alliance – Pakistan; member of Pakistan Health Economics Network and Global Health Council (USA), Dr Haris has presented on international forums issues related to maternal and newborn health. He has piloted a small scale intervention on demand side financing on MNCH/FP and use of mobile messaging to collect output indicators from private health care providers. He has been an adjunct faculty for MPH students at AFGMI, Rawalpindi and guest speaker for different academic institutes.

Immunization

Immunization is the process whereby a person is made immune or resistant to an infectious disease, typically by the administration of a vaccine. Vaccines stimulate the body's own immune (defence) system to protect the person against subsequent infection or disease.

Why Immunization

Prevention of diseases is the need of the day. The morbidity and mortality caused by diseases and rising costs of treating them requires us to focus more on their prevention. Immunization is among the most successful components of preventive medicine. It is effective public health intervention that has had the greatest impact on health of the people. Every year millions of children around the globe are saved from illness or death because of vaccines. By significantly reducing the cost of treating diseases, immunization offers opportunities for poverty reduction and social and economic development of the country.¹

In 1974, EPI was initiated by the World Health Organization (WHO), when less than 5% of the world's children were immunized during their first year of life against six diseases (Diphtheria, Tetanus, Pertussis, Polio, Measles, and Tuberculosis),² later Hepatitis B was added. In 1988, World Health Assembly passed the resolution of global polio eradication by 2000.³

Fig 1: Infant Mortality Rate-IMR in Pakistan

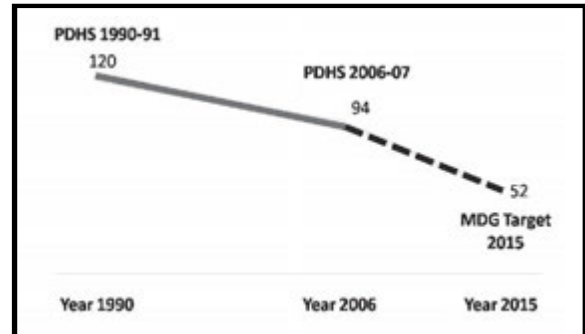


Immunization in Pakistan

Currently 15% deaths of children under 5 years of age contribute to 50% overall mortality in Pakistan as compared to 8-10% in the developed world. Even though the under-five mortality rate has shown some reduction in the last 15

years it is still alarmingly high for Pakistan and currently stands at 94/1000 live births.⁴

Fig 2: Under 5 Child Mortality Rate



Expanded Programme on Immunization was started in Pakistan in 1978 with the ultimate objective of reduction in morbidity and mortality caused by six vaccine preventable diseases.⁵ In addition, vaccination against Hepatitis B was included in EPI in July 2002, Building on the success of Small Pox eradication, World Health Assembly resolved to eradicate polio globally. Tremendous progress has been made in the global fight against polio since 1988. The number of polio cases worldwide has decreased from 350,000 in 1988, to 273 cases in 2010 (by May 25, 2010). Pakistan is among the few countries where Polio has yet to be eradicated completely. In 1980, Polio coverage was just two percent which was increased to 54% by 1990.

Fig 3: Immunization Schedule in Pakistan

Immunization schedule	
Age	Vaccination
0 age or at time of birth	BCG + Polio 0
6 weeks	DPT1 + HBV1 + Polio 1
10 weeks	DPT2 + HBV2 + Polio 2
14 weeks	DPT3 + HBV3 + Polio 3
9 months	Measles

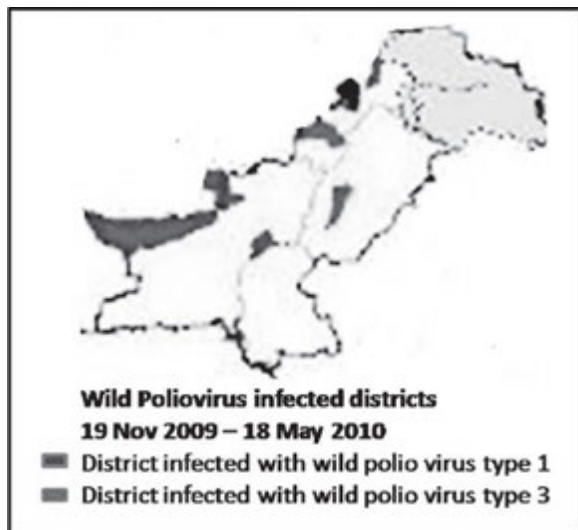
(DPT = Diphtheria, Pertussis & Tetanus; HBV = Hepatitis Vaccine)

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number of polio cases worldwide has decreased from 350,000 in 1988, to 273 cases in 2010 (by May 25, 2010). Pakistan is among the few countries where Polio has yet to be eradicated completely. In 1980, Polio coverage was just two percent which was increased to 54% by 1990.

