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<th>Theme</th>
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| Programme structure and management | Ambiguous division of roles and responsibilities of EPI activities following the 18th Amendment of the Constitution of Pakistan  
• Common pool of funds at district level, making EPI a competitor for funds and making allocations discretionary | Development of a renewed scope of work and provincial procedures for accountability and monitoring structures for different tiers and actors involved in EPI service provision  
• Introduce activity-specific funding for all health programmes including immunization at district level to ensure adequate capitalization for target achievement |
| Programme governance and capacity | Limited managerial capacity and trained human resources for programme implementation at district and sub-district levels  
• Poorly implemented structures of accountability exacerbated by political patronage and interference | Regular, level-specific training for managerial tiers institutionalized by district and provincial health departments  
• Institutional strengthening with improved monitoring and accountability of concerned cadres of managers and frontline workers |
| Human resources              | Lack of rational deployment of trained human resources  
• Lack of refresher training of health care providers on vaccine-preventable illnesses, newer vaccines, communication skills and adverse events reporting  
• Poor coordination among different cadres of field-based staff | GIS mapping of human resources and catchment populations for rational redeployment  
• Employee development initiatives with official avenues for regular training and skill development  
• Implementation of collaborative planning, micro-plan development and service provision at community level among frontline workers. Members of community may be involved to enhance development of collaborative and needs-responsive micro-plans |
| Vaccine logistics            | Centrally driven demand estimation based on historical trends of inconsistent data  
• Poorly sustained cold-chain maintenance | Rationalize demand estimation based on locally available facility- and community-based databases  
• Regular mapping of cold-chain assets with identification of non-functional units for repair/ replacement  
• Development of local (district/sub-district) funds for cold-chain repair and replacement |
| EPI management information system | Poor record-keeping in EPI management information system and limited utilization of submitted data for decision-making  
• Absence of feedback at district level for improving data quality | Establishment of district data-cells to conduct regular sub-district surveys to obtain accurate estimates of vaccine coverage  
• Rationalization and revision of paper based management information tools  
• Adoption of mobile device-based technology for rapid service data collection  
• Rigorous and regular assessment of submitted service data, with timely feedback to improve and maintain data quality |
| Poor community uptake of vaccinations | No appreciable increase in vaccine uptake among illiterate and low-income segments of society  
• Poor communication skills of health care providers and high rate of missed opportunities  
• Cultural and religious myths propagated by influential community leaders to prevent uptake of vaccination | Development of evidence-based communication packages focusing on service uptake among different segments of society, e.g. rural populations and people with low literacy  
• Regular training of health care providers to enhance technical knowledge, communication skills and staff attitudes regarding vaccination services  
• Provision of effective communication materials for use by health care providers and for distribution among parents  
• Engagement of community and religious leaders to lend public support to religious instruction activities in the local context  
• Introduction of EPI services in health facilities where they are currently not offered  
• Visible, well-lit signboards identifying EPI centres at health care facilities and conveying information about the centre and services provided |

EPI - expanded programme on immunization; GIS - geographic information system.