The Polio Eradication Initiative in Pakistan commenced in 1994 upon the initiative of Former Prime Minister Mohtarma Benazir Bhutto Shaheed who launched the campaign by administering polio to her child Asifa. Ministry of Health in Pakistan started National Immunization Days (NID) during 1994 to join the global Polio Eradication (PE) efforts. Every year nationwide NIDs were carried out to give Polio drops to all children below 5 years of age. A workforce of almost 500,000 including volunteers, apart from health staff, remains busy in this national effort. Pakistan could show only 58% coverage for Polio in year 2000.⁶ Thereafter, initiative of National Immunization Days (NIDs) had rather a mixed impact on overall immunization coverage.⁷ Government increased budget allocations to EPI due to donor withdrawal and thus coverage began to improve again from 1998 onwards with a little fluctuation among the years. Besides, national immunization days, mass immunization campaigns have also gained great deal of acceptance in the communities.⁸

Fig 4: Wild Polio Infected Districts (November 19, 2009-May 18, 2010)



From 2000 to 2003, the eradication program was expanded, including an increase in personnel and the

number of rounds, as well as the adoption of a door-to-door strategy.⁹ Recognizing the need for 2010 push for a polio-free Pakistan, specific risk factors were identified which were immediately addressed, and from 103 polio cases reported in 2003, the total number of confirmed polio cases in 2010 (as on 15th of May, 2010) came down to 19.¹⁰ Cases of type-1 polio, which causes paralysis of arms and legs, were found in **Peshawar, Lakki Marwat and Charsada districts of Khyber-Pakhtunkhawa, Bajour, Mohmand, North Waziristan and Khyber agencies in FATA**. Whereas cases of type-3 polio, which can also affect seeing, hearing, smelling, tasting, and swallowing, were found in **Bajour agency in FATA, Swat, Peshawar in Khyber-Pakhtunkhawa, Karachi(Gulshan-e-Iqbal) in Sindh, Quetta, Chaghai and Killa Abdullah in Balochistan**.¹¹

GVS
Global Immunization Vision and Strategy
2006-2015

In response to challenges in global immunization, WHO and UNICEF developed the Global Immunization Vision and Strategy (GVS). In brief, GVS aims to assist countries to immunize more people, from infants to seniors, with a greater range of vaccines. GVS is the first ever-global ten-year framework to fight vaccine-preventable diseases through immunization. It covers the period from 2006 to 2015.

EPI Targets for 2010 through 2012

EPI Programme's target is to immunize children of 0-11 months against seven EPI target diseases and pregnant mothers against neo-natal tetanus. Annual target is around 5.9 million children (0-11 months) and 6, million pregnant women. With this, EPI will achieve a national coverage of 90% with at least 80% coverage in each district by 2012. EPI also targets to eliminate polio by 2010 and neo-natal tetanus by 2015, with a reduction of measles mortality by 90% by 2010 as compared to 2000 level.¹²

EPI Partners

Apart from Government of Pakistan, a number of donor agencies are providing assistance, both technical and financial to Public Health Programmes such as EPI. The main partners in EPI are; WHO, UNICEF, JICA, World Bank, CDC, Rotary International, USAID, GAVI, the Bill and Melinda Gates Foundation and DFID.

Current state of EPI in Pakistan

Pakistan has made significant improvement in EPI coverage in comparison to India and Afghanistan-its too immediate neighbours, but has to adopt a more aggressive implementation strategy to compete with other countries of the region. Only 47% of Pakistani children age 12–23 months had received all recommended vaccines. More than 80% percent of children received BCG and the three Polio vaccines, while fewer received the subsequent doses of DPT, Hepatitis B and Measles. Six percent of children had not received any of the recommended vaccines. Boys are more likely to be fully vaccinated than girls (50 versus 44). Vaccination coverage is higher in urban areas than rural areas (54 versus 44 percent). There is marked variation in vaccination coverage by province, ranging from only 35% vaccinated in Balochistan to 53% in Punjab.¹³

Fig 5: Immunization against Measles, Comparison to SAARC Countries

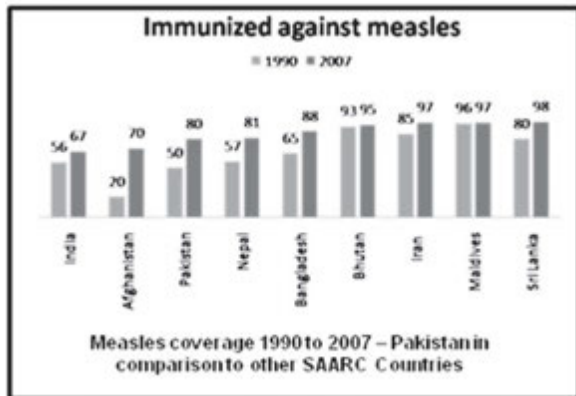
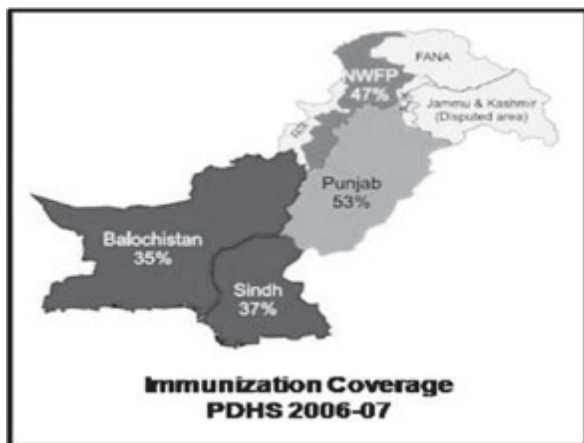


Fig 6: Immunization Coverage Overview



In 2009, EPI Pakistan targets with vaccination 5.9 million children against 8 diseases (childhood tuberculosis, poliomyelitis, diphtheria, pertussis, tetanus, hepatitis-B, haemophiles influenzae type-b and measles) and 6 million pregnant ladies against Tetanus through Routine Immunization (RI). As per mandate of Federal EPI, adequate supply of vaccines and logistics was ensured to all provinces and areas during 2009.

In addition to routine EPI performance, it was supplemented by immunization month, Mother and Child Health Week and MNTE campaign in 6 districts of Punjab. As a result of these activities, the coverage of all antigens increased manifold in the country especially in two populated provinces Punjab and Sindh. The coverage is given below:

Reported routine vaccination coverage in 2008 was BCG 92%, Polio 75%, Combination of DPT& HepB 68%, measles 79% and TT 50% whereas the coverage in 2009 was BCG 93%, Polio 86%, Pentavalent 86%, Measles 85% and TT 55%.

Fig 7: Comparison of reported coverage 0-11 month (2008-2009)

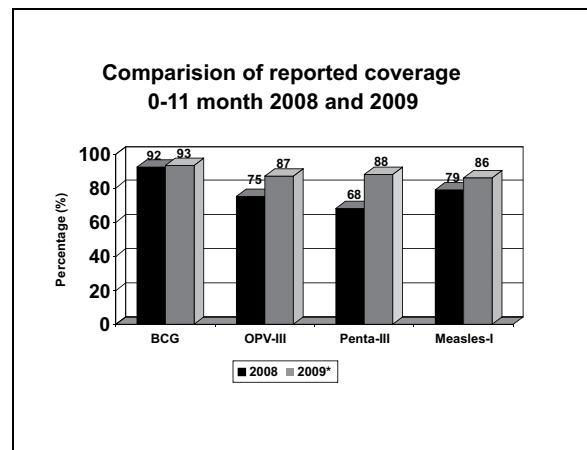


Fig 8: Number of districts (by province) reaching closer to the target for measles antigen(2008-2009)¹⁴

Number of districts by province reaching closer to the target for measles antigen, 2008 & 2009					
Province/ area	Total No. of districts/ agencies	Measles coverage			
		≥ 80%		≥ 90%	
		2008	2009	2008	2009
Punjab	35	33	32	14	29
Sindh	23	7	5	1	1
NWFP	24	7	3	3	2
FATA	7	1	2	1	2
Balochistan	30	6	3	3	1
AJK	8	8	5	5	5
FANA	6	0	2	0	2
Islamabad	2	0	0	0	0
Total	135	62	52	27	42

In consultation with partners and national experts EPI set its target to achieve 90% coverage for all routine EPI antigens in all districts/agencies by 2010.

Yearly Expenditure on EPI in Pakistan¹⁵

The yearly likely expenditure on EPI activities, both routine and campaigns range from US\$ 47.767 million to US\$ 175.894 million. Vaccine costs account for a third of total EPI expenditures and about 60% of all non-salary expenditures. Estimates of the cost per vaccinated child varied considerably in the range of \$10-20 per vaccinated child.¹⁶

Fig 9: Yearly expenditure on EPI in Pakistan

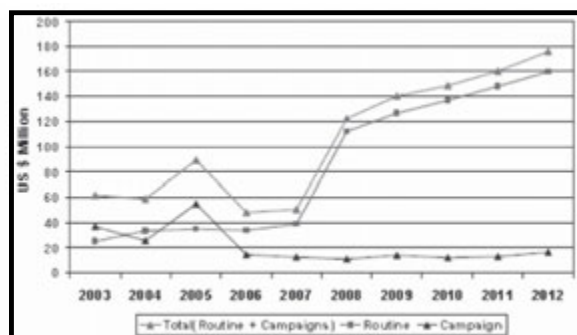


Fig 10: Vaccination cost per child

Area of cost	Per child cost (US\$)
Traditional vaccines (BCG, OPV, Measles, TT)	2.63
Pentavalent vaccine	10.93
Injection equipments (Syringes & Safety boxes)	0.91
Other logistics	0.42
Service delivery	6.46
Advocacy & communication	0.47
Monitoring & disease surveillance	0.94
Program management	1.75
Total (US\$)	24.51

Out of this total cost, US\$ 14.48 is paid byGoP and US\$ 10.03 is paid by GAVI

Per child vaccination cost in a polio campaign is US\$ 0.34

Challenges to EPI Program¹⁷

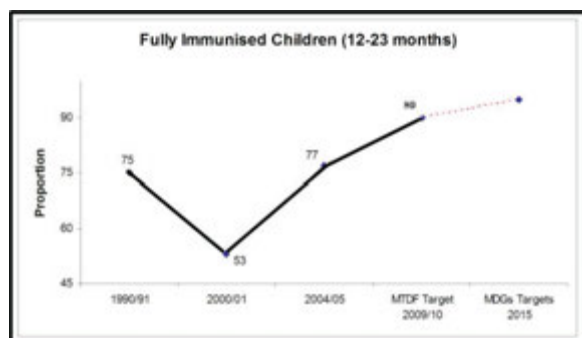
There are multiple factors associated with issues related to activities in routine EPI coverage. Some of the key issues are:

- 1. Outreach capacity of vaccinators:** Many pockets of population go undetected, due to mobility issues of vaccinators who cannot access the far-flung areas for vaccination.
- 2. Service structure of EPI staff:** There is a great deal of dissatisfaction over the incentives, allowances and the overall service structure in the department.
- 3. Attitude of doctors in health facilities:** There is a common complaint that the health facility doctors neither refer the children for vaccination to the EPI centre nor welcome any EPI activity at their health centers. There is also a trend that pediatricians do not refer the eligible children to EPI centers.
- 4. Private sector involvement:** It is a gigantic task for public sector alone to reach all the children in a populous country like Pakistan. Therefore, it is very important to involve private sector in providing routine immunization services.
- 5. Political interference in EPI staff management:** Political influences regarding appointments and postings of vaccinators, and absenteeism among the staff that are politically supported, is a serious concern.
- 6. Maintaining the cold chain for vaccines:** Cold chain for vaccines is a system for storing and transporting vaccines at very low temperatures to maintain their effectiveness before use. Because vaccines are sensitive biological substances,

their exposure to high temperatures directly affects the quality of vaccines and safety of immunization

7. **Management of vaccine stocks:** Better stock management and reduced wastage rates could make an important difference. For example, reducing wastage rates from 25% to 15% could save about \$13 million over the next 5 years.¹⁸
8. **Lack of Accountability:** Accountability of all those involved in EPI initiative has never been implemented in true letter and spirit this has resulted in poor performance.

Fig 11: Graph showing fully immunized children



EPI-a low hanging fruit: Millennium Development Goals

The Millennium Development Goals (MDGs) are the most broadly supported, comprehensive and specific development goals the world has ever agreed upon. For attainment of 8 Millennium Goals the UN Millennium Declaration had fixed 18 Targets and 48 Indicators, Pakistan has adopted 16 Targets and 37 Indicators. Even though for most of the indicators performance Pakistan's progress is not quite adequate, however for some of the MDGs progress has been somewhat satisfactory. One of this is full immunization of children under 5 years of age. Currently immunization coverage in Pakistan is 80%. This most likely is the only MDG target that Pakistan can achieve. Although the indicator for Pakistan is moving in a positive direction, it is imperative for the country to make increased efforts to reach the MDGs.¹⁹

Role Parliamentarians can play for the success of EPI in Pakistan

Everyone, including the Parliamentarians is responsible for ensuring the health of our children. A committed leadership of Parliamentarians can add to the steps towards achieving MDG 4 as they too can strongly advocate on the issue at the highest level, allocate adequate resources for child health, legislate to ensure universal access to essential care and also oversee the implementation of relevant policies.

The elected representatives can play a very effective role in the specific context of promoting EPI Programme. Following are some of the specific roles:

- They can work with their constituents in dispelling negative perceptions about the EPI. They can publically administer vaccines to their own children building the trust of their constituents.
- They can highlight the tragic and fatal impact of Polio to their constituents in their private conversations, raising the matter in their public speeches, holding press conferences, organizing and participating in special events such as walks to underscore the importance of immunization.
- They can propose effective laws where these do not exist and / or propose amendments where existing laws need to be made more effective.
- They can initiate a debate on the subject this focusing media attention.
- They can question the government about the effectiveness of the measures that the Government is taking to combat Polio.
- They can try to enhance the budget allocated for EPI programme.
- They can highlight administrative lapses, lethargy and lack of effectiveness in the local administration about EPI in the legislature or the elected bodies and demand improvements.

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- They can mention their concerns to the Prime Minister, Chief Minister, Minister of Health or other high officials of the executive about the EPI.
- They can help raise awareness by participating in media talk-shows and media events.
- They can monitor the effectiveness and progress of EPI in their constituency and raise any concerns with the local administration or in the House.
- They can make use of evidence to enhance decision and policy making to promote increased health investments at the national level.
- They can play a proactive role in development of a health policy at all levels from federal to provincial with a special focus on disadvantaged groups
- They should monitor progress towards achieving the MDGs both at federal level and also within your own constituencies.
- They should show a strong will to ensure that political influences don't hamper the day to day activities of the FPI teams especially those who are in the field.
- They can play their significant role in formulating a policy to register the private sector hospitals, maternity homes and clinics to provide routine immunization in cooperation with national immunization program.

Conclusion

The immunization coverage in Pakistan has increased upto 86% in 2009.^{20,21} However, it needs improvement the reasons for inadequate immunization coverage in Pakistan are several. The issues of vaccine procurement is its storage, transport and administration are already known to contribute to inefficiency of the immunization program.²² Factors such as knowledge, attitude and practices of parents and patients are also known to contribute to success or failure of immunization program.²³ Though international agencies such as the WHO and UNICEF promote global immunization drives and policies, the success of an immunization program depends more upon local realities and national policies. Studies have shown that EPI administration can be improved through mass campaigns but it necessitates strengthening of health systems, enhanced political commitment and raising awareness among the masses.^{24,25} There is clearly a need to improve coverage of routine immunization as part of a systematic effort to further strengthen the Expanded Programme on Immunization (EPI). The low rates of coverage and dropout rates suggest that there is significant scope for improving efficiency of the EPI. A coherent analysis and bridging of the financial requirements, available resources, and financing gaps is required to make the program sustainable and more effective with wider reach.

Based on the commitment of Government of Pakistan and pattern of support for EPI by the partners particularly GAVI, and considerable expansion of the program, both in terms of volume and range of services, achieving the EPI objectives is one opportunity that will not be missed.

The proactive role of parliamentarians in developing awareness regarding the implication of these preventable diseases among children and promoting the prevention through vaccination of the children of their respective constituency can play a pivotal role in enhancing the awareness of EPI. Through inter personal communication, advocating the community elders to participate actively in the immunization of their future generations.

The Parliamentary health committee can specifically work with department/ministry of health to seek the data on immunization received through routine HMIS as well as DHMIS. A strong advocacy is required for continued flow of funds for vaccines, cold chain, syringes, advocacy material development, training of the resource persons on the relevant areas, transport.

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